



WP3

Deliverable 3.1.

Set of 30 regional reports with the results of the validated in-depth analysis of regional food systems and the contribution of small farms and related small food businesses to FNS

University of Évora & International Institute for Environment and Development (IIED)

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Table of Contents

1. Overview of WP3: Context and Objectives	5
1.1. Introduction: Small Farms, Food Systems and FNS.....	6
1.2. Introduction to WP3	7
1.3. Research questions	9
2. Methodology	11
2.1. Methodological steps for regional analysis	11
2.1.1. Step 1. Desk data collection and exploratory interviews to key informants	11
2.1.2. Step 2. Interviews with Small farms and Small Food Businesses	14
2.1.3. Step 3: Focus groups for validation of food system analysis.....	16
2.1.4. Step 4: Drafting the Food System's report and Peer Review Process	17
2.2. Overview of participation and key products.....	17
2.2.1. Participant breakdown.....	17
2.2.2. Key products selection	20
3. Information contained in each Food System regional report.....	24
4. Food System Regional Reports.....	26
4.1. RR1 Montana –Bulgaria– Food System Regional Report.....	26
4.2. RR2 Santiago Island –Cape Verde– Food System Regional Report.....	47
4.3. RR3 Varazdinska –Croatia– Food System Regional Report.....	81
4.4. RR4 Jihocecky Kraj –Czech Republic– Food System Regional Report.....	99
4.5. RR5 Ille-et-Vilaine –France– Food System Regional Report	115
4.6. RR6 Vaucluse –France– Food System Regional Report.....	144
4.7. RR7 Gushegu District –Ghana– Food System Regional Report	162
4.8. RR8 Imathia –Greece– Food System Regional Report.....	185
4.9. RR9 Larisa –Greece– Food System Regional Report	216
4.10. RR10 Ileia –Greece– Food System Regional Report.....	246
4.11. RR11 Lucca –Italy– Food System Regional Report	276
4.12. RR12 Pisa –Italy– Food System Regional Report	311
4.13. RR13 Ugunja –Kenia– Food System Regional Report.....	334
4.14. RR14 Latgale –Latvia– Food System Regional Report.....	365
4.15. RR15 Pieriga –Latvia– Food System Regional Report.....	399
4.16. RR16 Vilniaus Apskritis –Lithuania– Food System Regional Report.....	438
4.17. RR17 Balaka District –Malawi– Food System Regional Report.....	482
4.18. RR18 Hedmark –Norway– Food System Regional Report.....	505
4.19. RR19 Rzeszowski –Poland– Food System Regional Report.....	529
4.20. RR20 Nowosadecki –Poland– Food System Regional Report	556
4.21. RR21 Nowotarski –Poland– Food System Regional Report.....	582
4.22. RR22 Alentejo Central –Portugal– Food System Regional Report.....	608

4.23.	RR23 Oeste –Portugal – Food System Regional Report.....	636
4.24.	RR24 Bistrita-Nasaud –Romania– Food System Regional Report	665
4.25.	RR25 Giurgiu –Romania– Food System Regional Report.....	691
4.26.	RR26 Castellón –Spain– Food System Regional Report.....	720
4.27.	RR27 Córdoba –Spain– Food System Regional Report.....	751
4.28.	RR28 Haouaria –Tunisia– Food System Regional Report	781
4.29.	RR29 East Scotland –UK– Food System Regional Report	803
4.30.	RR30 West Scotland –UK– Food System Regional Report.....	827

Table 0: D.3.1 Abbreviations

Acronym	Full term
AF	Analytical Framework
CF	Conceptual Framework
EFSA	European Food Safety Authority
FNS	Food and Nutrition Security
FS	Food System
FSM	Food System Map
FSR	Food System Report
FG	Focus Group
FP	Full Partner
GA	Grant Agreement
KP	Key Product
RR	Reference Region
SCP	Sub-contracted Partner
SF	Small Farms
SFB	Small Food Businesses
WP	Work Package

Executive Summary

This document presents the set of **thirty Food System Regional Reports** developed within **WP3** of the SALSA project. This is the first out of the three deliverables planned for this WP.

The Food System Regional Reports provide an overview of the regional food systems and the role of small farms within them. They synthesise findings about the production, trade, and consumption of key products, and present a summary of surveys with small farm and small business owners. The data used in these reports was gathered in **four major steps**: Step 1 provided the first overview of the regional food system and involved the selection of key products for further analysis; it was based on available statistical information and key informant interviews (KIIs) in each region. Step 2 provided direct information on small farms and small food businesses from interviews to small farm and small food business owners. In step 3 the food system maps were further validated and refined using inputs from focus group discussions. Finally, in step 4 the draft regional reports were prepared, peer-reviewed, and revised.

The four methodological steps were carried out in each of the 30 reference regions (RR). In each RR, a high number of stakeholders was involved in the different data collection activities. In total, **390 key informants**, **892 small farms** and **233 small food businesses** were interviewed; and **758 people** were part of the **focus group** discussions.

Each Food System Regional Report has eight sections: 1) a socio-economic and agricultural profile of the reference region; 2) a presentation of the key products and regional food balance sheet 3) food system maps for each key product, showing the main actors and flows within the system, and identifying the role of small farms and small food businesses; 4) a typology of small farms in the reference region 5) a discussion on governance reflecting on the wider mechanisms that shape the practices within the reference regions; 6) a description of small farms and their particular livelihoods; 7) presents a discussion on the role of Small Food Businesses within the food system; and 8) an analysis on the future of small farms and small food business.

The results presented in this **deliverable 3.1.** will be used to complete deliverables 3.2. and 3.3 of **WP3**, but they will also feed the analysis made in **WP4, 5 and 6.**

1. Overview of WP3: Context and Objectives

1.1. Introduction: SALSA and Small Farms

The modern agri-food system has been shaped by a rural exodus and the concentration of power in food production – spearheaded, for instance, in Europe after WWII and in Africa with the implementation of the Green Revolution. These changes have prompted more people to rely on food grown elsewhere, either within their own borders in massive operations, or on imported goods produced far away¹. Thanks also to the benefits of innovations in transportation, storage and packaging, food purchasing outlets and food consumption habits have changed, reflecting new kinds of relationships between producers and consumers². A clear example are supermarkets, which have become protagonists in the storage and distribution of food to feed a growing non-food producer population.

Despite agricultural modernization, small-scale farming continues to perform a critical role in the food system, particularly in developing countries. Small farmers remain responsible for a large share of the world's food production and are essential in the (re)production of human, natural, social, physical and financial capital³. In addition to being providers of food, not only for themselves and their rural communities but also globally, the majority of small farmers live in poverty and sometimes in a state of food insecurity, including issues of quality of their diets and nutrition³.

Small farms often provide for at least part of the food consumed in the household – be through self-provision, non-monetary exchanges or market exchanges, increasing their resilience against risk and uncertainty^{3;4;5}. They also provide food for a wider circle of family members⁶, and they rely on family labour, temporary hired labour and labour exchanges contributing to gluing together rural communities³.

The role and relevance of small-scale farming in industrialized countries are understood differently than in developing countries. In Europe, for example, the issue of small farming belongs to the debate on social cohesion and environmental sustainability, both of which frame the role of small as keepers of the vitality of rural areas and as niches of identity, heritage and tradition. Little is known in Europe about the population linked to small farmers

¹ Weis, Tony 2007. *The Global Food Economy: The Battle for the Future of Farming*. Fernwood Publishing: Black Point, Nova Scotia

² Roberts, Wayne 2008. *The No-Nonsense Guide to World Food*. New Internationalist Publications Ltd: Oxford.

³ HLPE 2013. *Investing in smallholder agriculture for food security*. A report by the High-Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome.

⁴ Ellis, Frank. 2000. The determinants of rural livelihood diversification in developing countries. *Journal of Agricultural Economics*, vol. 51, no 2, p. 289-302.

⁵ Meert, Hendrik, et al. 2005. Farm household survival strategies and diversification on marginal farms. *Journal of rural studies*, vol. 21, no 1, p. 81-97.

⁶ Watts, D. C., Ilbery, B., & Maye, D. (2005). Making reconnections in agro-food geography: alternative systems of food provision. *Progress in human geography*, 29(1), 22-40.

and food produced at this scale⁷. Aspects such as how much food small farms produce, and who has access to this food⁸ are some of the knowledge gaps we need to fill to understand the food systems and their resilience, the diversity of nodes and fluxes in the food system and the potential for multifunctionality of rural landscapes in Europe today.

SALSA is a project that aims to provide a better understanding of the current and potential contribution of small farms and food businesses to sustainable food and nutrition security. WP3 is the main empirical component of SALSA, providing data to be analysed in this work package, as well as in WP4, 5 and 6. In the following sections, we provide an overview of WP3 and the specific contribution of this deliverable within the work package. This section pays particular attention to unveiling the diversity, complexity and context-specificity of selected food systems in Europe and Africa, as well as the region-specific connections between local resources, production, processing, retailing and consumption, and how small-scale food production relates to the regional food system.

1.2. Introduction to WP3

This WP aims at carrying out, in the 30 reference regions selected in WP2, an in-depth assessment of local and regional food systems. The assessment aims to improve the understanding, in a very diverse set of regions, of the current and potential role of small farms and other small and medium-sized food businesses in Food and Nutrition Security (FNS), paying particular attention to the diversity, complexity and context-specificity of local and regional food systems.

The results from WP3 analysis will be presented in 3 deliverables:

- **D.3.1** – Set of 30 regional reports with the results of the validated in-depth analysis of regional food systems and the contribution of small farms and related small food businesses to FNS (reports based on a common reporting template). M33
- **D.3.2** – Report on diverse small farm situations and livelihood strategies, for all regions, identifying similarities and trends, and requirements for the improvement of existing typologies. M36
- **D.3.3** – Synthesis report on the main insights gained from the in-depth assessments in 30 regions (Synthesis report).M36

This document is **D.3.1. Set of 30 regional reports**. Table 1. below shows the full list of the reference regions analysed and included in this document. “Full partner” means that the empirical work was carried out directly by a SALSA partner, while “subcontracted partner” means that data collection and analysis was conducted by a third party, under the guidance

⁷ Ingram, J. 2011. A food System’s Approach to Researching Food Security and its interactions with Global Environmental Change. *Food Security* 3 (4): 417-431

⁸ Riccardi, V., Ramankutty, N., Mehrabi, Z., Larissa J., Chookolingo, B. 2018. How much of the world’s food do smallholders produce? *Global Food Security* 17, 64-72. <https://doi.org/10.1016/j.gfs.2018.05.002>

and supervision of a SALSA partner. There are some differences in the methodologies and data of the two types of partners, as described in Section 2.1 below.

Table 1. Reference Regions Analysed in WP3 D.3.1.

Code of RR	Country	RR	Type of partner responsible for analysis ⁹
R1	Bulgaria	Montana	Subcontracted Partner
R2	Cape Verde	Santiago Island	Full Partner
R3	Croatia	Varazdinska	Subcontracted Partner
R4	Czech Rep.	Jihocecky Kraj	Subcontracted Partner
R5	France	Ille-et-Vilaine	Subcontracted Partner
R6	France	Vaucluse	Subcontracted Partner
R7	Ghana	Gushiegu District	Full Partner
R8	Greece	Imathia	Full Partner
R9	Greece	Larisa	Full Partner
R10	Greece	Ileia	Full Partner
R11	Italy	Lucca	Full Partner
R12	Italy	Pisa	Full Partner
R13	Kenya	Ugunja	Full Partner
R14	Latvia	Latgale	Full Partner
R15	Latvia	Pieriga	Full Partner
R16	Lithuania	Vilniaus Apskritis	Subcontracted Partner
R17	Malawi	Balaka District	Subcontracted Partner
R18	Norway	Hedmark	Full Partner
R19	Poland	Rzeszowski	Full Partner
R20	Poland	Nowosadecki	Full Partner
R21	Poland	Nowotarski	Full Partner
R22	Portugal	Alentejo Central	Full Partner
R23	Portugal	Oeste	Full Partner
R24	Romania	Bistrita-Nasaud	Full Partner
R25	Romania	Giurgiu	Full Partner
R26	Spain	Castellon	Full Partner
R27	Spain	Cordoba	Full Partner
R28	Tunisia	Haouaria	Subcontracted Partner
R29	UK	East Scotland	Full Partner
R30	UK	West Scotland	Full Partner

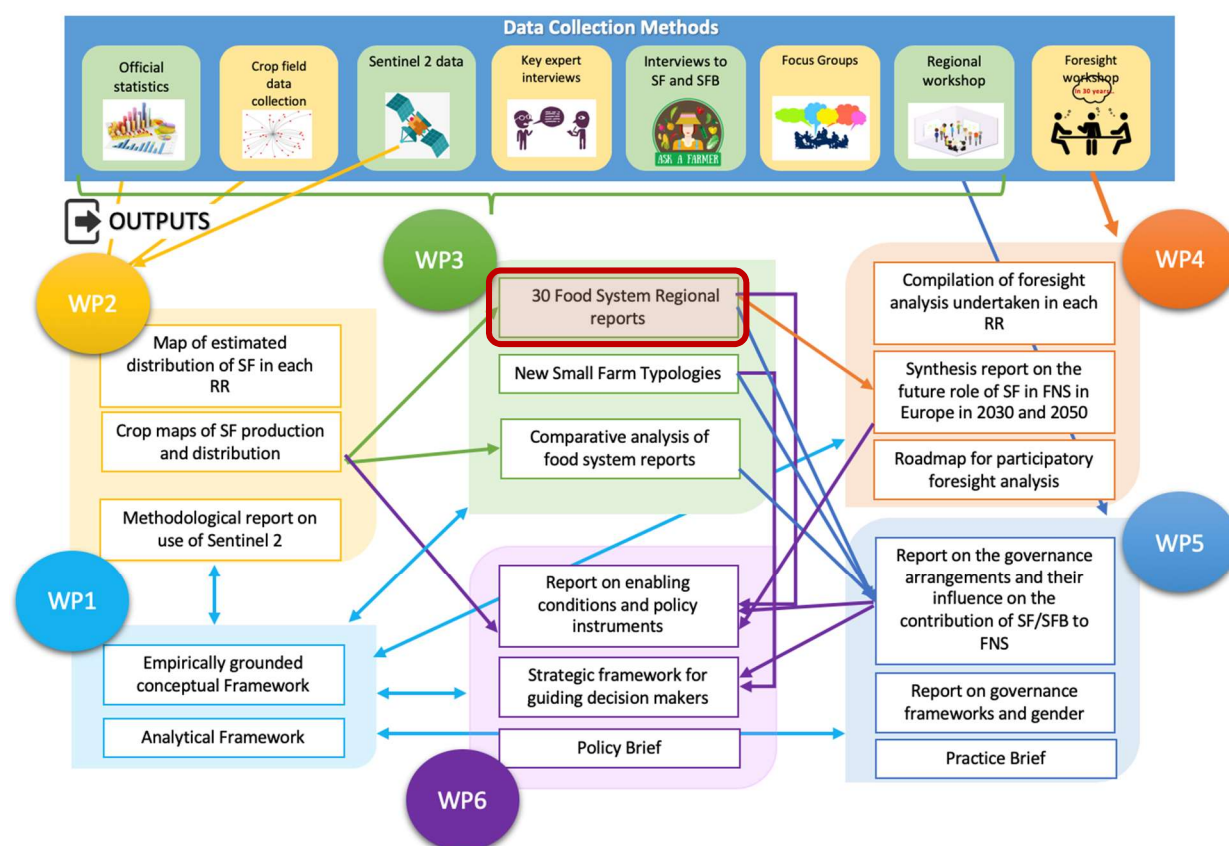
As can be seen in Figure 1, WP3 has coordinated most of SALSA's data collection in all 30 RR via official statistics, key expert interviews, SF and SFB interviews, focus groups and regional workshops. However, the information obtained from these methods is not all exclusively analysed in WP3. In particular, the data and information obtained through the

⁹ Note: Subcontracted regions had different requirements to Full partners in terms of data collection methodologies

Regional Workshop (focused on governance and gender issues) will be entirely analysed in WP5. A regional workshop was developed in each RR as part of WP3 data collection to both gain advantage of the already engaged regional stakeholders and to maximise efficiency of the research resources by the SALSA teams.

Other data and results in WP3 will also feed WP4, 5 and 6. Figure 1 below, illustrates data flows between SALSA's empirically based WPs and their key outputs. WP3 assessment will also be completed with inputs from WP2, namely an estimation of small farms production. Output for deliverable 3.1. is highlighted with a red square.

Figure 1. Main outputs per WP and data flows



Source: Own development

1.3. Research questions

This subsection aims to show the connections between SALSA's overall hypothesis and the research questions addressed in each WP. Table 2 these connexions. However, it is important to note that even if the answers to a research question will be reported within a particular WP, other WPs may also be involved and complement the answers to these questions. This table is a simplified guide to understand which WP is mainly responsible to analyse the data, report the answers and in which specific deliverable.

SALSA's research questions addressed in this deliverable (3.1) are those highlighted with the red square on Table 2, below.

Table 2. FNS dimension, hypothesis, related research questions and reporting WP

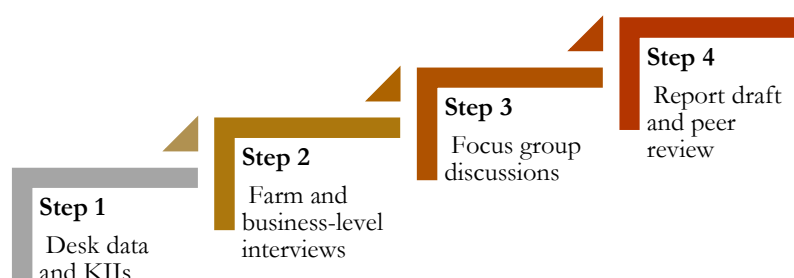
FNS Dimensions	Hypothesis	Research Questions	Reporting WP	Deliverable
Food Availability	Hypothesis 1. SF is a relevant source of sustainable food production (availability) for many regional food systems	1. Which food system actors and activities are involved in the generation of the FNS outcome in the reference region?	WP3	D 3.1 (Regional level) D 3.3 (Comparative analysis)
		2. What is the estimated production capacity of SF in each region	WP2	D 2.4
			WP3	D 3.3
		4. What is the position (and importance) of SF in the Regional FS	WP3	D 3.1 (Regional level) D 3.3 (Comparative analysis)
		5. How are SFB connected to Small farms and the regional food system?	WP3	D 3.1 (Regional level) D 3.3 (Comparative analysis)
Food Access	Hypothesis 2. SF and SFB provide food and incomes for rural households (access and utilization) in many regional food systems	3. What is the relevance of non-marketed SF production for rural HH?	WP3	D 3.3
Food Utilization				
Food Stability	Hypothesis 3. SF and SFB increases food systems' diversity thereby contributing to its resilience (stability)	7. What supports and threatens the role of SF in the food system?	WP5	To be provided by WP5 leader
		8. What have been the trajectories of SF?	WP3	D 3.2
		9. What are SF and SFB perspectives for the future?	WP4	To be provided by WP4 leader
		10. What are SF resilience strategies to face social, economic and environmental constraints?	WP6	To be provided by WP6 leader
Cross Cutting Issue		6. Which types of SF are identifiable within each region?	WP3	D 3.2

2. Methodology

2.1. Methodological steps for regional analysis

The methodology for developing the 30 Food System Regional Reports correspond to the following tasks, as specified in the Grant Agreement: 3.1. Inquiries and interviews; 3.2. Stakeholder selection for the FG; and 3.3 In-depth assessment. It involved four major steps, each of which draws from different types of data and sources (see figure 2). Step 1 provided the first overview of the regional food system and involved the selection of key products for further analysis; it was based on available statistical information and key informant interviews (KIIs) in each region. Step 2 provided direct information on small farms and small food businesses from interviews to small farm and small food business owners. In step 3 the food system maps were further validated and refined using inputs from focus group discussions. Finally, in step 4 the draft regional reports were prepared, peer-reviewed, and revised. In regions analysed by sub-contracted partners the requirements varied from those analysed by full partners, in terms of data collection methodologies. Step 1 and 4 were identical for both types of partners. Sub-contracted regions carried out fewer household interviews than in full partner regions, and focus group discussions were optional rather than mandatory.

Figure 2: Methodological steps employed for this deliverable



These four methodological steps, which are described below in detail, were carried out in each region. All teams were provided with identical protocols and reporting templates to ensure the comparability of the data. Both protocols and templates were checked, informed and validated by WP3 leads.

2.1.1. Step 1. Desk data collection and exploratory interviews to key informants

Step 1 produced 5 key results:

1. A basic socio-economic and agricultural profile of the reference region
2. The identification of the key products and development of a balance sheet
3. The identification of the key nodes and flows in the food system from production to processing and consumption
4. A draft regional food systems map
5. A draft typology of small farms and small food businesses in the reference region which required teams to rely on several information sources.

The sources of information are primarily of two kinds:

- 1) National- and regional-level statistics (desk base analysis); and
- 2) Experts and other key stakeholders

Desk based analysis and expert interviews did not follow a chronological order, they were carried out in parallel, to inform and cross-validate each other (i.e. key informants confirmed desk analysis and vice-versa).

Below we describe in greater detail how these different sources feed into the development of each of the five outputs (table 3).

Table 3. Step 1 outputs

N°	Result	Description	Data source
1	A basic socio-economic and agricultural profile of the reference region	Brief description of the region	Official Statistics
2	The identification of the key products and development of a balance sheet	The in-depth analysis of production and consumption is carried out only for a small subset of key products for each RR. The first step was therefore to identify and select these products.	Official statistics and interviews with key informants
3	The identification of the key nodes and flows in the food system from production to processing and consumption	Develop a first in-depth picture of the regional food system by providing data on the production, trade, processing and consumption of the four key products selected for the region.	Official statistics and interviews with key informants
4	A draft regional food systems map	Draft regional food map that identifies the key actors, activities and flows, including both consumption and production sides, for each of the key products selected.	Output 2 and 3
5	A draft typology of small farms and small food businesses in the reference region	A first indication of the types of small farms (SF) existing in the RR. This had two main goals: To contribute to the characterisation of the RR; and to serve to identify the range of possible small farm types considered within all RR in SALSA.	Key informants

2.1.1.1. National and regional level statistics

The analysis started with the collection of basic demographic and economic data at Reference Region (RR) level with focus on land use, agricultural activity and small farms' presence.

The indicators on the reference region (NUTS 3 level) concerning demographics, social and economic features come from Eurostat data base:

(<http://ec.europa.eu/eurostat/web/rural-development/data>). However, when data at NUTS 3 level was not available from Eurostat it was retrieved by each partner at national level, or at any other level where the most significant information was available (especially in Africa, where reliable statistical data is sometimes lacking).

2.1.1.2. Interviews with key informants

Interviews with experts and other stakeholders provided information that is not possible to obtain from official statistics or publications, and it also supplemented, expanded and validated other sources of information. Specifically, interviews provided:

- 1) Complementary cross-referenced information for integration and validation of quantitative estimations and desk-based analysis.
- 2) Indications on the most relevant key products in the RR to be selected for the quantitative assessment.
- 3) Elements to produce the first draft of the food system map, with identification of key nodes and flows, and main fragilities and strong dimensions.
- 4) Estimates of production and consumption of key products, necessary to develop a regional food balance sheet (when not available in official statistics).

These interviews also aimed to gather information (for WP4) on the key drivers expected to influence small farms' capacity to increase their relative contribution to FNS in the RR in the next 20-30 years.

To plan for the interviews, each team compiled a list of the stakeholders in each RR. Main food system stakeholders were identified as a first step towards the selection of key informants for the exploratory interviews and for their involvement in the following research steps (Focus groups in each RR).

Each team conducted 5 to 10 exploratory interviews with key informants (see table 5); these were chosen by each partner on the basis of the stakeholder list analysis and the potential of the selected stakeholders to provide complementary information. Informants were expected to provide multidisciplinary expertise pertinent to the region, and to represent different relevant points of view¹⁰. When selecting key informants, specific attention was given to gender representation and views on the RR food system.

Key informants helped research teams to draw the map of the regional food system for the selected key food products. They built an initial overview on the production patterns, suggested or confirmed the key products to be selected and, very importantly (as statistical data on consumption is more limited), on the consumption patterns of the RR, and on possible differences within the region.

The final selection of the 4 key products per RR had to meet one of the following 5 criteria:

1. Important in terms of both production and consumption
2. Products relevant in terms of consumption and local diet

¹⁰ Each of the 30 Food System reports in Section 4 contains a final section with the list of key informants consulted

3. Economically profitable products
4. Products that are largely in the RR
5. Products important in terms of culinary, cultural and social reasons

Teams were asked to try to select, if possible, both animal and fruit and vegetable products for their final key product list.

Once the four key products were selected, each team interviewed other key-informants who had specific expertise in the crops or animal products selected for further analysis.

2.1.2. Step 2. Interviews with Small farms and Small Food Businesses

Step 2 focused on the farm and small food business level. The aim was to produce a clear picture of the diversity of small farms and businesses, as well as a general understanding of the relationships between farm/business and the household, how they are integrated into the market, and what challenges and potentials they face looking into the future.

This step generated three main results:

1. A description of small farms and small food businesses, including their background and historical trajectory, economic functioning and intra-household dynamics.
2. An analysis of the farms' or businesses' links to the markets and the regional food system, including access to inputs, markets and governance institutions.
3. An analysis of the strategies and perspectives of small farms and food businesses, identifying the drivers of their decisions, as well as their potentials and constraints.

The source of information for this part of the project is a set of interviews with farmers and small business owners (see table 4).

The work on this part of the project focused on farms/businesses that are directly related to the production or processing of the Key Products (KP) identified in Step 1. The results of Step 2 are detailed in table 4 below:

Table 4. Step 2 Results

N°	Result	Description
1	A description of small farms and small food businesses, including their background and historical trajectory, economic functioning intra-household dynamics	<p>This result includes the following information:</p> <p>a) Background and history of the farm or small business. This includes information on the farmer's or business owner's education and background (place of origin or migration), as well as a narrative of the typical trajectory of a farm or business: the main reasons for starting the enterprise, and the key turning points over the course of the farm or business history (changes in technology, demand, family, etc.), including information on education.</p> <p>b) Characterization of the economic functioning, including information on size, crops or products produced, crop rotation, post-harvest processing, labour force, output, yield or productivity, expenses and turnover, sources of income (farm and off-farm).</p> <p>c) Household structure and dynamics. This includes information about the household composition (number, age, gender), processing, sales; access to resources (labour, inputs, advice), sources of food and their relative importance, and livelihood challenges and bottlenecks.</p>
2	An analysis of the farms' or businesses' links to the markets and the regional food system, including access to inputs, markets and governance institutions.	<p>This result provided an overview of the relationships that farms and small businesses have with the food system, covering the topics described below:</p> <p>a) Inputs, including use of and access to seeds and fertilizers, sources of raw materials.</p> <p>b) Market relations, including relationships with buyers and intermediaries, retailers (supermarkets and others), destination of production (domestic consumption or export), and proportion of production that remains in the local economy.</p> <p>c) Governance and institutions, including access to government or other subsidies, access to credit and finance, membership to cooperatives or other forms of association, use or importance of third-party standards or certification (e.g. organic)</p>
3	An analysis of the strategies and perspectives of small farms and food businesses, identifying the drivers of their decisions, as well as their potentials and constraints	<p>This result provides an outlook of the situation of small farms and food businesses from their own perspective. The main objective was to identify how the context for small farming and small businesses is changing, and how farmers and business owners see their future in that changing context.</p> <p>a) The farm's or business' own future, including the farmer's or business owner's own objectives and plans for the future;</p> <p>b) The changing context, including their view on the future of farming or food processing in the region, identifying the main drivers of change, both external and internal, that will shape them.</p> <p>c) The enabling conditions which would support the maintenance of SF and SFB</p>

2.1.2.1. Sampling Methodology

The interviews were meant to provide an illustration of the diversity of histories, strategies, activities and challenges for small farm and small food business households in each region. Time and resource constraints only allowed for a relatively small sample. Furthermore, sampling was purposeful rather than random, so the information derived from these interviews is illustrative rather than statistically representative. The details of the sampling methodology for small farms and small food businesses is provided below:

A) Small farms

- Sample size: Approximately 30 interviews per reference region (or 5-10 interviews in sub-contracted regions)
- Sample composition: Selected farms are around 5 ha in area or below 8 Economic Size Units. No minimum size was established, as this varies from one region to the other, but gardens were not included. These criteria were taken from D.1.2. where a detailed definition on small farms is provided and discussed. Certain flexibility was provided to each team in the adaptation of the definition to the actual selection of small farms in order for teams to be able to adapt the methodology correctly to their particular contexts.
- Sampling criteria: The sampling strives to capture the diversity of farms in the region. The following order was used to ensure that diversity: 1) farms that produce each of the selected KP in the RR were selected, ensuring balance between the different KP. 2) Farms with different degrees of market integration were sampled (when possible, within the same KP) (see SALSA's CF for more information). 3) Farms that have different degrees of self-sufficiency in the household were selected and 4) it was ensured that farms cover a wide geographical area within the RR.

B) Small Food Businesses

- Sample size: Approximately 10 interviews per reference region (or 1-2 interviews in sub-contracted regions).
- Sample composition: the sample included food processing, preparation, cooking or retail businesses which have no more than 5 employees.
- Sampling criteria: the sampling strived to capture the diversity of businesses. Given the small sample, the businesses selected: 1) relate to the KP selected for the RR, 2) have direct links to small farming, and 3) are locally owned (i.e. the capital remains in the RR).

2.1.3. Step 3: Focus groups for validation of food system analysis

The overall aim of the focus groups was to enhance the understanding of the regional food system and the role of small farms and small food businesses within it. Specifically, the FGs provided a space for:

- Discussing and validating the results of the regional food systems mapping exercise carried out in Step 1, including the boundaries of the system, the estimation of nodes and flows within the system;



- Improving and refining the regional food system map with additional information on the role of small farms and food businesses;

Four focus groups were conducted in each RR¹¹, one focus group per KP. The focus groups involved a diverse group of people representing different stakeholders within the food system, and every effort was made to ensure adequate gender balance. Teams selected participants based on their best judgement and knowledge of the region, but in general FG participants include stakeholders from food production, processing, trade, retail, marketing, as well as representatives from government, farmers and consumers associations¹².

2.1.4. Step 4: Drafting the Food System's report and Peer Review Process

With all the data collected in Steps 1, 2 and 3, each team drafted the Food System Report presented in section 4 of this deliverable. Note that not all data collected was used for the drafting of this specific report, but it will be used with different purposes and for different deliverables.

Once the first version of the report was drafted, it was sent for peer review to a different team from within SALSA's consortia. The aim was to identify critical points to be improved, homogenise the points treated and the respective detail, and improve the quality. This way, all reports were checked and corrected before the final version was finished and submitted. Nevertheless, each report remains the sole responsibility of its authors.

2.2. Overview of participation and key products

This section aims to provide an overview of the final selection per region in terms of:

1. Total number (No.) of people that were interviewed and/or participated in FG
2. Final key product selection per region and reasons behind selection

2.2.1. Participant breakdown

Table 5 below displays the total number of people involved in the analysis of the 30 regional food systems. Section 2.1. above has described the requirements in terms of participants for each one of the steps and this table shows exact numbers per region. On average, 12.5 key experts were interviewed for Step 1, 30 SF and 8 SFB were interviewed for Step 2 and 31 people were involved in FG discussions (approx. 8 people per FG).

¹¹ Subcontracted partners were not required to conduct Focus Groups

¹² See the Annex Section of each FSR for more information on FG participants



Table 5. Total No of participants in each of the methodological Steps for WP3 analysis

Code of RR	Country	RR	FP/SCP	Key informant interviews (Total No)	N° of interviews			Focus groups (n° people involved)
					Total SF	Total SFB	Total	
R1	Bulgaria	Montana	SCP	7	5	4	9	NA
R2	Cape Verde	Santiago Island	FP	14	35	5	40	32
R3	Croatia	Varazdinska	SCP	10	6	2	8	10
R4	Czech Rep.	Jihocecky Kraj	SCP	5	5	1	6	NA
R5	France	Ille-et-Vilaine	SCP	12	10	2	12	NA
R6	France	Vaucluse	SCP	50	10	0	10	NA
R7	Ghana	Gushiegu District	FP	12	40	12	52	69
R8	Greece	Imathia	FP	11	39	8	47	19
R9	Greece	Larisa	FP	12	38	11	49	21
R10	Greece	Ileia	FP	13	42	11	53	32
R11	Italy	Lucca	FP	6	32	8	40	47
R12	Italy	Pisa	FP	6	24	12	36	61
R13	Kenya	Ugunja	FP	6	30	12	42	77
R14	Latvia	Latgale	FP	10	36	11	47	16
R15	Latvia	Pieriga	FP	11	30	9	40	62
R16	Lithuania	Vilniaus Apskritis	SCP	14	10	5	15	19
R17	Malawi	Balaka District	SCP	5	25	12	37	18
R18	Norway	Hedmark	FP	27	31	11	42	8
R19	Poland	Rzeszowski	FP	5	39	10	49	18
R20	Poland	Nowosadecki	FP	5	52	9	61	19
R21	Poland	Nowotarski	FP	6	57	10	67	26
R22	Portugal	Alentejo Central	FP	11	38	5	41	24
R23	Portugal	Oeste	FP	5	36	13	49	20
R24	Romania	Bistrita-Nasaud	FP	17	60	8	68	33
R25	Romania	Giurgiu	FP	31	26	6	32	70
R26	Spain	Castellon	FP	22	27	6	33	17
R27	Spain	Cordoba	FP	20	40	10	50	18
R28	Tunisia	Haouaria	SCP	14	23	4	27	NA
R29	Scotland	East Scotland	FP	7	15	9	26	12
R30	Scotland	West Scotland	FP	7	31	7	38	10
Total				390	892	233	1126	758

Figures 3 and 4 below illustrate gender diversity in both interviews (key informants, SF and SFB interviews) and FG.



Figure 3 contains gender data for the total number of participants in interviews, including key experts, SF and SFB together. As it can be observed, despite the efforts made by the different teams to achieve a gender-balanced sample, there is male predominance in most regions, except for Ugunja (Kenia), Balaka District (Malawi), Latgale and Pieriga (Latvia) and Vilniaus Apskritis (Lithuania).

Figure 3: Total No of Men and Women interviewed (key experts + SF and SFB)

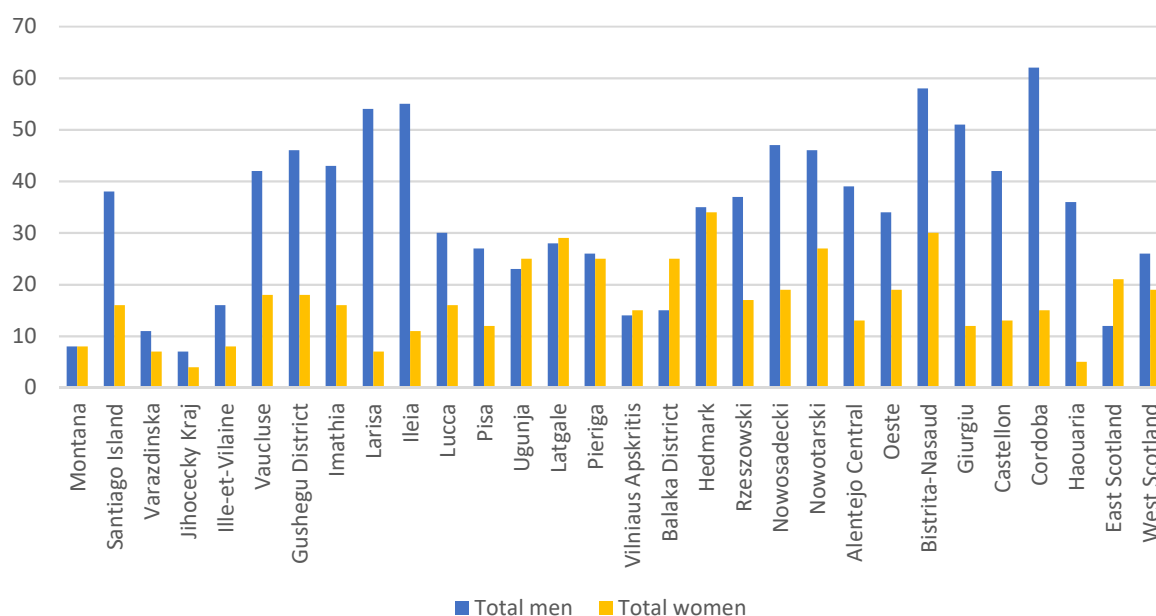
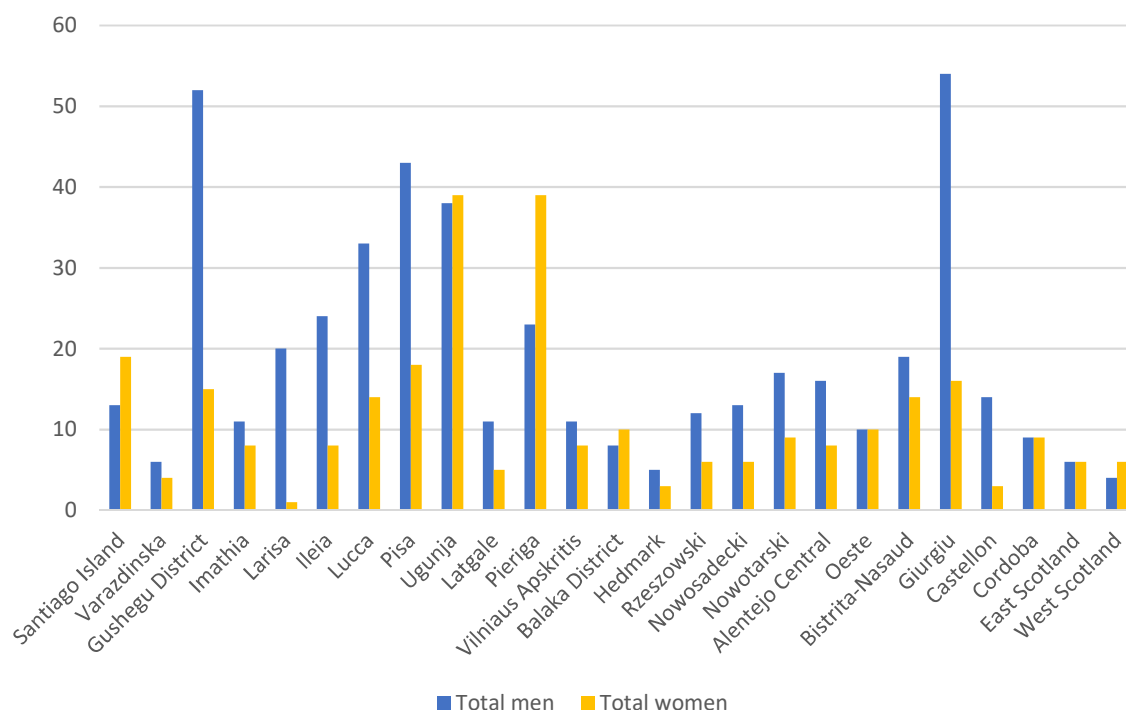


Figure 4, shows the total n° of men and women participating in FG. Overall, this FG activity seems to be more balanced in terms of gender than the interview activities.



Figure 4: Total No of Men and Women participating in Focus Groups



2.2.2. Key products selection

Table 6 provides an overview of the key products selected for analysis in each of the 30 reference regions. The food systems of each of these products is provided in their respective Food System reports in section 4 of this deliverable.

Table 6. Key products selected per RR

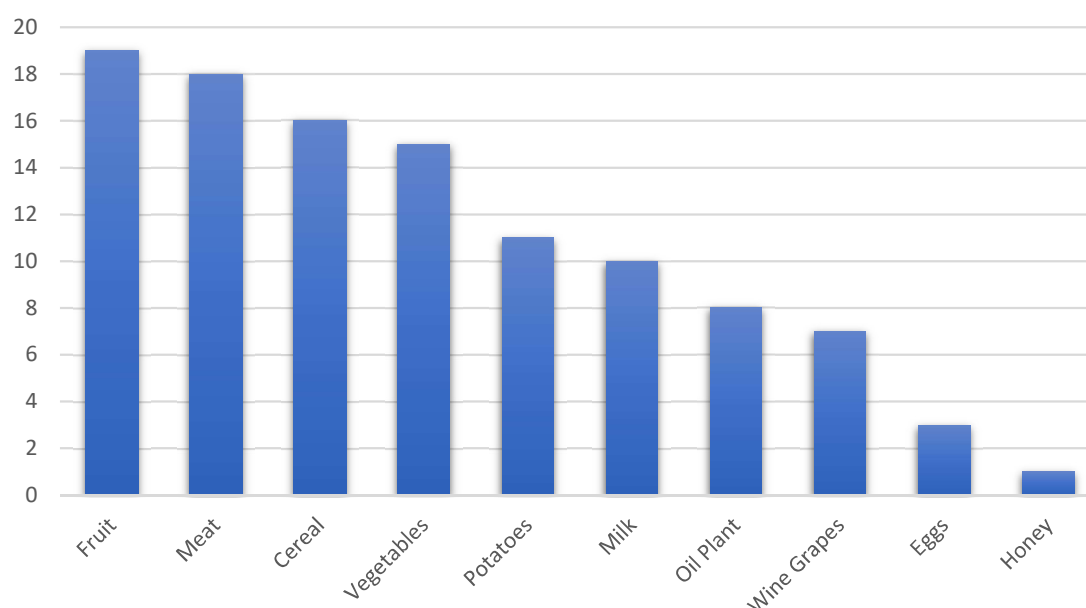
Code	Country	RR Name	Key products
R1	Bulgaria	Montana	wheat, sheep cheese
R2	Cape Verde	Santiago Island	banana, tomato, maize, chicken meat
R3	Croatia	Varazdinska	pork, potato
R4	Czech Rep.	Jihocecky kraj	chicken eggs, goat cheese
R5	France	Ille-et-Vilaine	pork, apple
R6	France	Vaucluse	wine grapes, olive oil, cherry
R7	Ghana	Gushegu District	maize, soybean, lamb, rice
R8	Greece	Imathia	peach, cherry, wine grape and beef
R9	Greece	Larisa	sheep and goat milk, apple, pulses, almond
R10	Greece	Ileia	olive oil, orange, pickled vegetables, corinthian currant
R11	Italy	Lucca	vegetables, olive oil, fruits and wine
R12	Italy	Pisa	vegetables, wheat, beef, wine grape



R13	Kenya	Ugunja	maize, bean, groundnut, cowpea
R14	Latvia	Latgale	wheat, cow milk, potato, honey
R15	Latvia	Pieriga	wheat, cow milk, vegetables, apple
R16	Lithuania	Vilniaus Apskritis	cereal, milk, vegetables, fruits and berries
R17	Malawi	Balaka District	maize, groundnut, cabbage, goat meat
R18	Norway	Hedmark	dairy, potato, berries, lamb
R19	Poland	Rzeszowski	cereals, potato, pork, chicken meat
R20	Poland	Nowosadecki	cereals, potato, apple, milk
R21	Poland	Nowotarski	cereals, potato, lamb, milk
R22	Portugal	Alentejo Central	wine grape, olives, tomato, sheep
R23	Portugal	Oeste	pears, potato, wine grape and chicken eggs
R24	Romania	Bistrita-Nasaud	potatoes, apples, cow and buffalo milk and cheese, pork
R25	Romania	Giurgiu	wheat, chicken eggs, sunflower oil, tomato
R26	Spain	Castellon	olive oil, pork, citrus fruits, almond
R27	Spain	Cordoba	wheat, olive oil, wine, cow's milk
R28	Tunisia	Haouaria	tomato and red pepper
R29	UK	East Scotland	beef, lamb, mixed horticulture, potato
R30	UK	West Scotland	chicken eggs, salad leaves, lamb, beef

Figure 5 shows the grouping of all the key products selected according to EFSA Staple Food Groups (see SALSA's AF for more details on how these products are grouped). The most common types of food groups are fruit, meat, cereal and vegetables (with at least 1 of these products present in all RRs).

Figure 5. Total No of Key Products Selected for Analysis

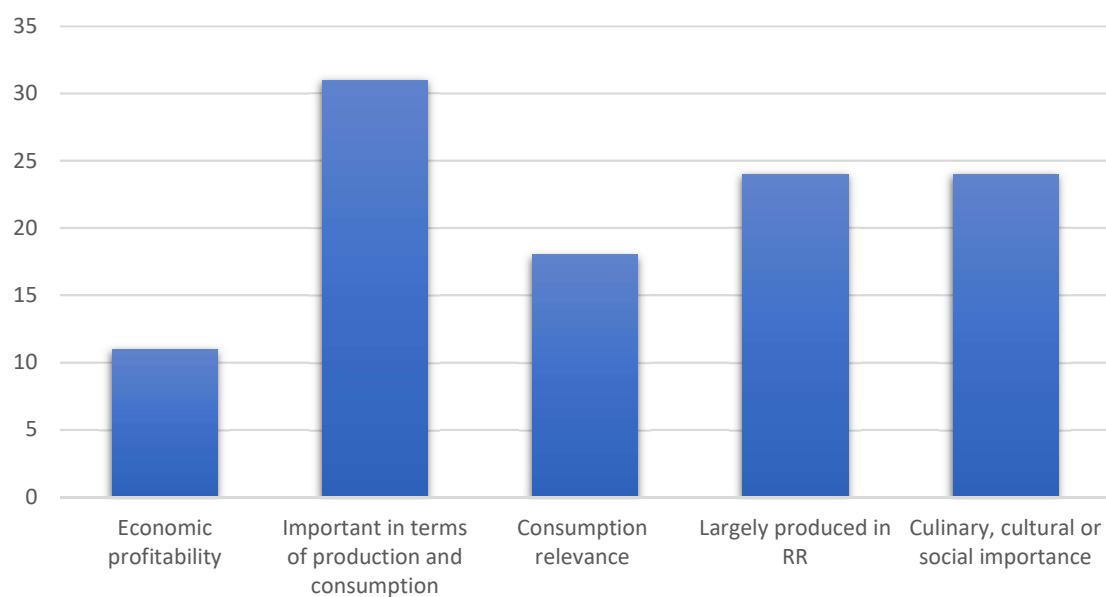


Source: Own elaboration using EFSA Staple Food Groups



The reasons behind the selection of each of the key products, according to the guidelines provided by the WP3 coordination team to all partners, are as follows (figure 6).

Figure 6. Reasons for Key Product Selection

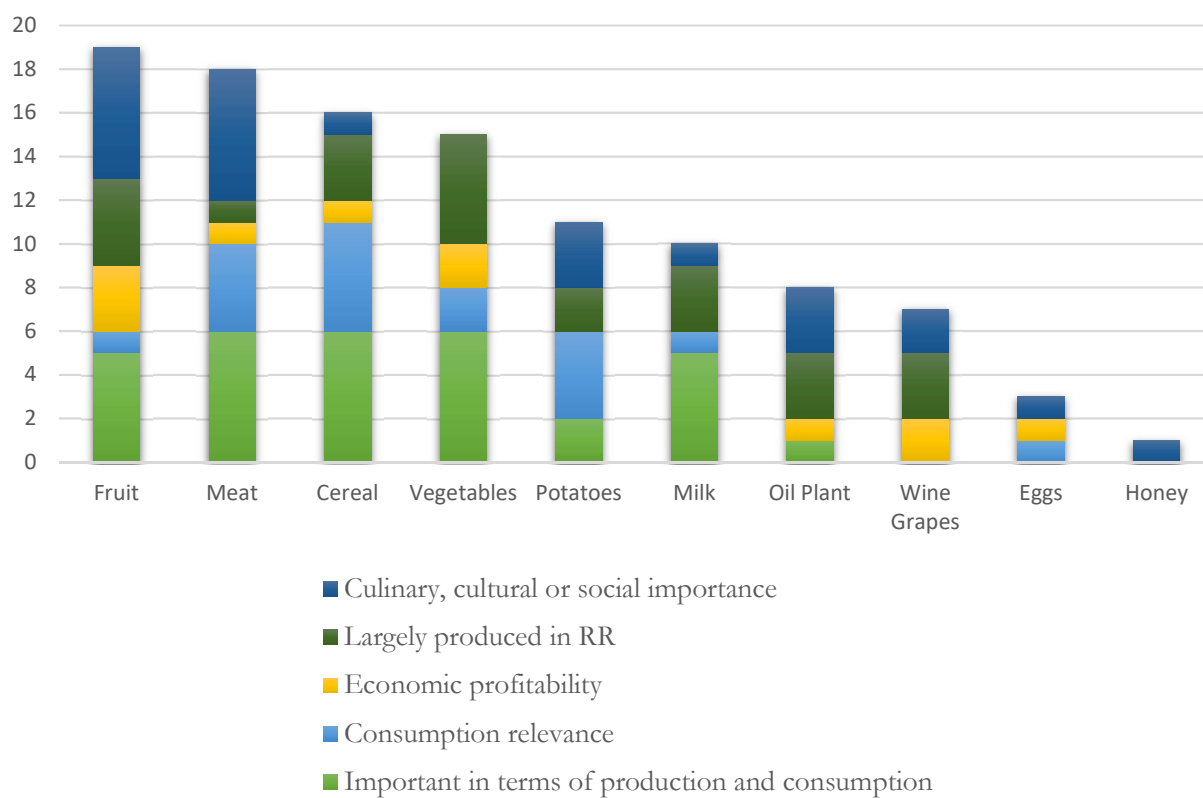


Source: Own elaboration

Finally, figure 7, illustrates, per food group type, the main reasons behind their selection for analysis. It is important to note, however, that even through only a single reason has been given per product, most products were chosen for various reasons. For example, a product may have been chosen for culinary importance but it can also be relevant in terms of production quantities for the RR.



Figure 7. Reasons for Selection vs. Key products



Source: Own elaboration



3. Information contained in each Food System Regional Report

Section 4 of this deliverable contains the 30 Food System Regional Reports. They are organised in alphabetical order, and they all follow similar structure and contents. However, the depth of content may vary depending on the team responsible for the fieldwork and data analysis. Please refer to Table 1 for more information on type of team per RR and to section 2.1. for information on subcontracted requirements.

The Food System Regional Reports are synthesis documents that build on, and capture the key insights from, the different phases of WP3, including expert interviews, focus group discussions, and interviews with farmers and small food businesses.

The process of data gathering for WP3 has been iterative and these documents reflect the latest version of the data, which has been revised and validated after the various iterations. They are result-oriented, rather than activity-oriented documents.

Each report has eight main sections, which are described below:

1) Socio-economic and agricultural profile of the reference region

This section provides a general description of the reference region, including important aspects of its landscape, economy, and socio-cultural context. Past events such as structural changes, political events, policy mechanisms and technological development which are relevant for the situation of SF and SFB in the region are also described in this section.

2) Key products and regional food balance sheet

This section introduces the four key products selected for the analysis and briefly explains the reasons for this selection. A balance of production vs. consumption for the key products is also provided in most reports, as well as a general discussion on the reliability of official statistics.

3) Food system: Key nodes and flows and role of small farms and small food businesses per key product

The most important actors and flows in the regional food systems for each product is provided, including both market and non-market sales or exchanges when relevant.

The role of small farms and small food businesses within the food system is explained in detail in terms of their relative importance within the different categories (production, processing, commercialization and retail), their main points of contacts within the system, and their role in supplying consumers directly.

A food system's map is provided per KP. Maps follow a common simplified template to ease comparison between RRs and types of KPs. These food system maps represent the part of the FS that is related to SF. Large/medium farms are only represented in the map when they play an important role for small farms and their related nodes and flows. Arrows represent



the flow of products among food chain actors, indicating by colour the type of product (fresh versus processed) and the intensity of the flow through the arrow thickness.

4) Typology of small farms in the reference region

The most important types of small farms in the region are listed and described in this section, as well as the criteria used to develop these typologies. Typologies are then discussed in terms of their differentiated role for the regional food and nutrition security.

Teams could choose to build typologies according to the guidelines provided in the AF or create their own criteria for typology development in their particular RR, therefore, the structure of this section is very different from RR to RR.

5) Governance

This section contains a reflexion on the wider mechanisms that shape the practices within the reference regions, including customs, habits, expected forms of behaviour, as well as formal regulation, policy, standards and markets.

6) Small Farms and rural livelihoods

A description of small farms' income sources, the relation between farm and non-farm income in the household, other types of support and household labour is provided in this section.

Additionally, the main shocks experienced by small farm households in the past, and how they have coped with those shocks is also discussed.

7) Role of Small Food Businesses

This section is devoted to describing small food businesses in the reference regions. They are described in terms of their main insights and patterns with regards to histories and trajectories, income, other types of support and labour.

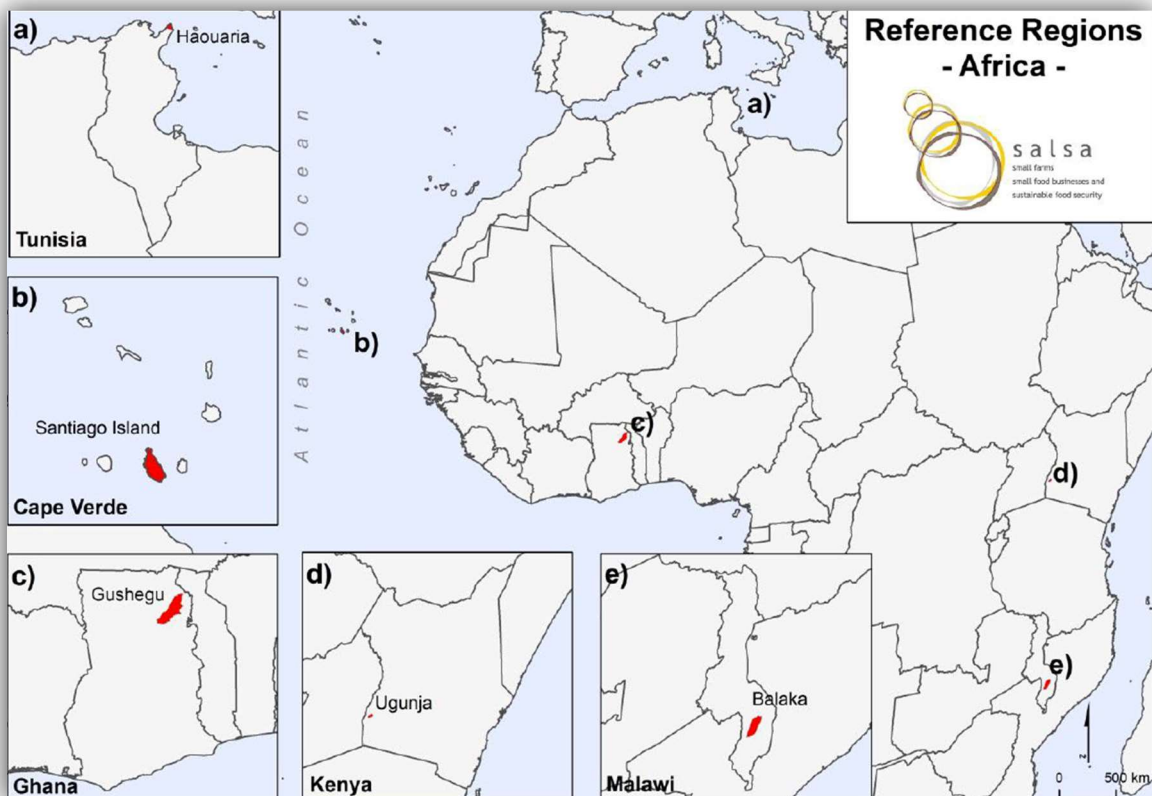
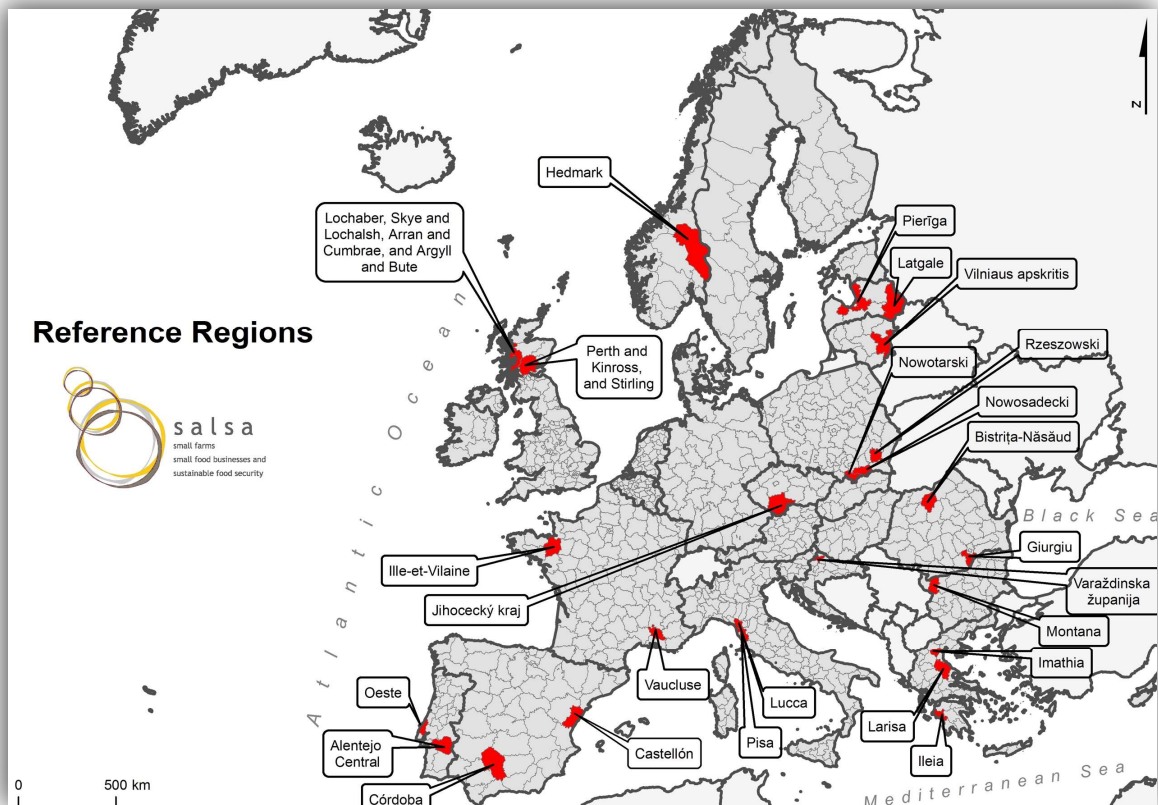
Similar to section 6 above, the main shocks experienced by small food businesses in the past and how they have coped with those shocks is explained.

8) The Future

Section 8 analyses small farms and small food business perceptions regarding future prospects for their activities, their internal drivers, as well as what are the key risks they believe they perceive they will be facing in the future.



4. Food System Regional Reports



Source: WP2 D. 2.1. (RR selection)



4.1. RR1 Montana –Bulgaria– Food System Regional Report



WP3

Montana (RR 1) –Bulgaria– Food System Regional Report

Authors: Vyara Stefanova and Mariya Yunakova



Table of Contents: Food System Regional Report

1) Socio-economic and agricultural profile of the reference region.....	29
2) Key products and regional food balance sheet.....	32
3) Food system: Key nodes and flows and role of small farms and small food businesses.....	33
3.1. Key product 1: Wheat	33
3.2. Key product 2: Sheep cheese	34
3.3. Balance Sheet.....	35
4) Typology of small farms in the reference region.....	36
5) Governance	37
6) Small Farms and rural livelihoods	40
7) Role of Small Food Businesses.....	41
8) The Future	42
9) Annex: List of resources	45



Socio-economic and agricultural profile of the reference region

Montana region is situated in the North-west part of Bulgaria. It covers a territory of 3635 square kilometres (3,2% of Bulgaria's territory). It has 11 municipalities (LAU 1 level). The population is 135 000 and is constantly decreasing.

The relief of Montana region varies a lot. The North part (bordering Danube river) is a plain area with very fertile soils suitable for cereals production, while the South west part is a predominantly mountain area, where the highest peak (Kom – 2016 m a.s.l.) of Western Stara planina is situated. Arable lands are the predominant land use (72% of the agricultural land), followed by grasslands (27 %) and permanent crops (1%). The region is clearly divided to two different farming systems: arable crops production in the North part, where for small farms are considered the farms with arable land from 10 to 20 ha, and grazing livestock and mixed farming systems in the South west part of the region, where most of the small farms are situated. 56% of the standard production output (2010) comes from holdings specialised in cereals, oilseeds and protein crops. The main arable crops are wheat, sunflower and maize (humans and animals).

Cattle and sheep are the main types of livestock (63% and 21% of the total LSU respectively), with sheep breeding being a traditional one for the region. 8% of the cattle, 28% of the sheep and 64% of the goats are in so called “backyard farms”. Apiculture is also traditional for the region (21758 bee families in 2017).

According to EUROSTAT Standard Output classification, an estimated 72% of all agricultural holdings are subsistence holdings, 20% are semi-subsistence and 5% are small commercial.

The registered agricultural producers for 2016/2017 are 1980 (a decrease of 9% compared to the 2014/2015).

Table 1: Basic data for the region

Indicators	Data per Region - Nuts 3
Land size (km2) (2011)	3,635
Population (thousands of people) (2016)	135
Density (people/km2) (2016)	37.1
GDP (thousand USD/inhabitant)	4,643
Total labour force in AWU (2010)	10,278
Total number of holdings (2010)	9,653
Total Agricultural area (ha) (2016)	200,804
Total Utilized Agricultural Area (ha)(2017)	115,615
Agricultural Area in Mountain Area (according to the definition for mountain LFAs) (ha)	24,281.28
% of UAA in the RR	31.8%
Average Farm size (2010)	14.67



Number of farms by UAA farm size: 0-5, 5-20,20-50, >50ha	
0-5 ha (2007)	1,730
5-20 ha (2003)	590
20-50 ha (2003)	110
>50 (2010)	319
Average size of farms < 5ha of UAA (2007)	0.51
Area of main crops (ha) (list the relevant crops below) (2017)	
Wheat	38,312
Sunflower	43,392
Maize	25,628
Rapeseed	5,883
Grasslands	4,982
Area of main crops (ha) in farms < 5ha of UAA (list the relevant crops below)	
Livestock (LSU) per type (list the relevant types below) (2017)	
Cattle	16,407
Sheep	5,401
Goats	2,321
Pigs	1,598
Livestock (LSU) per type in farms < 5ha of UAA (list the relevant types below) (2010)	11,841.5
Annual work units (AWU) by UAA farm size:0-5, 5-20, 20-50, >50ha	
Total family labour per farm size: 0-5, 5-20,20-50,>50ha (2010)	15,673

In the last 50 years there were three significant changes that influenced the situation of the SF and SFB:

- Land restitution and reform and collapse of the former big agro-industrial complexes (AIC) after 1989:

The process of returning farmland to the former owners was long and painful. It lasted more than 10 years and led to a decline in agricultural production and a food deficit in the country. The collapse of the AICs meant that the employment options in industrial sub-sectors had reduced drastically. Outmigration of rural areas was significant and led to depopulation of villages especially in mountainous and remote areas. Land restitution was a precondition for the development of the private farming sector. However, the private agricultural development was hampered by lack of funds for machinery, seeds, livestock, etc. leading to reduction of the average yields in crop production.

The cooperatives were de-composed; livestock was allocated the heirs of the former members. Since most of them lived in the cities already, the livestock was slaughtered, and only in rare cases they were sold or kept as subsistence activity. Processing units were privatised and many of them were subsequently destroyed.



Land restitution process resulted in high land fragmentation, followed by massive land abandonment. Many arable lands naturally turned into grasslands. The drastic reduction of livestock led to grasslands abandonment, especially of the alpine and remote grasslands. Municipal lands increased by the so called “residual land”- land that was not claimed hence not restituted to its owners.

- EU accession negotiations (2000-2007)

During the accession negotiations Bulgaria had ignored the reality of the thousands small scale and subsistence farms in the country. The harmonization of the agriculture acquis was focused on the interests of the large scale producers and processors. This had a very negative effect on the small-scale dairy and meat processing units that existed in the rural areas. The majority of them were closed because of the hygiene requirements and the lack of adequate support to meet them. The closure the local dairy had a detrimental effect on many small livestock farms as they had no systematic local market for the milk. By 2006 most of the small herds were sold or slaughtered.

SAPARD programme focused on medium and big farms (e.g. more than 15 cows) thus almost no funding was spent on small farms.

- EU accession and introduction of the EU requirements and support schemes after 2007

The EU accession was followed by introduction of new requirements especially for the livestock farms – e.g. meeting hygiene requirements, manure storage requirements, Natura 2000 etc. Up to 2010 there were no derogations for these requirement for the SF and the SFB. Therefore, most of the small livestock farms (especially the sheep breeding ones) prefer to sell their products informally in the so called ‘grey market’. Only in the end of 2010 the Ordinance regulating the requirements for the direct sales of livestock products was introduced, where a differentiation between SF and industrial livestock farm was done. Currently in Montana region there are 19 farms registered for direct sales (9 apiculture farms, 3 sheep farms, 2 dairy farms, 2 poultry farms, 1 poultry slaughter house, 2 fish breeding farms) and 8 food processing units/enterprises (all of them processing sheep, goat and cow milk).

Another important issue in this period was the introduction of EU support schemes. In general small semi-subsistence farms are eligible for these support schemes. In 2007-2013 period the semi-subsistence farms could benefit from a special support RDP small farm scheme for restructuring. In the current programming period there is a special sub-programme for the small-farms.

Most of the small farms cannot reach the yield requirements for the coupled support schemes, therefore they prefer to sell informally their products.



Key products and regional food balance sheet

a. Key products produced and consumed in the region

Montana region has two clearly outlined geographical areas: the mountain area, where grasslands dominate and the plain area with fertile arable land. These areas characterize the diversity of the agricultural crops and the structure of the agricultural holdings/ farms.

The main crops in the region are the cereals and the oil crops: wheat, maize, barley, fodder crops, sunflower, rapeseed and grasslands. The permanent crops grown in the region are mainly blueberries, raspberries, strawberries and plums.

The following criteria were used for the selection of the key products:

- High production volume of the selected staples;
- Products important for the plain and the mountain area;
- At least one of the products to be with significant presence of small farms;
- Products, that are traditional for the region.

The two selected key staples are:

- Wheat, which accounts for approximately 25% of the arable lands in the region and 6% of the consumption (bread and flour and other products);
- White cheese, mainly sheep cheese – that is traditional for the region, but currently is produced and sold mainly informally in or out of the region directly to the final consumers.

b. Balance of production and consumption of key products in the region

The production of wheat accounted to approximately 207,965 tonnes (2017). The consumption in the region (bread, flour and other wheat products) is approximately 12,825 tonnes. The surplus of the production is 194,127.5 tonnes (1,514%).

The approximate production volume of white cheese in the region was 641.5 tonnes, and the estimated consumption was 1,309.5 tonnes, showing a deficit of 668 tonnes (51%).

c. Official statistics and key products in the region

The main sources of information for the selection of the key products were the interviews with the key stakeholders and the farmers and the report of the Regional agricultural office for 2017. The consumption was calculated on the basis of the average consumption data of the National Statistical Institute for the main products for 2016 and 2017 for Montana region and the population in the region (2016). Most of the key stakeholder consider the wheat and



the white cheese as the main products of the region. They also consider the sheep cheese as a main product of the mountain area sold directly to the final consumers.

Food system: Key nodes and flows and role of small farms and small food businesses

3.1. Key product 1: Wheat

- a. Nodes in the regional food system: production, processing, commercialization and retail

Wheat production is representative for the region – according to the statistical data 56% of the SPO (2010) is produced by holdings specialised in cereals, oilseeds and protein crops. The production is concentrated in the plain area dominated by big (20000 – 25000 ha) and medium size farms (20 to 200 ha). According to the key stakeholders a small farm for wheat production is a family farm with minimum 10 to 20 ha of wheat (cereals), that produce around 500 tonnes/year. In 2017, 216 registered producers (11% of all registered agricultural producers) cultivated more than 50 ha of cereals/each. According to the key stakeholders 1 to 2% of wheat is produced in the small farms (up to 20 ha).

There are 152 grain siloes with a capacity over 200 tonnes/silo registered in the region.

- b. Flows connecting the different nodes in the regional food system

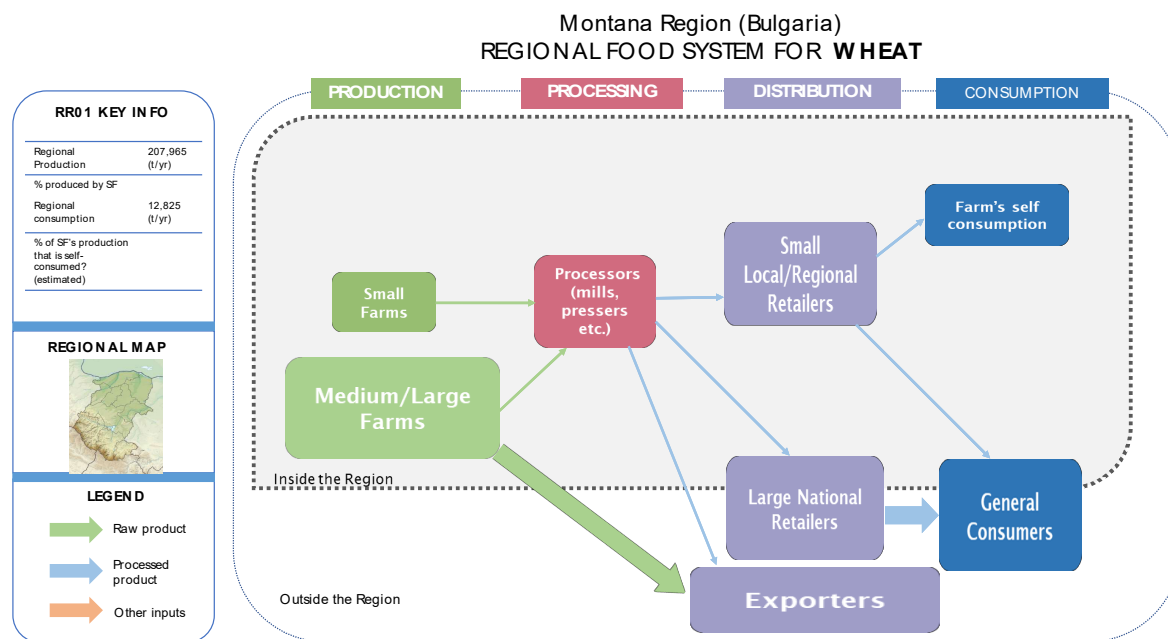
There is one processing mill in the region (in Komoshitza) with 15 storage siloes and a capacity of 25000 tonnes. It processes approximately 15% of the wheat produced in the region. 40-50% of the processed wheat comes from small farms. The mill sells 10% of its production in the region. 2-3% of its production are sold in 5 kg packages in the supermarkets for Montana, Blagoevgrad, Sofia, Kustendil and Pernik regions. Around 12% of its production is exported to Thessaloniki (Greece).

Approximately 80% of the wheat is bought by re-salers and is exported out of the region, 20% of which – out of the country (shipped from Lom, Oriahovo and Constanza (RO)) to Vietnam, China, Egypt and other African countries) or sold in Thessaloniki.

- c. Role of small farms and small food businesses within the food system

The small family farms provide stability and predictability in production, they are working in the region and have good relationships with the workers, processors and purchasers. They create employment and income, and pay taxes in the region.





3.2. Key product 2: Sheep cheese

- Nodes in the regional food system: production, processing, commercialization and retail

Sheep breeding is practiced in the region for centuries. In 2017 there were 3109 sheep breeding farms with 36 930 sheep (400 farms with 26 608 sheep, and 2709 backyard farms with 10 322 sheep).

According to the interviews with the stakeholders around 80% of sheep milk is processed directly by the farmers in the mountain areas of the region. The production of sheep cheese is done mainly by the small farms, because they cannot sell the milk to the dairies in the region (they cannot meet the requirements of Article 137 of the Act on Veterinary activity). Another reason is that it is more profitable for process the milk and sell the cheese, than to sell the sheep milk at low price (like cow milk).

- Flows connecting the different nodes in the regional food system

It is estimated that in 2017 around 344,5 tonnes of sheep cheese were produced in the region, mainly in the mountain areas. Only 2,2% (7,5 tonnes) were produced by farms registered for direct sales. The rest was produced mainly by semi-subsistence farms and was sold informally to the final consumers in or out of the region.

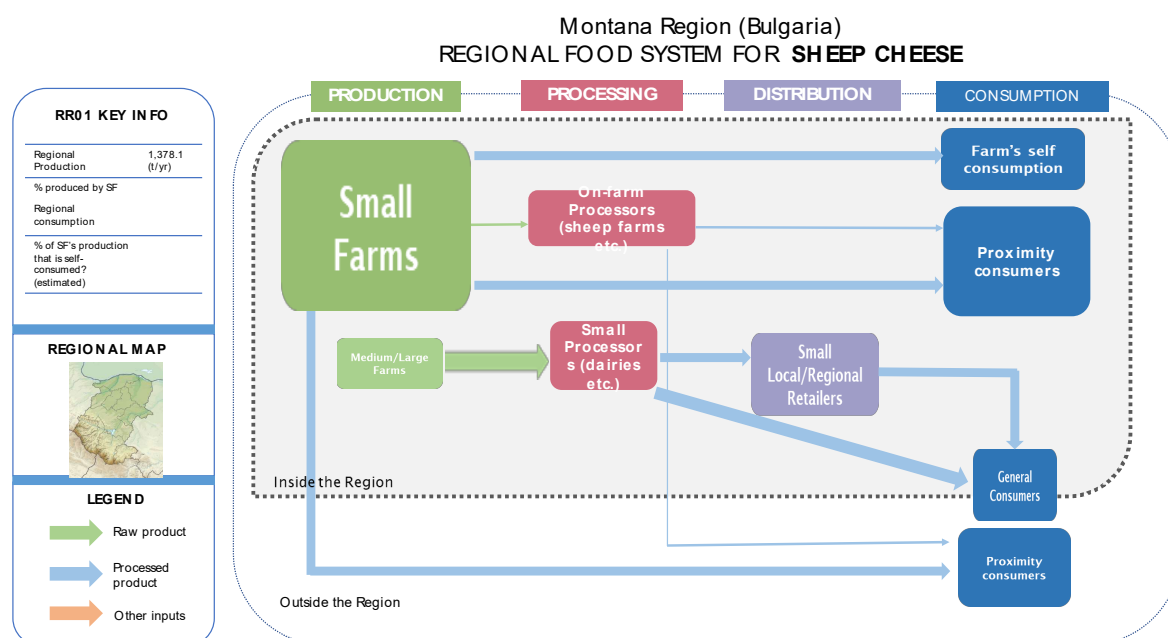
According to the key stakeholders 30% of the sheep cheese is sold in the region.



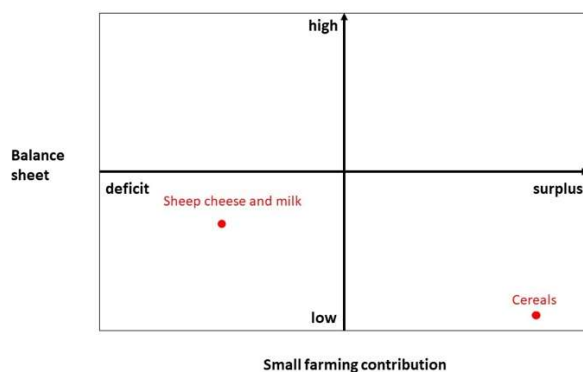
90% of the cheese is sold to final consumers informally, 1-2% on farmer's markets and direct sales, the rest in small retailer shops.

c. Role of small farms and small food businesses within the food system

Small sheep farms are very important for the mountain areas of the region. They maintain the grasslands and the landscape and create employment for 1-2 people of the family, thus keeping the rural identity and heritage, and remaining in the region. They produce quality sheep cheese products, use inherited knowledge of breeding and processing technologies and local recipes. The local people are accustomed to the quality of sheep cheese, and the young people from the region living in the big cities (the diaspora) prefer to come during the weekend and buy quality products with the real taste, which they are accustomed to from their childhood.



3.3. Balance Sheet



Typology of small farms in the reference region

	Classes in Regulation (EC) 1242/2008	Narrative
Subsistence farms producing totally for their own consumption	I Standard Output < 2,000 EUR	<p>Data from the Agricultural census (2010) - 6959 farms (72%)</p> <p>Producing totally for 'own consumption' by farm household and extended family network/friends. Unlikely to be registered as a legal identity. Usually the farming is in the family garden, consisting mainly of fruits and vegetables, that are processed for own consumption. Mostly done by pensioners, living in the villages, or people with other business occupation, doing this after work. In general, they are not interested to be registered as agricultural producers and not interested in EU support schemes.</p> <p>According to the stakeholders interviews these cannot be classified as farms but only as family gardens.</p>
Semi-subsistence farms that ensure their own consumption and sell a part of their agricultural production (less than 50%)	II + III Standard Output of 2,000 – 8,000 EUR	<p>Data from the Agricultural census (2010) - 1890 farms (20%)</p> <p>Producing primarily for 'own consumption' by farming household and extended family network/friends, but with clear livelihood strategy to produce surplus for sale (up to 50% of their total agricultural production). Continued tendency towards informal transactions/sales, but increasing number registered as agricultural producers (to receive EU and national support) and registered for direct sales. The registered agricultural producers have the possibility to apply for RDP small farmers support for restructuring and for direct payments. They are interested in getting direct payments and RDP area based support schemes, but since they cannot reach the minimum yields for coupled support schemes they are not interested in doing formal market transactions.</p>
Small commercial farms selling more than 50% of their agricultural production	IV + V Standard Output of 8,000 – 25,000 EUR	<p>Data from the Agricultural census (2010) – 455 farms (5%)</p> <p>Fully orientated towards selling 100% of production (less some household consumption) via informal and formal commercial transactions/ channels.</p> <p>The strategy of these farms is that they regard the agricultural activities as additional income or as their full time business. Most of them are registered as agricultural producers and receive direct payments and other 1st and 2nd pillar support schemes. Most of them are willing to be registered for direct sales and are likely to develop in the future.</p>



Governance

a. Main interactions of SF and SFB with governance structures in the region

The main interactions of SF-s with the governance structures are the interactions for receiving the EU CAP and national support. All farmers have to be registered as agricultural producers to be eligible for Pillar 1 and Pillar 2 support schemes. Small farmers are interested in direct payments schemes, payments for mountain and other less favourite areas, agri-environmental payments, Natura 2000 payments (especially for maintenance of HNV grasslands and rare local breeds). The farmers are also interested in the coupled support schemes (for sheep and cattle), but in the mountain areas since they cannot meet the minimum requirements for 70 litres/sheep/year, they prefer to sell their products informally to the final consumers. With regard to the small food business most of them are interested in receiving investment support from RDP programme.

Another interaction of small livestock farmers and small food businesses is with the Bulgarian Food Safety Agency (BFSA) services, where they have to register their animals and farms and to fulfil the milk hygiene requirements and food safety requirements (for SFBs). Most of the sheep farms do not meet the requirements which is one of the main reasons why they process the milk on-the farm and sell the cheese informally to final consumers. In 2010 an Ordinance for direct sales of livestock products, introducing more flexible requirements for processing the cheese on-the farm and selling it was introduced. The Ordinance was modified several times, and in the recent years some of the small livestock farmers and small food businesses have been approved by BFSA services in Montana region: 19 farms (9 apiculture farms, 3 sheep farms, 2 dairy farms, 2 poultry farms, 1 poultry slaughter house, 2 fish breeding farms) and 8 food processing units/enterprises (all of them processing sheep, goat and cow milk). The direct sales for processing and selling of plant products from SFB are still not regulated and the requirements are equal to the ones of the large processing enterprises.

Another interaction of the SF, especially the livestock ones, is with the municipal authorities, responsible for the governance of the municipal (common) grasslands. The municipalities are the larger owner of grasslands in the region, therefore the procedures for managing the grasslands play crucial role for the development of the extensive livestock breeding. All farmers in the region shared the great difficulties that arise each year from the continuous changes in the provisions of the Land Ownership and Land Use Act (governing the management of the municipal grasslands) that was created and promulgated in March 1991. For the period from March 1991 until February 2017, it has been changed and amended at least twice each year for 26 years, or 67 times.

b. Levels of governance and their relative importance for SFs and SFBs

The most important governance level are the municipal services of agriculture, where all farmers submit their claims for support for the EU Pillar 1 schemes. Most of the farmers



receive information what they need to do and when they need to do it by the municipal agricultural offices.

The Regional Agricultural Advisory Service (RAAS) is also very important for the small farms. In 2007-2013 period Bulgaria implemented the RDP measure 141 Supporting Semi-subsistence farms undergoing restructuring, which focused on supporting farms with 1 to 4 ESU for increasing their economic size with at least 3 ESU. The RAAS developed the business plans of the semi-subsistence farms free of charge (for the farmers) and offered different trainings for them as well. By the end of the programming period 387 semi-subsistence farms in Montana region received support for restructuring. In the 2014-2020 programming period Bulgaria developed a thematic sub-programme for the small farms. The RAAS supported small farmers to participate in the RDP measure 6.3. Start-up aid for the development of small farms. By the end of 2017, 112 projects were developed and submitted for approval for Montana region. 50 projects are already approved.

c. Constraints impairing full participation in the food system

As explained before there are several constraints of the participation of the SF and SFB in the food system:

- The requirement of minimum 70 litres milk /sheep/year for receiving coupled support is too high for the farmers especially in the mountain areas. The requirement is equal for grazing and goats sheep in the mountain area and in-door kept ones in the plain area. There is no differentiation for the local breeds as well. According to the farmers the requirement for the mountain areas should be maximum 50 litres milk/sheep/ year;
- Constantly changing requirements for using of municipal grasslands (Land Ownership and Land Use Act) and lack of long term contracts for the use of the grasslands;
- Contradicting requirements for managing Natura 2000 grasslands and SAPS eligibility rules usually result in reduction of the payments received by SF;
- Implementation of EU hygiene requirements in Bulgaria, that do not make distinction between SF and large farms and SFB and big processing enterprises. The small sheep farmers cannot meet the requirements and prefer to sell their products informally (in the grey sector).

d. External policies, decisions and social norms affecting food systems

In the recent years the agriculture in the region is 'subsidy' driven and all farmers are interested in receiving the CAP pillar 1 support. There is clear mismatch between SAPS eligibility rules for grasslands, requiring that grasslands should not have more than 100 trees/bushes/ha and the Natura 2000 conservation requirements. Therefore, SAPS eligibility requirement led to ploughing or "cleaning" the grasslands in order to receive both SAPS and Natura 2000 payments.



As it was already said the negotiations with the EU had ignored the reality of the thousands small scale and subsistence farms in the country. The harmonization of the agriculture acquis was focused on the interests of the few large scale producers and processors, and still includes limited exemptions for the small scale farmers and food businesses in Bulgaria.

e. Gender issues intersecting governance issues

All the interviews with the farmers and the stakeholders pointed out the important role of the women in the family farms in the region - they are dealing with the documentation, sales and marketing and in some cases processing of the products, while the men are involved in the land cultivation, livestock rearing, etc.

In general man and women do not seem to have unequal access to markets and land.

f. Other actors and processes important for the regional food system

Another important actor especially for the SF are the banks – although credits for agricultural producers are available for small farms (using the direct payments as a guarantee), the high interest rates are a limiting factor.

In Montana region in the recent years were implemented also several NGO led projects important for supporting the sustainable development of small farms and livelihoods and pro-biodiversity small businesses. Some of them offer investment support for small farms and businesses, trainings and advices for meeting hygiene requirements and the requirements for EU support schemes. The projects also support the farmers to participate in festivals, open markets and farmer's markets where they can sell their products directly to final consumers. The small farms state that these projects and especially the support for participating in different events and meeting with farmers from other countries and organized farm-to-farm visits are very important for their development – they encourage them and increase their self-esteem.

g. Forms of collaboration and organization between small farms

The cooperation between small farmers is in its initial phase, due to the negative associations with the previous socialist regime. The small farmers still prefer to work individually. However already positive examples exist – for example 'Food from the mountain' association was founded in 2016. The association consists of 9 small farmers and small business operators and promotes the region as an area of alternative tourism offering clean food, traditional products, food tasting, wine tasting, guided tours, etc. The association also aims to preserve natural resources such as natural grasslands, pastures, wild berries and other wild fruit habitats, because their businesses depend on the availability of these resources and their sustainable management.

h. Forms of collaboration and organization between small farms and consumers



The relations between the small farmers and the consumers are mainly on informal basis. The interviews with the stakeholders pointed out the two important factors for these relations:

- The young people from the cities are looking for quality products with ‘real’ taste and prefer to buy directly from the farmers (usually on farmer’s markets): vegetables, fruits, honey, cheese products, etc.
 - The people from the region that are accustomed to the taste and the quality of the products and prefer to buy directly from the small farmers. All of the farmers interviewed said that they do not have problems with the market (informal) of their products.
- i. Relationship between small and large farms, and between small and large businesses

The higher rent for the land offered by the larger farms to the land owners results in ceasing the private agreements for the land use with the small farms and making new ones with the larger farms/holdings. This issue is very important for the plain area and the arable land.

- j. Other governance issues

A very important constraint for the small farms and food businesses is lack of a working force – especially shepherds and workers in the livestock farms. All of the stakeholders and the SF and SFB interviewed reported the depopulation and the lack of the working force as the major problem for the future development of the region.

Small Farms and rural livelihoods

- a. Importance of household labour in SFs

The majority of the SF are family farms, where 2 to 4 four members of the family are engaged fully or on part time basis (usually husband, wife and/or son/daughter). When a member of a family starts farming activities, all other family members are helping him, because there is a lot of different kind of work to be done. The women are usually involved in the household and administrative work, preparation of documents and accountancy, preparation of the raw materials and the processing of the final product. The men are usually dealing with the organization of the agricultural process, land cultivation, harvesting, all activities related to rearing of the livestock and marketing of the final products. The children are also involved in the activities and are helping with the farm activities.

One member of the family is paid, while the rest are helping him. Usually one or two family members have other occupation (public administration, hired in small or medium enterprises or as workers of bigger farmers), or are pensioners. The average age of the farmers varies between 40 to 55 years. The livestock farms hire additional labour force during the summer



(for shepherding and/or mowing the grasslands) or receive help by extended family members. Lack of shepherds is one of the main problems for the farmers in the region.

b. Farm and non-farm income in the SF's households

The biggest part of the income of the majority of the SF (80% according to the key stakeholders) comes from other usually non-agricultural activity. They regard the farming activities as additional source of income, although most of them are willing to develop the farm. Rural tourism is not a common non-agricultural activity amongst the small farms, but some initiatives are observed recently. In the mountain areas small family farm members are usually engaged in additional non-agricultural activities, while in the plain area the SF usually secure their additional income by selling seeds, fertilisers, plant protection materials or offering services with the agricultural machineries.

The EU direct payments cover the rent of the land and the income from the sold products covers the costs for the agricultural activities.

c. Shocks and coping mechanisms of SF households

As explained before the SF have experienced several shocks in the past: the land reform, the EU accession process and the introduction of the EU CAP support and food safety requirements. Many of the SF have been closed down and the remaining are mainly relying on the EU direct payments support and are uncertain whether they will be able to continue with their farming activities after 2020.

Stakeholders state that SF are very important for the region because they create occupation and livelihood for the population in the region, they preserve the landscape, the nature and the traditions and the rural identity. They also produce quality food products that they sell directly from the farm and attract young visitors to this severely depopulated region.

Role of Small Food Businesses

a. Main insights and patterns

According to the stakeholders the SFB are usually family farms that process on the farm the products they produce. Some of them (for livestock products) are registered under the ordinance for the direct sales by the BFSA. They usually process up to 500 litres of milk, 150 kg of honey. The meat producing farms have up to 120 sheep and goats, 20 suckler cows, 500 poultry. They use the family members as working force and hire additionally 1 to 3 paid workers. They sell their products on the farm, farmers markets in the bigger cities and Sofia. Some of them have their own shops in the municipality centres or use courier companies to send their products to the final customers. They receive subsidies for their farming activities. Some of them have used RDP or other investment support for starting the businesses.

Important for the mountain region is also the production of jams, compotes and juices from wild fruits and berries and dried mushrooms. Gathering wild forest fruits, herbs, mushrooms



and berries is a traditional activity in the region that provides income for the Roma population in the region.

The main role of the SFB is that they provide income to the local population, produce quality products and preserve the traditions in the food production.

The Future

The main challenge that the small farms are facing are the high regulatory requirements for their activities. These requirements are the same for all types of farms and processing units in the country – no matter if they are in mountainous or plain areas, if they are small and produce for themselves and live in remote and small settlements or are large and market-oriented ones. After the introduction of the CAP mechanisms, the requirements and conditions of the legal framework are constantly changing: (land use, good agricultural and environmental conditions, hygiene and food safety requirements, registration of animals, etc.) and it is almost impossible for the small farmers and food businesses to follow them.

Usually the small farms and processors operate informally due to the high requirements they cannot meet. The small farmers and food businesses are hardly surviving the pressure of the big players, the lack of manpower on the farms and the administrative burden. Their development is also hampered by the severe bank credit conditions, high interest rates and collateral.

Other challenges that the small farms are facing are: the documentation and book keeping, small output quantities and uncertain markets for their products.

The main challenge for small milk processing businesses is the very high cost of buying milk from relatively large territory. The processing quantities are small and they cannot offer higher price for the milk. The big players take their raw materials because they speculate on prices: when the milk production decrease, they raise the prices and there is no raw material for the small ones. They also have no experience in contractual relations and negotiating on prices and quantities.

a. Main objectives and priorities of SF for the future

In principle, small farmers from the region state that they have short-term survival goals and low development goals because they have put a lot of emotions, efforts, labor and financial resources, and this is own their business. They realize that they need to develop and strive to constantly buy equipment and improve their herds to obtain better yields and income from their activities.

In the mountain areas many of the small farmers are pensioners and they don't have long-term goals. Small livestock farmers encourage their children to study outside of the area and



engage in other (not farming) activities. The young ones are regarding their farming activities as additional ones or are on the verge of giving up, due to the high demands and hard development conditions. The farms in the whole region are decreasing.

There are also small farmers, in the plain area, that maintain their utilized agricultural areas and the yields. Their short-term plans are aimed at modernizing and investing in equipment and specialized equipment. They tend to educate their children to manage and develop the farm and to inherit their economic activity.

b. Main objectives and priorities of SFB for the future

The small processors in the area believe that their strong side is to produce their own raw materials and to organize their sales by themselves. They produce at least two or three food products that they sell by themselves in the region. Their main aim is to educate and involve young people from the family to organize all processes and to provide and train young people to work in different areas - production of raw materials, processing and sale of final products in their own retail stores. They also think that such way of working can only be successful if it is organized as a family business. Their main goal is to withstand the pressure of industrial production and distribution from the wide-ranging food supply networks. As future targets, they point out the need for a stronger promotion of the quality of their hand-made products, the use of traditional recipes and technologies. They understand the need to put more resources and time in participation in exhibitions and outdoor demonstration activities, promoting, informing and spreading the knowledge for craft foods amongst the young people in the large cities.

c. Risk perception by SF

Small grain producers believe that the most serious risks to their activity are the unfavorable natural phenomena - drought, floods, hailstorms and fires. In the past, they have insured the crops, but when they asked for compensation they found out that the particular risk they were claiming was not covered by the insurance package. Bulgarian insurance companies do not fully cover the risks of frequent natural phenomena, which are detrimental to the farmer's economic situation. They handle countless papers, annexes and fine-print clauses that do not appear to work for the client benefits but for their own profits. They work on the principle of more insured farmers, but covering small and specific risks portfolio. Banks have the same approach to customers - high interest rates and multitude of service charges.

Another major risk is the inability to develop farming due to the absence of free agricultural land. Land prices are speculative, both for rent or purchase. Agricultural land is purchased from land-based funds that use forceful and speculative methods for land lease and an army of consultants, attorneys and notaries who buy land at high prices regardless of land category and productivity.

These approaches are not fit for small farmers. They do not have the opportunity to pay high prices to consultants to advise them on speculation, as well as time to look for



opportunities that usually have a very short deadline. "We are not allowed in these games; they are just for certain people".

d. Risk perception by SFB

Small processors see the main risks in the lack of processing specialists and technologists. A lot of team efforts are needed to make a profit from processing, but there is no one to teach the young people in processing technologies (the only training for food processing technologies is offered in the curricula of the universities). It is easier to export or sell raw materials – there is no need to learn, to have management and technology knowledge.

e. Food system forecast in 5, 10 and 20 years

If the CAP support and the subsidies stop after 2020 about 30% of the small farms in the area will stop their activities. All for them (plant growing and livestock breeding farmers) think that the CAP is not for small farmers, but nevertheless they regard the area-based schemes as crucial for their survival.

The whole region is characterized by rapidly decreasing and aging population and lack of working force, which will lead to decrease of the farms in the region.

The production of wheat will be concentrated in medium and large farms, and the sheep cheese production is likely to remain to be done mainly informally, but it is expected that more small farms will be registered for direct sale under Ordinance 26.



Annex: List of resources

a. List of key experts interviewed

Occupation	
1	Director of the Regional Directorate of Agriculture, Montana region
2	Head of the Municipal agricultural service of Berkovitza and Varshets municipalities
3	Expert, Municipal agricultural service, Chiprovtsi and Georgi Damianovo municipalities
4	Head, Municipal agricultural service, Yakimovo municipality
5	Head of Regional Agricultural Advisory Service, Montana region
6	Veterinary doctor, Regional office of Food Safety Agency
7	Director, Komoshtitza mill

b. SF and SFB interviews and focus groups information

Stakeholders	Interviews			How were they contacted?
	Men	Women	Total	
Farmers	2	3		First contacted by phone, then face to face interview
Producers' cooperatives				
Slaughtering facilities				
Processors (small/large)	3			First contacted by phone, then face to face interview
Wholesalers				
Retailers				
Caterers				
Other small food business		2		First contacted by phone, then face to face interview
Exporters				
Importers				
Farm inputs suppliers				
Advisory services	1			First contacted by phone, then face to face interview
Agricultural administration/Ministry of Agriculture	2	3		First contacted by phone, then face to face interview



Consumers' groups/organizations				
Local administrators and policy makers				
Political leaders and PMs				
Other programs/initiatives				
Nutritionist				
NGOs				
Traditional and religious leaders (for Africa)				
Total	15			

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4.2. RR2 Santiago Island –Cape Verde– Food System Regional Report



WP3

Santiago Island (RR 2) –Cape Verde – Food System Regional Report

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Table of Contents: Food System Regional Report

1) Socio-economic and agricultural profile of the reference region.....	49
2) Key products and regional food balance sheet.....	51
3) Food system: Key nodes and flows and role of small farms and small food businesses.....	53
3.1. Key product 1: Banana	53
3.2. Key product 2: Tomato	56
3.3. Key product 3: Maize	59
3.4. Key product 4: Chicken meat.....	62
4) Typology of small farms in the reference region.....	66
5) Governance	67
6) Small Farms and rural livelihoods	74
7) Role of Small Food Businesses.....	75
8) The Future	77
9) Annex: List of resources	79



Socio-economic and agricultural profile of the reference region

The Santiago Island RR is the main agricultural island of Cape Verde, with an area of 991 km². The main economic sectors are Agriculture and Livestock, Fishing, Commerce, Industry, Energy, and Tourism. The average annual household expenditure in Santiago is around € 7.154 and the average annual expenditure per person is € 1.649. Furthermore, RR is vulnerable to natural phenomena, including cyclical droughts, with negative consequences for microclimate change, desertification, and torrential rains, and presents a rugged relief where we can find the “Pico de Antonia” as the second highest peak of the country with about 1.819 m in height. There is much vegetation in higher areas with plantations of fruit trees such as coconut palms, papaya trees, bananas, date palms (*Phoenix dactylifera*) while in lower areas, the panorama is arider. The soils, of volcanic origin (basaltic in about 80%), are little differentiated, about 41 ha is potentially arable of which 3-5 ha are irrigated, and the rest is restricted to rainfed agriculture, distributed as follows: 19% in wetlands, 42% in sub-humid areas and 39% in semi-arid areas. It is the main island in terms of the available area for rainfed agriculture (60% of the total) of 1.880,11 ha, but, with a substantial increase in irrigated agriculture (RGA, 2015). The average yields of rainfed agriculture are low, in the order of 300 kg/ha for maize and 90 kg/ha for beans. In addition to agriculture and livestock, other activities are carried out in some farms, such as handicrafts (0.6%), agro-food processing (5.2%).

Table 1: Basic data for the region

Indicators	Data per Region - Nuts 3
Land size (km ²)	991
Population (thousands of people)	299,486
Density (people/km ²)	300.7
GDP (thousand USD/inhabitant)	3,117
Total labour force in AWU	118,704
Total number of holdings	26,908
Total Agricultural area (ha)	21,075.1
Total Utilized Agricultural Area (ha)	18,719.2
Agricultural Area in Mountain Area (ha)	1,809.6
% of UAA in the RR	19%
Average Farm size (ha)	1.13
Number of farms by UAA farm size: 0-5, 5-20, 20-50, >50ha	0-5: 26,841 5- 20: 64 20- 50: 2 >50: 1
Average size of farms < 5ha of UAA (ha)	0.5
Area of main crops (ha) (list the relevant crops below)	Maize: 19,027 Beans: 17,891 Vegetables: 650 Fruit Trees: 50
Area of main crops (ha) in farms < 5ha of UAA (list the relevant crops below)	Maize: 19,027



	Beans: 17,891 Vegetables: 607 Fruit Trees: 28
Livestock (LSU) per type (list the relevant types below)	Bovine: 13,532 Caprine: 121,886 Sheep: 7,108 Swine: 51,478 Chickens: 393,049
Livestock (LSU) per type in farms < 5ha of UAA (list the relevant types below)	Bovine: 12,824 Caprine: 115,503 Sheep: 6,735 Swine: 48,782 Chickens: 372,467
Annual work units (AWU) by UAA farm size: 0-5, 5-20, 20-50, >50ha	0-5: 5,400 5-20: 7,200 20-50: 9,000 >50: 12,600
Total family labour per farm size: 0-5, 5-20, 20-50, >50ha	0-5: 107,364 5-20: 275 20-50: 8 >50: 4

Over the years, it has been heavily invested in the agriculture sector, notably in the construction of processing and post-harvest centres, introduction and dissemination of drip irrigation technology systems, greenhouses, the introduction of new varieties and agricultural species. Big investments were made in irrigated agriculture, namely uptake of groundwater through wells and holes, storage of surface water with the construction of dams, allowing increasing the cultivation of crops with higher yields like vegetables.

Greenhouses systems contribute to production intensification and for production out of the season. The soil and water conservation carried out was of the utmost importance in preventing land loss on slopes, where upland agriculture is developed. Regarding livestock, the introduction of improved breeds has changed livestock farmers to adapt their production systems.

Another change was the appearance of micro-credit system who in some way have contributed significantly to the agrarian sector development because with the micro-credit system farmers have had funding mechanisms to invest in their farms. Rural areas benefited from major structural changes, such as investments in the construction of roads that contributed to the development of economic activities in these areas, facilitating access and consequent commercialization of the products produced there.

Sugar cane could be further an interesting key product to explore. Recently, a new law was introduced that regulates the production and commercialization of sugar cane brandy in Cape Verde, traditionally known as "grogue", with greater inspection rigor, allowing to value the product and, consequently, better quality for the international market.



The State of Cape Verde has over the years created mechanisms to support farmers and rural communities, including poverty reduction programme and, more recently, the programme for rural socioeconomic opportunities promotion (POSER), with a strong focus on income generating activities and employment, as well as training and capacity building of rural families and small farmers. It also includes improving the country's vulnerability to climate change. The main axis of the intervention of the project is addressing actions that allow the availability use of surface water in dams, groundwater mobilization from existing holes, and pumping costs reduction, with the replacement of electric power system by photovoltaic system energy.

Key products and regional food balance sheet

a. Key products produced and consumed in the region

Despite the lack of data, the choices of staple foods for Santiago was based on the consumption levels and information from stakeholders and key informants. The main food products produced and consumed are:

- **Fruits** (Banana). Produced in great quantity and consumed in the region with a good impact on health and food security. Supplies the markets during the whole year, and an important source of income estimated current production is between 6 500 and 7 000 tonnes (60-65%) of fruits produced (Silva, 2005).
- **Vegetables** (Tomato). The most produced vegetable is cultivated all year round, grown in open fields and greenhouses and up to three harvests a year. Imported tomatoes are mainly for tourist hotels, 63% of farmers are producing the tomato. Data provided by ARFA, informs that the average availability from 2007 to 2016 is about 66,867 tons.
- **Cereals** (Maize). The only cereal produced, and which is the staple food of Cape Verdeans diet. Contributes significantly to the food security of rural households, an integral part of the gastronomy. Not the most consumed due to low levels of production, mainly for self-consumption, not considered a market product.
- **Meat** (Chicken). Despite existing local production much of it comes from import. The most consumed meat by the population due to its low price. In the household survey (IDRF, 2015) the per capita expenditure of domestic consumption of chicken meat is € 16.8 compared to € 10.5 for pork and € 9.9 for beef. Poultry production has been increasing due to improved sanitary and available animal feed.

From the sample of the 35 surveyed farmers, 46% cultivate banana, 63% cultivate tomato, 23% cultivate maize and 57% dedicate to chicken rearing.

b. Balance of production and consumption of key products in the region



The region is deficient for most of the main products: 1) Maize (-89%), and 2) Poultry (-89%) being the most deficient. Data from GDC shows that 7,533.5 tonnes of imports are from chicken meat, pieces, and offal, 7,004.1 ton are from tomato, 0.1 tons are from banana and 20,493.2 tons from maize. % Surplus of Banana (23%) and Tomato (48%) shows that better meet the needs of domestic consumption.

Table 2: Balance of production and consumption of relevant agricultural products in the region

	[B]	[C]	[D]	[E]
	Approximate amount produced in region (ton/year)	Approximate amount consumed in region (ton/year)	Balance (consumed - produced) <i>[B-C]</i>	% surplus- deficit on total consumption <i>[D/C]</i>
Category				
Cereals	3183,8	61694,1	-58510,3	-95%
Maize	3183,8	29655	-26471,2	-89%
Rice	0,0	14760,5	-14760,5	-100%
Oil plants	0,0	5989,7	-5989,7	-100%
Olive	0,0	373,8	-373,8	-100%
Rape and mustard	0,0	3,3	-3,3	-100%
Palm	0,0	42,9	-42,9	-100%
Vegetables	31550	22162	9388	42%
Tomato	6736,2	4 551,8	2 184	48%
Potato	2067,2	8 635,7	-6 569	-76%
Sweet Potatoes	3279,8	2 447,5	832	34%
Beans	2808,5	1 332,5	1 476	111%
Onions	3615,7	2 245,3	1 370	61%
Pepper	2490,7	707,3	1 783	252%
Cassava	2989,1	2 110,8	878	42%
Fruits	10226,4	8685,1	1541,3	18%
Banana	4504,2	3657,6	846,6	23%
Mangoes	1191,7	4463,8	-3272,1	-73%
Papaya	1456,4	4463,8	-3007,4	-67%
Apples	0,00	1385	-1385,00	-100%
Grapes	193,1	145,4	47,7	33%
Animal products	8526,1	193468	-184941,9	-96%
Poultry meat	444,9	4135,3	-3690,4	-89%
Pimeat	2052,2	6003,4	-3951,2	-66%
Bovine meat	370,1	741,1	-371	-50%
Eggs	1124	1131,4	-7,4	-1%
Fish, Seafood	4534,9	3607,3	927,6	26%

c. Official statistics and key products in the region

The official statistics are scarce and not disaggregated which hinders analysis at RR level. There are no values for productivity, production, yields or consumptions of the key products. The sources of Statistics information are the MAA¹³ and INE¹⁴.

¹³ MAA - Ministry of Agriculture and Environment

¹⁴ INE - Institute of Statistics



Food system: Key nodes and flows and role of small farms and small food businesses

3.1. Key product 1: Banana

- a. Nodes in the regional food system: production, processing, commercialization and retail

The production of bananas in the RR is mainly developed in flatter areas, mainly in the bottom of the valleys. The inputs for the production are made through commercial companies of exclusive sale of agricultural products, such as pesticides, etc., the plants are obtained directly from the farm.

The production of bananas is mainly locally made, where large and small farmers produce them. FG considered that small farmers produce banana in greater quantity.

Most of the banana consumed is locally produced. Many of the producers choose to sell their products directly to the "Rabidantes"¹⁵ who go to the farms to buy the products and then sell them to the markets and other consumers. Both small and large farmers sell to intermediaries who then place the products on consumer market.

There are not currently subject to special measures in their transport in order to guarantee their intrinsic quality. Also the chain consists of small intermediaries who carry out most of the commercialization for local sales, placing the products directly in the markets, in retail companies, as well as in reselling to small retailers that sell in local markets, small hotels or in an informal stores or informal street vending.

- b. Flows connecting the different nodes in the regional food system

The production is partly sold both from by large and small producers in rural and urban areas of Santiago Island RR, and is also exported to other islands, especially to the more touristic islands. From farmer's interviews and FG, we can add that in Santiago Island farmers have a stable relationship with the intermediaries.

The general flow design of banana food system was confirmed by the FG participants. They address, plus with the findings from key interviews, that the flows of bananas from small and large producers to local and regional intermediaries represents the most important and relevant flow. However, no clear indication on the quantities involved emerges from the interviews.

Also small and regional intermediaries, who carry out much of the commercialization represents the most important supply of bananas for local area, and there are intermediaries of greater dimension. They take the product, directly to the local markets, send to other

¹⁵ *Rabidante* is the reseller agent of an "informal" type of trade. In Cape Verde, this type of activity is a network in which men, but especially women, sell what was bought with the intention of being marketed, often outside the tax and market rules.



regions outside the RR and resale to local small retailers who in turn practice street vending and direct sales to consumers. FG mainly highlighted that from the total production of SFs and large farms, 80% to 90% of production is sold to intermediates, 10% to 15% to retailers and 1% to 5% to hotels. Was consider strongly relevant and important the role of local small processors used banana to produce liqueurs, cakes, fried banana.

The overwhelming majority of SFs sell most of their products, leaving a small percentage which they offer. Although other channels subsist, i.e., To a lesser extent there are those who sell directly to consumers but is less significant, and no clear indication on the quantities involved was given from the interviews.

c. Role of small farms and small food businesses within the food system

SFs constitute the central step of banana value-chain, because they produce the majority of banana consumed within the RR. This segment is also responsible for income and jobs generation in farm, showing the importance in the containment of the rural exodus. However, the important role of small farms and food business was stressed by FG, which is associated with, availability of products for market; contribution to the diversity of products on the market; price competitiveness; liberation from the State from the responsibility of feeding families, providing self-employment; increased domestic production and imports reduction.

As for SFBs, local small and regional intermediaries, who are mainly supplied by local SFs, are very important and a fundamental key agent in RR, indispensable for maintaining farm production of SFs, since they do not have infrastructure and capital to buy equipment, or the opportunity to market the banana. They are responsible for harvesting, packaging, transport, commercialization and distribution of the banana, placing the banana on market available to consumers and to different food system agents in internal RR supply and export outside the RR, as well as being responsible for the employment of other sectors, hiring casual workers to cut and load curls on rented trucks including the driver, there are no other agents who do so.

Local markets, grocery retailers and supermarkets (food business establishments), supplied by local intermediaries, dominate the retail market and are considered the most important relevant, because they are the places most frequented by consumers and also they concentrate the sale of other products. In small towns there are free markets, in which some producers sell their products directly to consumers but generally they are not relevant, and small local retailers like local fruits shops considered pretty active, mostly supplied by local producers, are important because of their proximity to consumers, making bananas reach them.



- d. Importance of household self-provisioning in small farms and small food businesses

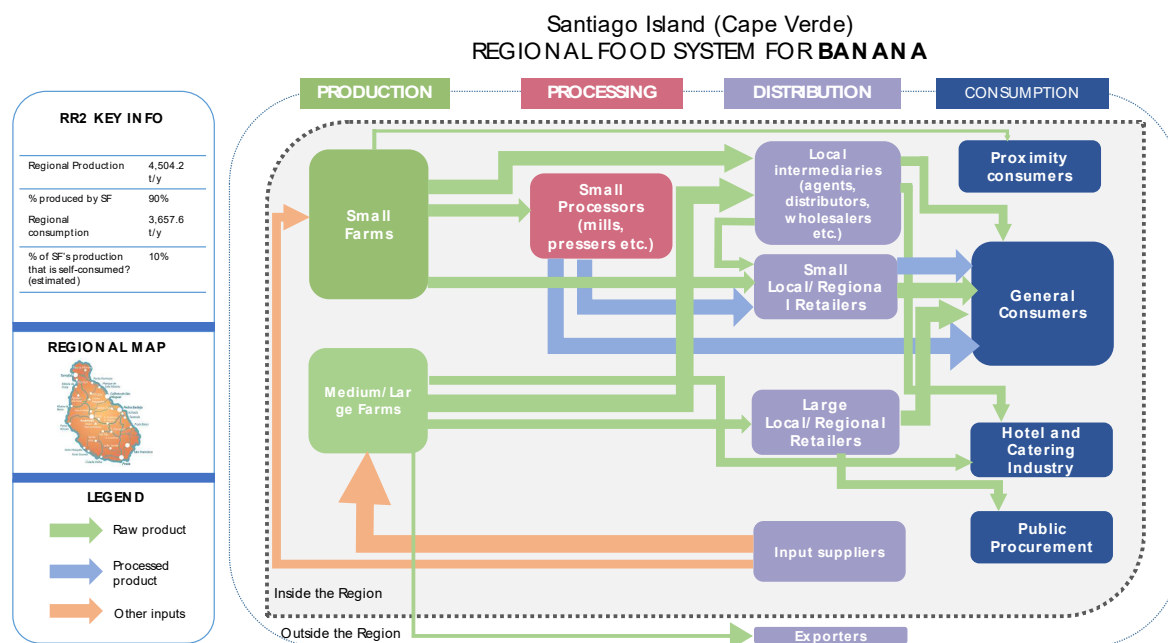
Self-consumption has a relative importance for SFs. According to the SFs interviews, production is practically sold, which has shown a great market oriented. So self-consumption is much smaller extent, not ceasing to represent a contribution in terms of food diversity. The same occurs for SFBs.

Also the exchange of products between small farmers occurs frequently as stated by farmer's interviews without, however, specifying the quantities exchanged.

- e. Other relevant information

FG participants confirmed that there are not producer cooperatives and they emerge greater importance for SFs from RR to create an important cooperative to organize, coordinate, support, collect, protect and to market the banana production from local RR SFs.

From interviews and focus group, it has clearly emerged that agro-tourism can represent an extremely important part of consumers who buy products directly from producers. It is considered that the main constraints to banana production in Cape Verde are due to the aridity of the climate, salinity of soils and reduced availability of irrigation water and arable land for cultivation.



3.2. Key product 2: Tomato

- a. Nodes in the regional food system: production, processing, commercialization and retail

The Tomato is one of the main and most important horticulture crop produced on Santiago Island RR, and is highly consumed.

The inputs for the production are made through commercial companies of an exclusive sale of agricultural products, such as seeds (also from research institutions), pesticides, etc., the plants are obtained directly from the farm. The production of tomato is mainly locally made, where small farmers produce them, using a drip irrigation system. There are very few small farms specializing in horticulture. FG considered that small farmers produce tomato in greater quantity.

National tomato production has consistently increased from 200 tons per year in 1987 to 3 000 tons in 1997, becoming increasingly important; stimulated by increased domestic demand and profitability it allows the farmers. Overall, the local tomato production is largely consumed in the RR and it is exported outside the RR to other islands. Many of the producers choose to sell their products directly to the intermediaries "Rabidantes" who are considered a relevant actor in commercialization and distribution, collecting production from local farmers. They go to the farms to buy the products and then sell in and outside the area to the markets and other consumers, like urban households, small and large hotels, markets and supermarkets, as well as in reselling to small retailers that sell in local markets, small hotels or in an informal stores or informal street vending, in addition local supermarket chains.

In some cases, large and medium retailers make connections with local farmers for the direct supply of vegetables include tomato. Also, SFs sell directly to consumers. Additionally, the importers are considered relevant actors. In particular wholesaler's businesses is extremely strong in Santiago for collecting production outside the RR, and selling their products in and outside the area, especially for big hotels. FG address that there are intermediaries of greater dimension.

Imported tomatoes are mainly for tourist hotels and in the case of hotels located within the reference region, some supply of tomatoes goes through the acquisition via importers. Small producers have been the major suppliers of tomatoes to institutional markets such as school canteens, hospitals, and army. In this regard, an interesting role is played by institutional procurement, which takes place thanks to the local procurement bids.

SFs do not engage in direct processing; they produce for fresh consumption. SFB, including small processors, are not actually considered as relevant actors. Farmers markets are considered not relevant at the local level of Santiago Island.



b. Flows connecting the different nodes in the regional food system

The production is partly sold in Santiago Island RR, and is also exported to other islands, especially to the more touristic islands, to sell to consumers and hotels. It was suggested by FG participants, that in the map to be included a regional intermediary, who resend the tomato outside the RR.

FG have mainly highlighted that the majority of the sale practiced by the FSs, of which 80% to 90% of production is exclusively of direct sale to small intermediaries, is sold to intermediates, which brings higher tensions between SFS, receiving quite a low remuneration and they mainly stick to this relationship to market their products, without looking for alternative market channels, they stay away and they get lost from the value chain. From SFs interviews, we can add that farmers have a stable relationship with these intermediaries. Also FG participants highlighted that, 1% to 5% from the total production of SFs is sold to retailers and 1% to direct consumers. From the FG, the general flow design of tomato was confirmed plus with the findings from key interview, was also confirmed that that the flows of vegetables from primary producers to local intermediaries it is considered quantitatively the most important and relevant.

The small intermediaries, resale to small retailers who in turn practice street vending. Also they sell the products to other local intermediary's and direct sales to consumers. Despite consider farmer's markets in the map, the flow of tomato from producers to farmer's market is considered insignificant. However, no clear indication on the quantities involved emerges from the interviews.

The overwhelming majority of SFs sell most of the production, leaving a small percentage which they offer. To a lesser extent there are those who sell directly their product, to consumers, to supermarkets and small processors and farmers' markets, some of them have their own store. No clear indication on the quantities involved was given from the interviews.

Large-scale producers dispose of their products directly to retailer's shops outside Santiago, but also place their products for consumers outside Santiago through regional intermediaries who later place them in the retail, general trade, and local markets. Was consider strongly relevant and important the role of local wholesalers with regards to the supply of tomato in Santiago inflows from outside the RR to the inside of RR, especially for the tourism market. SFBs are directed to supermarkets and local groceries store. It also emerged that in several cases small local groceries store is not supplied by wholesalers but rather from local producers. The key flow of intermediaries, large and small retailers was highlighted as the main suppliers of tomato for the local consumers. Also, we have observed that small local retailers also purchase from wholesalers who market mainly non-local produces.

c. Role of small farms and small food businesses within the food system

SFs constitute the central step of tomato value-chain and for food available because they produce the majority of tomato consumed within the RR. This segment is also responsible



for income and jobs generation in the farm, showing the importance in the containment of the rural exodus.

However, the important role of small farms and food business was stressed by FG, which is associated with, availability of products for market; contribution to the diversity of products on the market; price competitiveness; liberation from the State from the responsibility of feeding families, providing self-employment; increased domestic production and imports reduction.

As for SFBs, local small and regional intermediaries, who are mainly supplied by local SFs, are very important and a fundamental key agent both within and external RR market, indispensable for maintaining farm production of SFs, since they do not have infrastructure and capital to buy equipment, or the opportunity to market the tomato. They are responsible for harvesting, packaging, transport, commercialization, and distribution of the tomato, placing on market available to consumers and to different food system agents in internal RR and export outside the RR, as well as being responsible for the employment, hiring casual workers to cut and load curls on rented trucks including the driver, there are no other agents who do so.

Also, local intermediaries sell the products to other local intermediary's, who do street vending.

SFBs Processors is inexistent and do not constitute a central step of the tomato value-chain, since most of the product is consumed in natural, and post-harvest processing of tomato is done on the farm.

Small local retailers, like local shops of vegetables, are considered pretty active and are mostly supplied by local SFs. They emerge with a fundamental key role in maintaining farm production.

Local markets, grocery retailers and supermarkets (food business establishments) dominate the retail market and are considered pretty much relevant.

In small towns, there are free markets, in which SFs sell directly to consumers but generally, they are considered not significant. On the other hand, local restaurants (different from agritourism caterers) do not represent relevant actors for local tomato purchase.

d. Importance of household self-provisioning in small farms and small food businesses

Self-consumption has a relative importance for SFs. According to the SFs interviews, production is practically sold, which has shown a great market-oriented. It is estimated that about 95% of production is for sales. Only 3 to 5% produced is for household consumption. The same occurs for SFBs.

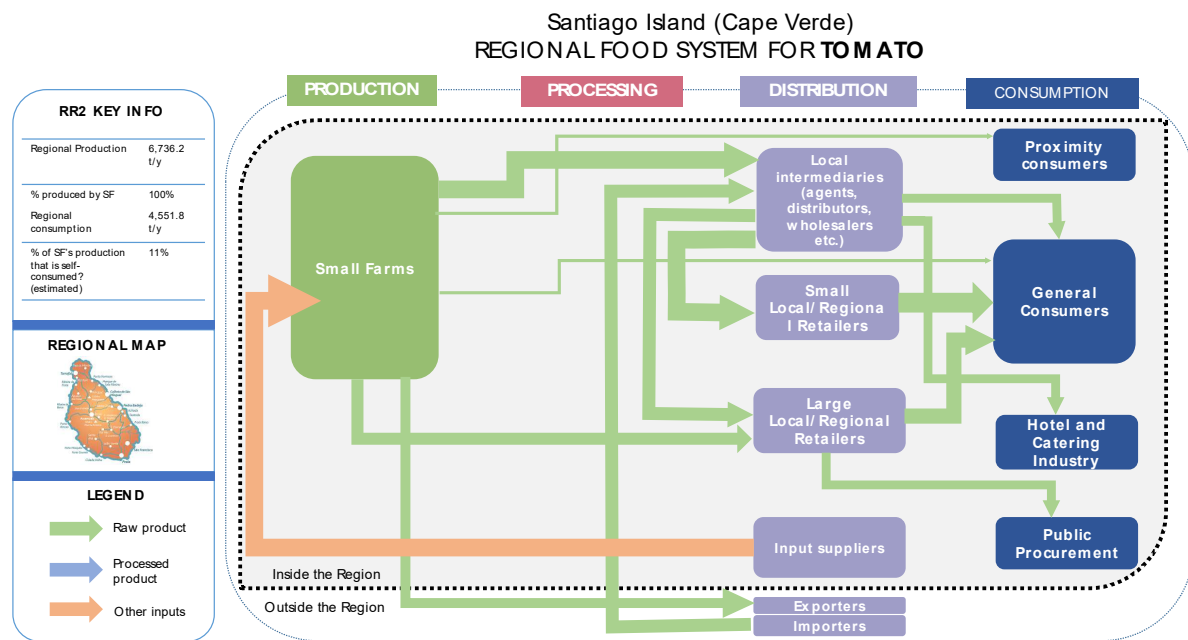
Also, the exchange of products between small farmers occurs frequently as stated by farmer's interviews without, however, specifying the quantities exchanged.



e. Other relevant information

FG participants confirmed that there are not producer cooperatives and they emerge greater importance for SFs from RR to create an important cooperative to organize, coordinate, support, collect, protect and to market the tomato production from local RR SFs.

From interviews and focus group, it has clearly emerged that agro-tourism can represent an extremely important part of consumers who buy products directly from producers.



3.3. Key product 3: Maize

a. Nodes in the regional food system: production, processing, commercialization and retail

Maize is the only cereal produced in the RR and is one of the staple product, is made exclusively by small farmers, confirmed by FG. Almost all of this production is destined for self-consumption, leaving a small percentage for commercialization (maize as seed and as cereal for direct feeding), allowing farmers some income.

However, production levels are relatively insufficient for the desired level of consumption, hence the RR need to import more than 80% of its consumption. It covers on average in a good year of production only 10-20% of the national cereal consumption needs. The average yield of this crop is very low, in the order of 300 kg/inhabitant (ANSA, 2011).

Commercialization of maize leads imports, along with rice and wheat. Thus, international import trade plays a key role in the country's food supply. Maize is imported through large importers, in which with 3 operators assure 95% of the import. These subsequently sell to



small retailers and small processors, where maize serves as raw material for other agro-industrial transformation, production of maize derivatives, such as prepared maize for "*cachupa*" or for production of animal feed, among others. Maize price is influenced by the world market, thus, depending on the uncertainties derived from the climatic conditions of the large producing countries.

The importers are considered relevant actors. Wholesaler's businesses are extremely strong in Santiago for collecting maize in the RR and selling outside the area, particularly to large processors and wholesalers, who resell to retailers, constituted by grocery stores, supermarkets, restaurants, local markets and hotels.

Our findings indicate that the relationships between the SFs and the remaining agents in the chain are small. Direct sales from local SFs to consumers are not significant, and some SFs deliver part of their maize production to intermediaries, but only a small extent. Small local retailers are less supplied by small local producers of maize. Also the wholesalers are considered relevant actors in RR, some large wholesalers engage in direct processing for retailers.

SFB processing companies consists of small local productions, namely processing into flour, animal feed, cakes and pastries, sold in certain stores. SFs also engage in direct processing of Maize in household. The "*cachupa*" and the "*cuscus*" are the most traditional dishes, but other maize food such as "*camoca*", "*fidjoz*", "*xerém*" and "*maize flour*" are also common.

b. Flows connecting the different nodes in the regional food system

Maize production in RR is mainly destined to household-consumption, making self-consumption one of the most important flow from SFs production. Such flow is particularly vulnerable since local primary production is exposed and depends on environmental and climatic stresses, especially erratic rainfall seasons. This vulnerability affects subsequent productions since part of the seeds is used for production, while a less expressive flow is selling seeds to others SFs. To a lesser extent, there are those who sell directly to consumers and intermediaries, but there is no clear indication on the quantities involved. Sales to restaurants and catering services are not relevant for local SFs.

The importers and local wholesalers were also considered strongly relevant actors in RR with regards to the supply of maize in the flows from outside to the inside of RR. This flow is vulnerable to international prices, and can easily suffer from market competition.

Other important flow consists of importers directly to animal feed factory which produce animal feed products that, in turn, sells to livestock companies. For instance, even though FG participants highlighted that a high percentage of imported maize is intended for animal feed, no clear indication on the quantities involved emerged from the interviews.



c. Role of small farms and small food businesses within the food system

SFs constitute the central step of maize value-chain, since, in most cases, family farmers direct their productions, both in RR external market, as well as within RR. In addition, because they produce most of the maize consumed within the RR, it is also responsible for jobs generated in the farm.

Processors constitute less dynamic segments since they play a smaller role in the domestic supply. There are important products of the local gastronomy, but the amount processed is relevant only for maize flour.

Importers and wholesalers have a preeminent role in bringing this staples inside RR because they have greater capital capacity and can supply larger quantities to respond to RR consumption. Importers are highly important maize suppliers for local animal farms because of the greater amount of maize available and the maintenance of the feed factories.

Large retailers and local grocery stores represent important local retailers because of the proximity to the consumers. An interesting point that emerged is with regards to local school canteens that cannot be supplied by importers. However, restaurants are deemed as key potential buyers from large wholesalers.

d. Importance of household self-provisioning in small farms and small food businesses

SFs constitute the central step of maize value-chain and food availability because they produce the majority of maize consumed within the RR. This segment is also responsible for income and job generation in the farm, showing the importance in the containment of rural exodus, even in the context of adversity and vulnerability.

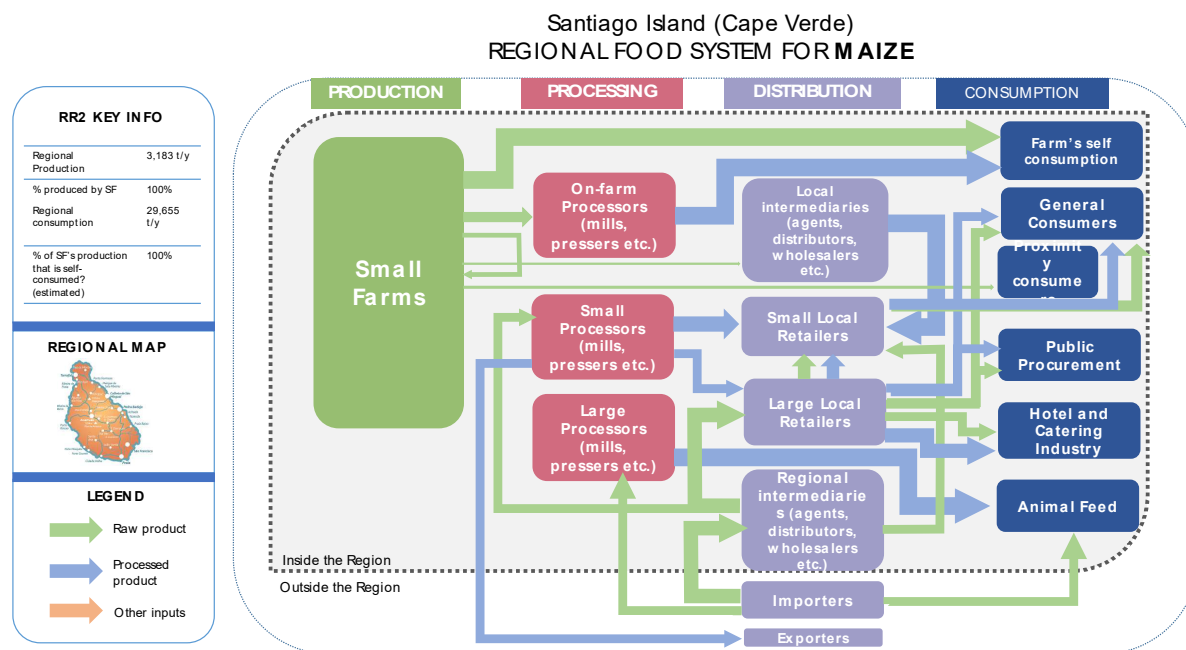
SFBs are also important for much of the maize availability for consumption in RR, since it comes from outside of RR. Importers and wholesalers have a preeminent role to bring maize inside RR because they have greater capital capacity and they can get larger quantities to respond to RR consumption.

Local restaurants (different from agritourism caterers) are deemed as key potential purchasers from large wholesalers and may represent relevant actors for maize.

e. Other relevant information

Maize production system in the RR is mainly developed in the steeper areas. The seeds are obtained directly from the farm and besides seeds they do not use other inputs for production. Maize and beans have always been the basis RR food.





3.4. Key product 4: Chicken meat

- a. Nodes in the regional food system: production, processing, commercialization and retail

RR livestock production, which is concentrated in chickens, pigs, goats, rabbits, cattle, equines and sheep, of which chickens represents about 66,9% from the livestock animals.

The production of chicken is locally made, by the large and small farmers, large farmers produce in greater quantity. The system is characterized by the combination of few large farms specializing in chicken production, domestic/family production of "land chickens" in small family farms, and the importation of frozen chicken of national origin and foreign.

With regard to poultry products imported, Santiago is the island with the largest representation in almost all products and animals imported with 69% poultry meat, 43% of eggs and egg-product of consumption, 100% of day-old chicks and 12% of fertile eggs

Some poultry producers have faced difficulties in obtaining maize to feed the animals. If this condition continues, the price of chicken in the domestic market may increase in the coming times. The continuing threat of lower chicken meat import prices, making these products very competitive, represents strong competition and instability for domestic companies with negative impacts on domestic sales. Overall, the locally chicken production is largely consumed in the RR, but it is also imported from outside the RR from other islands

Many of the producers choose to sell their products directly to the intermediaries "Rabidantes" who are considered relevant actor in commercialization and distribution,



collecting production from local farmers. They go to the farms to buy the products and then sell in and outside the area to the markets and other consumers, like urban households, small hotels, markets, as well as in reselling to small retailers that sell in local markets, or in an informal street vending who make barbecue chicken. In some cases, large and medium retailers make connections with local farmers for the direct supply of chicken.

Only large farms sell outside the RR, SFs can sell directly to consumers but is less extent, and small retailers, local and others urban markets, supermarkets, in addition, restaurants, in some cases, restaurants, Butchers, local supermarket and others retailers, who make connections with local farmers for direct supply. Large-scale producers dispose of their products through regional intermediaries, which subsequently place in the retail trade companies.

SFB, including small processors, are considered as relevant actors for this product. Furthermore, the restaurants are key potential actors of the chicken value chain. On the other hand, farmer's markets are considered not relevant at the local level of Santiago Island. Additionally, the importers and wholesalers are considered relevant actors in RR. Imported chicken is mainly for wholesaler's trough importers.

In particular wholesaler's businesses is extremely strong in Santiago for collecting production outside the RR, and selling their products in and outside the area, especially for big hotels. Holland is a key exporter to Cape Verde of frozen whole chicken, chicken parts and offal. Large producers of others Island export their production to Santiago Island, placing it in the large commercial and catering companies that in turn resell to SFBs.

Large farms and wholesalers have been the major suppliers of chicken to institutional markets such as school canteens, hospitals, and army. In this regard, an interesting role is played by institutional procurement.

b. Flows connecting the different nodes in the regional food system

The majority flow practiced by the SFs is exclusively to retailers. This flow from inputs to SFs and large farms is vulnerable since producers have faced difficulties in obtaining maize to feed the animals, and if this condition continues, the price of chicken in the domestic market may increase in the coming times. Otherwise primary producers can easily suffer from the market competition imposed by wholesalers who threat by cheaper import products at lower prices. Other important flow is from the production of large farms to small retailers.

Importing chicken from importers outside the region into the RR are very important flows. Wholesalers export part of the imported chicken out of the region, normally they are established by a contract of direct supply form the importers.

Regarding commercialization of animal products is concerned, this is done in the streets and in the butchers; many of these butchers are inside supermarkets. Supermarkets and mini-markets are essential for the marketing of products from animal origin. Sales from local SFs, are mainly oriented directly towards consumers and restaurants. Sales to restaurants and catering are relevant for local SFs and Wholesalers.



Sales from SFBs (grocery store, and supermarkets), the meat peddling processed in particular from roasts, consumption in restaurants and from retail purchases (in particular from frozen meat) represent the largest flows of acquisition by consumers and are extremely relevant.

From the FG participants, intermediaries, small retailers just as local restaurants represent one of the main sales channels of chicken by SFs. Moreover, lower sales levels are directed to supermarkets and local groceries store. It also emerged that in several cases small local groceries store is not supplied by wholesalers but rather from local producers.

c. Role of small farms and small food businesses within the food system

SFs are responsible for income and jobs generation in the farm, showing the importance in the containment of the rural exodus, even with adversity, these producers contribute very for food available in the domestic market.

However, stands out the important role of SFs and food business was stressed which is associated with, availability of products for market; contribution to the diversity of products for market; price competitiveness; liberation from the State from the responsibility of feeding families, providing self-employment; increased domestic production and imports reduction.

In addition, also they do not produce the majority of the (chicken) consumed within the RR. In 2002, it was estimated that 80% of national production came from industrial units and 20% from small semi-industrial units. (Tavares, 2002). SFBs processors do not constitute a central step of the chicken value-chain as the processing phase is embedded in the small farm activity. Processors are, admittedly, one of the less dynamic segments in RR.

As far as the commercialization of chicken, this is done by small intermediaries but small retailers are most important because they make their own transport and for this, they are responsible for availability for the final consumer. Importers and wholesalers have a preeminent and strong role in non-local chicken supplying for local RR consumers because they have the greater capital capacity and they can get larger quantities at the cheaper price, more accessible to the majority of the population plus lower incomes and on the other hand RR production does not respond to of region demand.

Large retailers and local groceries store represent important local sales because of the proximity to the consumer. On the other hand, local restaurants (different from agritourism caterers) represent relevant actors. Also, restaurants need rather be supplied by SFs since they can easily meet the needs of restaurants.

Because the large and small retailers are quantitatively more relevant for chicken purchase in local producers, they assume a fundamental key role in maintaining farm production. In urban areas, many of the sales are made local groceries store and in the butchers, many of these butchers are inside supermarkets. Supermarkets and mini-markets are essential for the commercialization of these animal products



d. Importance of household self-provisioning in SF and SFB

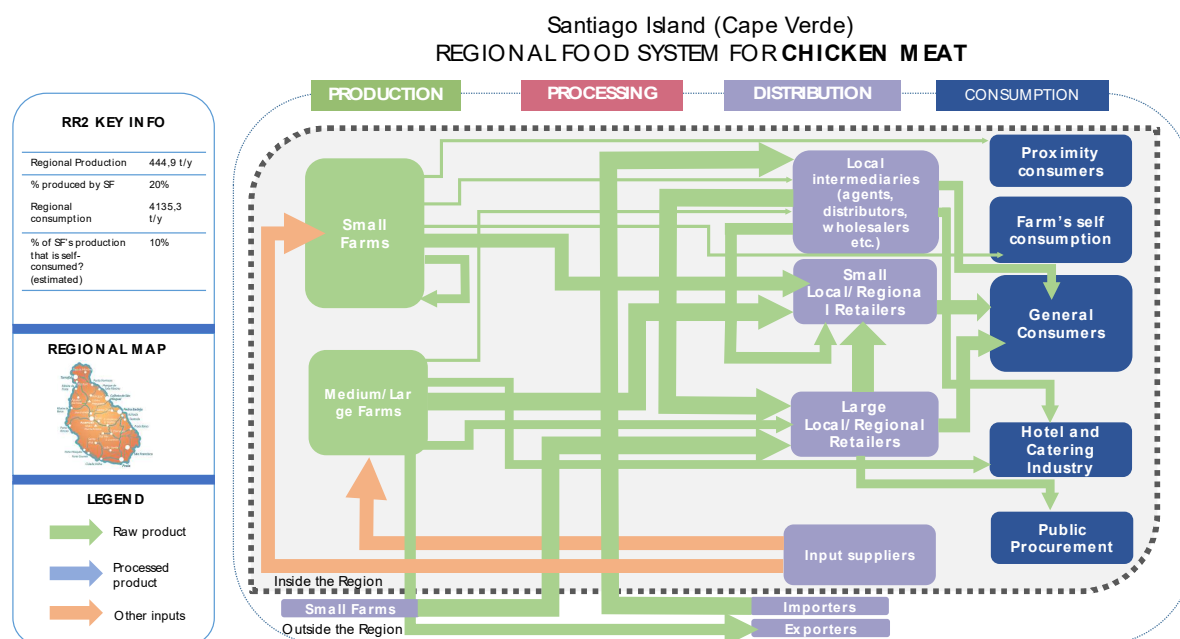
Small Poultry farms remain mostly traditional. Self-consumption has a relative importance for SFs. According to the SFs interviews, production is practically consumed, which has shown a great self-consumption oriented.

The production system is dominated by the large farms that produce the most chicken quantities, in these cases production is practically sold, which has shown a great market oriented. So self-consumption is much smaller extent, not ceasing to represent a contribution in terms of food diversity. The same occurs for SFBs.

However, the semi-intensive and intensive poultry industry has suffered a great decline in recent years due to the competition of chickens and pieces of chickens imported massively. Also the exchange of products between small farmers occurs frequently as stated by farmer's interviews without, however, specifying the quantities exchanged.

e. Other relevant information

From interviews and a focus group, it has clearly emerged that agritourism can represent an extremely important part of consumers who can increase their consumption in local restaurants with their frequency. With regard to local chicken, it is difficult to estimate the herd in family rearing, since chickens are raised both freedom and confined to breeding grounds. As a result, there are no official chicken slaughter statistics, and it is not possible to estimate them through administrative records and other sources.



Typology of small farms in the reference region

f. Small farm types in the region

In Cape Verde 98% of farms are considered small farms and family farms, there is no clear and official segmentation of agriculture producers. We took into consideration two main variables at the same time: degree of market integration (i.e. % of farm production that is directed for sale to the market, as opposed to self-consumption) and degree of self-sufficiency (i.e. degree to which household consumption is satisfied with own production) as organized into the Table 3.

Table 3 - RR Santiago (CV) Small Farms Typology

		Degree of self-sufficiency	
		< 50%	> 50%
Degree of market integration	< 50%	Type 1 2,86%	Type 2 0%
	> 50%	Type 3 11,43%	Type 4 85,71%

Type 2 (0%) - most farmers always produce in the expectation of selling for the market and very few produces as a hobby or only with the intention of self-sufficiency.

Other aspects of these farms are summarized in Table 4.

Table 4 - Summary of other characteristics of these farms

	Type 1	Type 3	Type 4
Approximate importance in RR (as % of all small farms)	3	11	86
Degree of specialization (number of crops produced)	> 3	> 3	> 3
Main crops produced (enter more than one if necessary)	vegetables and small animals production	vegetables and small animals production	vegetables and small animals production
Family structure (describe)	Older couples with children	No relevant	No relevant
Gender issues	Relevant	Relevant	Relevant

Regarding gender issues, in all typologies, despite the work of the woman, it is the man who makes the production decisions.

b. Role of small farm types in the regional food and nutrition security



Farmers interviewed did not complain about difficulties in terms of food and nutrition security, as availability, physical and economic access to food, however one could observe that there are needs to improve knowledge about a balanced and diversified diet.

c. Role of small farm types in the regional food and nutrition security

Assessing food and nutrition security in relation to these farmer typologies and in all dimensions of FNS, is not an easy task. Farmers interviewed did not complain about difficulties in terms of food and nutrition security, as availability, physical and economic access to food. However, in many cases one could observe that there are needs to improve knowledge about a balanced and diversified diet and that the farmers have difficulty in making ends meet, from an economic sustainability point of view.

Governance

a. Main interactions of SF and SFB with governance structures in the region

Most of the Santiago farmers (86% of the farmers interviewed) produce for the market, selling, on average, more than 90% of their staple products, while consuming or offering the rest of the yield to family, friends and workers. Most of the production is sold individually rather than in groups. In fact, 74% of the farmers sell all their products individually, while 17% sell all their production in the group. The remaining 9% sell both individually and in the group.

Only two of the farmers have a production contract with buyers; some farmers produce and get paid for their labor, and some grow the crops and receive half of the profit. None of the farmers interviewed have joined any quality of certification scheme.

In terms of interactions with governance structures, SFs and SFBs report that they interact mostly with the MAA¹⁶, through its delegations and the other state structures, in particular in development programs, technical assistance and training. The interviews confirm this, as 40% say they do not have access to agricultural advisory services, either for production or for commercialization.

SFs and SFBs have demanded that should be created credit lines suitable for agricultural financing access, since 66% say they do not have access to credit or the State subsidies, while 34% say they have access, with credit available from commercial banks, microcredit institutions and NGO's.

RR agriculture is also heavily affected by policies, actions, and agreements from international actors such as FAO, BAD and FIDA, especially with regard to financing issues and development programs.

¹⁶ Ministry of Agriculture and Environment.



SFs and SFBs in the RR do not benefit from direct subsidies from the State. Through the MAA, the State develops programs and projects to promote agriculture, benefiting farmers directly and indirectly. Particularly private sector input firms, provide technical assistance and consultancy services. Furthermore, churches and non-governmental organizations also play an important role in supporting farmers.

Moreover, SFs and SFBs feel that there is no strong local management by regional municipalities, with programs and policies heavily centralized and strategies defined and imposed from above without actually considering the particular conditions of the territories and local specificities of rural areas.

b. Levels of governance and their relative importance for SFs and SFBs

Santiago Island RR is part of Cape Verde Republic, where the National Government defines public policies for the whole country and are articulated with foreign cooperation organizations (FAO, EU, etc.). There are also municipalities that operate only in their territories, and in this municipalities, we can found decentralized services of the state.

Farmers who receive or have received some support from MAA consider it to be of the utmost importance for increasing their incomes. Other types of relationships with public institutions, since local authorities are very concerned with the economic development of SFs and SFs. They are at higher national levels (e.g. agribusiness fair organized by the State structures) and lower levels essentially access to farmer's markets (e.g. municipal markets built by municipal governments).

Besides the relations between farmers and the State, there is relations with private companies that supply inputs for production and also provide technical assistance. This relationship is important since without them it would be more difficult for SFs to obtain inputs for their primary productions.

For direct sales or consumer chains, some farmers enter into informal supply contracts with SFBs, namely companies (hotels, mini-markets, among others) and with intermediaries who carry out bulk purchases for later distribution to consumer's chains units.

Non-governmental organizations such as CITI Habitat (NGO) also have a very important relationship with farmers offering mainly technical assistance.

Another NGO is the Association for Defence of Environment and Development (ADAD), which supports issues related to the environment, agriculture and food security. ADAD develops projects to make farmers aware of the efficient use of resources for production and also addresses issues related to adaptation to climate change.

University of Cape Verde, namely the School of Agriculture and Environment is another relevant actor that is involved in many projects affecting farmers and the food system.



Another actor in close collaboration with the various agents involved in the rural sector and who has acted to improve SFs has been the INIDA (Agricultural Research Centre), mainly in the research, experimentation, and development of varieties better adapted to local ecosystems and in the diffusion of innovations and technologies that can be used in the agricultural, forestry, animal and environmental sectors.

c. Constraints impairing full participation in the food system

Santiago island agriculture, are dependent on trade in which the necessary inputs, such as equipment, technologies and other inputs, are all imported. The issue of scale is a problem in Cape Verde and in particular in Santiago island RR.

Lack of scale (small size of farms) is also an obstacle to access to new and larger markets, since the production capacity of SFs and SFBs is limited in both physical and financial terms. Irrigated agriculture has been increasing the area in relation to rained agriculture due to the increase in availability of water, however the lack of organization of farmers in cooperatives or associations makes it difficult to solve problems in the commercialization of products and technical assistance.

Such constraints, coupled with, permanent threat of water shortages, poor national market access (irregular inter-island transport) and lack of knowledge of the dynamics and cyclical trends of the market, subsidy policies, poor financing and investments and the low propensity of farmers to take risks, confirm that agribusiness is still in an incipient stage, with little diversification and concentrating on a small number of activities.

Processing is poorly developed and limited because of financial investment and sense of opportunity, justified in general by poor purchasing power of population and also by extremely complex legal standards to be met, which sometimes leads to withdrawal.

Another governance problem that SFs faces in some hinterland localities of Santiago, is they are having difficulties to finding available people, especially young manpower to work in fields.

d. External policies, decisions and social norms affecting food systems

Santiago Island is heavily dependent on the outside world as it does not yet have sufficient quantities to supply his population and is therefore very sensitive to the changes or decisions made in the external countries that export their products. In addition, the RR receives much international aid.

There are incentives for the use of renewable energy in agriculture, especially for water pumping. The existing wells will be equipped with solar panels, within a programme that is being implemented by the Ministry of Agriculture and Environment (MAA), aiming to reduce the costs of producing water for agriculture.



e. Gender issues intersecting governance issues

Parallel to the economic initiatives, issues of gender equality and equity are one of the four transversal pillars identified in the Government programme. The reiteration of the need to integrate the gender approach results from the fact that, in Cape Verde which includes Santiago island, the gender imbalance scenarios have constituted important barriers to the sustainable development of different economic sectors.

In rural reality, men are traditionally engaged in production activities that require more physical effort, while women of harvesting and marketing. However, factors such as unemployment, emigration, and alcoholism have changed this tradition, imputing to women any task previously performed by man.

The small food business is an activity that the labour force is mostly women.

Agriculture for the market usually carried out in irrigated areas or under protection (greenhouses) and/or with high technology (hydroponics), it is entirely dominated by men. Also regarding meat processing (slaughterhouses and butchers), the labour force in these stages registers a greater predominance of men on employees.

The socio-cultural scenario conditions a traditional division of labour, in which women are forced to assume most of the responsibilities of reproductive work, limiting their participation in certain chains. Men generally have a strong command of household resource management, limiting in most cases the participation of women in decision-making.

The main gender constraints observed are related to the stereotypes associated with the social division of labour, both productive and reproductive, which limit the majority of women to access, control resources and benefits.

With regard to production:

- Women perform most reproductive activities.
- In general, agricultural production units with a business focus has greater number of men employed than women.
- Land ownership and/or tenancy is mostly attributed to men as a consequence of traditional perception that women have less ability to manage family resources. Consequently, women face limited access to financial resources. There are no business development services with a focus on promoting female entrepreneurship.
- General rule, because Women not own the land and/or have access to the land, are not able to reap direct benefits that land can generate, either by direct exploitation or by leasing. In irrigated agriculture, men often earn a higher remuneration than women for similar work.



- Men occupy intermediate functions of production coordination in activities with technical requirements (spraying, management of irrigation systems, among others).
- In rainfed agriculture women participate and manage the whole productive process, labour force for this activity is mostly women. In irrigated agriculture, men participate mostly in cultivation. Women participate in weeding and harvesting. In post-harvest period, women have the responsibility for selecting and packaging products. In commercialization, it is observed that most women are involved in small and medium-sized transactions, while men are in charge of managing large Business.
- We have seen from interviews with farmers that the primary reason for neglecting women's employment is the understanding that the traditional social division of labor inputs to women multiple domestic tasks that limit their participation in agriculture.
- Generated incomes are almost exclusively controlled by men. Even in cases where women have ownership of the land and have a husband, control and decision-making power are assigned to men. Only independent women control the benefits that they generate when they are unmarried or widowed.
- On average, Santiago Island RR unit's production employ between 6 and 10 full-time workers, of which $\frac{1}{4}$ are women. The average men salary is 9€/day. The women salary for the same services is 5,4€/day.

With regard to processing:

- The vegetables and fruit and of meat chains reveal a majority concentration of men, who have an ascendant control of the resources, the productive activities and the beneficial ones generated. From sweet jams chain, women are almost exclusively involved, managing the processes and the dynamics of the business, but men have an ascendant control over the benefits generated by women. The poor participation of men in this chain is linked to the psychosocial barrier that activities involving stages linked to cooking are socially belonging to women.
- However, the value chain of cheeses is the one with the greatest tendency towards gender balance from the point of view of the participation of men and women. However, with regard to access to resources and control over benefits, it should be noted that women have fewer opportunities.

It was recommended by FG participants to strengthen the public policies that favor women, in particular training and access to credit. Also participants agree that policies from international organizations may be negatively impacting gender policies, as often these policies do not reflect the reality of the country. However, policies have been directed exclusively at women, which has contributed to a greater number of women in education, while on the other hand there has been some fragility of men.

f. Other actors and processes important for the regional food system



From Consumption-side, the National Federation of Consumer Cooperatives, it is a national super organization to which are part, the Union of Cooperatives of Praia and São Domingos Cooperative with the objective of continuing the expansion and consolidation the degree of autonomy of consumer cooperatives. According to the Key informant's interviews, no products processing is done on farm, since most of the processed product purchased by SFs households are imported (examples, canned beans, tomato sauce, ketchup).

With regard to networks identified by the FG participants, were referred to the NGO platform, which brings together the various NGO's linked to development and which constitutes a communication space and permanent dialogue with the objective of contributing to the strengthening and improvement of the level of intervention of NGO members, through concerted actions and promotion their participation in the socio-economic development of the country.

They aim to design, implement, manage and develop community intervention projects to solve economic problems. They elaborate projects related to the installation of a renewable energy system for the abstraction and pumping of water for irrigation, water mobilization, agro-food processing for the production of sweets and liqueurs, training for knowledge of the laws and regulations of safety and hygiene, acquisition of equipment, credit lines, installation of processing units for agricultural products and for the training of farmers in areas such as sustainable agriculture, renewable energies and energy efficiency.

The Regional Partners Commissions, on the other hand, correspond to a practice based on solidarity and mobilization of joint actions, promoting the creation of socio-economic opportunities in a given territory. They integrate the Municipalities, the decentralized State services, community associations, and NGOs. The main donors are the government and the International Fund for Agricultural Development and implement activities under the programme of fight against poverty in rural areas, the current programme for the promotion of Rural Socio-economic Opportunities that finance the activities and projects of the above-mentioned community associations.

g. Forms of collaboration and organization between small farms

Relating to banana, tomato, and chicken production, there are no relevant forms of collaboration between small farms that have been revealed, there is a lack of cooperation among farmers, in production, irrigation etc.

The productive agricultural sector in Santiago Island is not mostly organized, and cooperatives presents a recent course in the RR.

Relating to maize production, exists a common and traditional cultural practice reality, particularly for SFs with low access to agrarian inputs, typically agricultural practices, which by their nature, management and organization, become, in an organization and social structure based on mutualistic practices, locally called "djunta-mon".



However, 43% of interviews say they do not participate in any collaborative network with relatives and neighbours. Regarding participation in Associations or Cooperatives, 71% stated that they did not participate.

h. Forms of collaboration and organization between small farms and consumers

In general, no relevant forms of collaboration have emerged during the focus group. However, there are informal relationships, where very small farmers deliver their products, directly to consumers, as well there are consumers who prefer to buy their products from local farmers, especially vegetables and animal productions just for the privilege the relationships of trust, safety and acquaintance relationship among them.

i. Relationship between small and large farms, and between small and large businesses

FG participants address cooperatives with a relevant role in coordinating and organising the vegetable supply and price strategy, as well as for promoting and protecting local produces. In Santiago Island focus groups (banana and tomato) was revealed some types of relevant collaboration between small and larger farms. There are SFs producing from rainfed agriculture and on several occasions, they are permanent or temporary workers in large farms.

Thanks to the local procurement bids, there are small farms who supply bananas for institutional markets such as school canteens, hospitals and army, and sometimes because not having enough quantities, they buy from large farms. There are also large farms that produce seedlings of plants and also chicks and sell to SFs, and large SFBs (feed mills) that provide technical assistance to their animal breeding clients.

j. Other governance issues

It is noted that consumer organizations are still an incipient reality in Cape Verde, with only one NGO operating at a national level, but whose attention is channelled to commercial institutions and public service provision. This fact is reflected in respondents' answers since 94% say they do not receive support from consumers and consumer associations. Only 6% admit to receiving consumer support in labour.

The focus group generally confirmed critical issues and the problems that we previously investigated and revealed in the territory.



Small Farms and rural livelihoods

a. Importance of household labour in SFs

Household labour in the Santiago island RR is crucial because, in SFs, in general, all family members participate in agricultural activities. According to the, 2004 RGA¹⁷ data, in 95.4% of rainfed agriculture farms the family labour force covers almost all of the needs of farms in rainfed agriculture. For the case of irrigated agriculture, the scenario is not different, since about 92% of the farms use the familiar workmanship in their activities.

Domestic work ends up being a way to reduce the cost of carrying out the activities of both SFs and SFBs since, in general, the family members do not receive a salary to perform the tasks because the objective is to contribute for the generation of income, thus contributing to the survival of the family, this phenomenon is very common in rural areas.

As for wage labour, they are essentially temporary, but in Santiago island, and particularly there is very often an interaction between small producers called the “djunta-mon”, more frequent in rainfed agriculture than irrigated agriculture. For the case of SFBS, domestic work also plays a predominant role, insofar as family members help in particular, the “rabidantes”, in their selling tasks.

b. Farm and non-farm income in the SF’s households

Livelihood diversification is one of the most remarkable characteristics of rural livelihoods, in Santiago island RR. Less than half of the small family farms have agricultural income as their main source of income. According to the 2004 RGA data, there are great differences between the municipalities: Santa Cruz, Tarrafal and Santa Catarina has high rates of farms where agricultural activity is the main source of income, 74, 67 and 66%, respectively, while for the municipalities of Praia, São Domingos and São Miguel the rates are 21, 33 and 43%, respectively.

Most of the interviewed farmers (about 60 percent) say that their income comes exclusively from agriculture, while the remaining 40 percent say they have other sources of income than agriculture, but it was not possible to obtain quantitative income data. Of these 40%, who say they have other sources of income, the majority (63%) say that 60-95% of income comes from agricultural activity and about 25% say that only 20-40% of their income comes from agriculture. Other income activities come from activities such as salaried work of public administration, civil construction, in the third sector such as health, education, tourism, catering and hospitality, public service, etc.) and other liberal activities.

¹⁷ General Agricultural Census



c. Shocks and coping mechanisms of SF households

Due to the lack of natural resources, agricultural activity only partially covers the country's basic food needs: only 20-30% of domestic food consumption is produced in Cape Verde, the rest being provided by imports.

The main shocks that have affected SFs in Santiago Island RR are climate change and cyclical droughts, the appearance of pests, causing great economic damage to farmers. These types of shocks have a negative impact on productions and diversification of products and, consequently, reduce the producers' income. In the year of 2017, Santiago Island was affected by the drought phenomenon with direct implications in the agricultural and animal production and consequently in the reduction of the physical and financial access to food in the nutritional quality of the families, with problems of acute malnutrition in children and adults.

One issue is the fact that there are often problems in water supply in both quality and quantity. Finally, the unsustainable use of Agrochemicals, without control, without supervision and without knowledge of their effects on human and environmental health, due to the need to intensify the production, stands out.

Furthermore, in response to negative shocks, policies, programs, and strategies to mitigate negative impacts were created, including drought control/mitigation programs, the introduction of new cropping technologies and new varieties and species, and programs to adapt to climate change. These measures and policies have almost always been carried out by the State through the Ministry of Agriculture and Environment, which is strongly supported by international cooperation.

Diversification of livelihoods is a strategy that is generally applied to deal with economic and environmental shocks and poverty reduction.

From a positive way, there is an increase of tourists visiting Cape Verde, contributing to increasing demand for food, thus contributes to farmers seeing at these new opportunities, with the need to conquer these markets and produce better quality.

Role of Small Food Businesses

a. Main insights and patterns

In Santiago Island, the agro-food business consists mainly on processing and trade (direct or after processing) of fresh produce to consumers, mainly horticultural products, followed by of hotels and restaurants and some agroindustry processing, generally, made on a small scale and of artisanal production way, by small units concentrated in Praia (capital). Also, we can find businesses related to water capture and bottling, frozen foods and coffee roasting.



The vast majority of SFs do not do food processing, and this role is for SFBs, that are engaged in baking and pastry making, regional confectionery, fruit processing (sweet jams and jams with fruit pulp, beverages), pasta, grinding, processing of dairy products such as yogurt and cheeses.

Meat processing generally consists of a small number of activities, in particular in slaughterhouses and butchers. In other cases, charcuterie production takes place, where various meat products, such as sausages and smoked meats are produced.

In addition to the selected foods, the small food industry produces alcoholic drinks and liqueurs from sugar cane and is very relevant in this region, representing high added value, coupled with the fact that the consumption of pure alcohol per capita has reached 20.6 liters in 2015.

Small agro-food businesses, including small retailers "Rabidantes", play a very important role in the development of local economy, through the availability and the accessibility of local food to population's proximity and population centers. In fact, it has been confirmed through the results from the interviews.

An extremely relevant aspect in the RR of Santiago Island, which covers the sectors of production, distribution, processing, restaurants, street vending, grocery stores is the large weight that the informal sector has in the economy and may be growing as a result of high unemployment and underemployment, leading to the development of new businesses including the food sector which is difficult to account for statistics.

b. Labour in SFB work

The main perceptions regarding labour in the SFBs work is that in the RR of Santiago Island, on average of SFBs interviewed, they are able to cover 100% of the total workforce with household labour. The small food business is an activity that is usually developed from a family perspective and involves hiring small-scale and often casual labour.

Given the fact that most entrepreneurs are occupied with other productive activities, in cases where products demand is high, they usually hire additional labour for this stage of the chain.

With regard to meat processing (slaughterhouses and butchers), the labour force in these stages registers a greater predominance of men on employees.

c. SFB income

The existence of these small businesses can often lead to an increase in the price of food, as 40% of the interviewed answered that the average consumer price of their product is higher than the regional average. In addition, 40% considers that it is equal to the average and 20% considers that it is inferior to the regional average.



In relation to the main issues with regards to SFB income, they are family-run businesses and usually constitute a complementary income generation activity, since most entrepreneurs have some central income-generating activity.

The weak organization in food businesses cooperatives and the absence of productive strategies has as consequence in a low activity income, conditions the innovation process coupled with deeply rooted socio-cultural traditions. Production surplus should be a bet to form processing cooperatives.

d. Shocks and coping mechanisms of SFB households

The main shocks and constraints experienced by SFB households are mainly linked to climate changes; droughts, production inefficiencies coupled with the small scale structural weaknesses of farms (lack of scale) which they produce without any coordination and connection to the markets, also they face possible difficulties on international economic environment, post-harvest practices, poor logistic distribution from the field to the final consumer, including uncertain inter-island transport and limitations of access to credit.

The way they have coped with these shocks has been through product enhancement; promotion of quality standards and sanitary safety; development of the value chain of niche products and public-private partnerships.

The Future

a. Main objectives and priorities of SF for the future

The main short term objectives and priorities of the SF involve transformations linked to farm cultivation processes such as 1) increase surface and quality of production in case of availability of water; 2) introduction of new production technologies, i.e. irrigation and greenhouses; 3) construction of water reservoir and other small infrastructures; 4) livestock raising including poultry; 5) diversification and intensification of production; and 6) installation of food processing units. The final objectives are to increase the scale and quality of production, to explore other markets, such as the tourist market and other islands, as well as to adopt new technologies, product certification and a significant increase in income.

Of the surveyed farmers, 11% stated not to have any short-term objective, 9% had no long-term objective, while 3% claimed to have no objective at all since they do not intend to continue farming. The majority of producers expect their children to continue their production activity and, therefore, there is no motivation to sell the farm after they cease activity.

For some of the farmers, in the long term, they want to buy cars to transport their product, build house in the farm to spend their leisure time and give good education to their children. Most of the spouses showed no objectives or priorities for the farms in the future. However, some would like to continue farming, increase production and have more profit to invest.



When questioned about plans for the continuity of the farm after the farmers are no longer able to farm, 83% respond that the children or other family member will take over, while 17% plan to sell the farm.

b. Main objectives and priorities of SFB for the future

The short-term objectives are to continue their activity and, in the long-term, to expand their activity with new infrastructures, suitable for commercialization.

The intermediaries, "*the Rabidantes*", think that change in food product processing should be borne by the State. In addition, they recommend the creation of an association of "Rabidantes". As personal goals, many aspire to have their own products and be able to give good education to their children.

Most of the respondents fear the loss of market to imported products because of lack of quality of the local products.

c. Risk perception by SF

Apprehension among SF is mainly related to climate change that brings risk to the availability of water for irrigation, as well as the appearance of pests and diseases. This concern is also shared by the focus group that pointed out climate change as a risk for Small farms and also for small food businesses. The smaller farmers, particularly horticultural farmers, are even more susceptible to these risks since these crops need water more frequently and are susceptible to pests and diseases.

d. Risk perception by SFB

Risk perception of SFB is also related to climate change, a concern also shared by the focus group. In addition, many SFB wish to access the tourist market, but the lack of certification and quality hinders their entry.

Similar to SF, the irregularity of market supply for certain products constitutes a risk and shows a lack of capacity to guarantee a regular production.

e. Food system forecast in 5, 10 and 20 years

In 20 years, it is foreseen a decrease in the national production and an increase in import, which will have implication in the food map flows. The FG preview that, in 5 to 10 years, the consumption and local production of chicken will increase, while import will decrease.



Annex: List of resources

d. List of key experts interviewed

Institution
Ministry of Agriculture and Environment
National Institute of Development and Agricultural Research
Ministry of Agriculture and Environment
Cáritas General secretary
National Institute of Meteorology and Geophysics
Producers' Cooperative Justino Lopes
Animal Feed Production Company Upranimal
Ministry of Agriculture and Environment Delegation of Santa Cruz
Private farm Monte Negro
Ministry of Agriculture and Environment Delegation of Tarrafal
Small jams and liquors processing company Ivete Produções
Private farm Procana Lda
Small jams and liquors processing company Doces Artesanais
Producers' Cooperative 13 de Novembro

e. SF and SFB interviews and focus groups information

Stakeholder typology	N° of participants						How were they contacted?
	Interviews			Focus Groups			
	Men	Women	Total	Men	Women	Total	
Farmers	29	6	35	0	2	2	Institutional contact: Telephone Email
Producers' cooperatives	2	0	2	2	1	3	Institutional contact: Telephone Email



Slaughtering facilities	0	0	0	0	2	2	Institutional contact: Telephone Email
Processors (small/large)	2	2	4	0	0	0	Institutional contact: Telephone Email
Wholesalers	0	0	0	0	0	0	Institutional contact: Telephone Email
Retailers	0	5	5	0	2	2	Institutional contact: Telephone Email
Caterers	0	0	0	0	1	1	Institutional contact: Telephone Email
Other small food business	0	2	2	0	2	2	Institutional contact: Telephone Email
Exporters	0	0	0	0	0	0	Institutional contact: Telephone Email
Importers	0	0	0	0	0	0	Institutional contact: Telephone Email
Farm inputs suppliers	0	0	0	0	0	0	Institutional contact: Telephone Email
Advisory services	0	0	0	2	1	3	Institutional contact: Telephone Email
Agricultural administration/Ministry of Agriculture	0	0	0	3	2	5	Institutional contact: Telephone Email
Consumers' groups/organizations	0	0	0	0	0	0	Institutional contact: Telephone Email
Local administrators and policy makers	0	0	0	2	2	4	Institutional contact: Telephone Email
Political leaders and PMs	0	0	0	1	0	1	Institutional contact: Telephone Email
Other programs/initiatives	0	0	0	2	2	4	Institutional contact: Telephone Email
Nutritionist	0	0	0	0	2	2	Institutional contact: Telephone Email
NGOs	0	0	0	1	0	1	Institutional contact: Telephone Email
Traditional and religious leaders (for Africa)	0	0	0	0	0	0	
Total	48			32			

f. Other important issues

The empirical information was collected through the Focus Group.

1st Focus Group - April 18, 2017

2nd Focus Group - November 24, 2017



4.3. RR3 Varazdinska –Croatia– Food System Regional Report



WP3

Varaždin County (RR 3) –Croatia– Food System Regional Report

Author: Sonja Karoglan Todorović



Table of Contents: Food System Regional Report

1) Socio-economic and agricultural profile of the reference region.....	83
2) Key products and regional food balance sheet.....	85
3) Food system: Key nodes and flows and role of small farms and small food businesses.....	86
3.1. Key product 1: Pork.....	86
3.2. Key product 2: Potato	87
4) Typology of small farms in the reference region.....	89
5) Governance	91
6) Small Farms and rural livelihoods	93
7) Role of Small Food Businesses.....	94
8) The Future	95
9) Annex: List of resources	97



Socio-economic and agricultural profile of the reference region

Varaždin County is the third smallest county in Croatia. According to the 2011 census, Varaždin County has a population of 175,951 inhabitants, accounting for 4.1% of the total population in Croatia. Ethnic Croats make up as much as 98% of the population. With an average of 140 inhabitants per square km, Varaždin County is as twice as densely populated than Croatia and about 40% than the EU-28. Rural population living in picturesque villages prevails. The County of Varaždin has a mosaic landscape made of small agricultural plots, hedges, woodlands, brooks, rivers and forests. Rolling hills stretch next to the fertile lowland area along the river Drava. The economic development is based on industry, commerce and financial sector. Food processing (dairy and beverage) is well developed and other industries include clothing and textiles industry, metal manufacturing industry, leather footwear industry, manufacturing of high-quality wood furniture and other lumber products. Varaždin County is one of few Croatian counties that have a higher export than import. The export value equals to 3 billion EUR per year. Its economy makes up for 3.4% of the national GDP and the GDP per capita is 86% of the national average. It is one of the most competitive counties in Croatia, continuously boosting its economic development through new investments, notably the development of business zones at the outskirts of urban areas.

Table 1: Basic data for the region

Indicators	Data per Region - Nuts 3
Land size (km ²)	1,262
Population (thousands of people)	176
Density (people/km ²)	140
GDP (thousand USD/inhabitant)	10.8
Total labour force in AWU	17,495
Total number of holdings	33,415
Total Agricultural area (ha)	65,905
Total Utilized Agricultural Area (ha)	52,724
Agricultural Area in Mountain Area	
% of UAA in the RR	41.77
Average Farm size	1.6
Number of farms by UAA farm size: 0-5, 5-20,20-50, >50ha	31,528/1,843/44
Average size of farms < 5ha of UAA	1.19
Area of main crops (ha) (list the relevant crops below)	36,399
Area of main crops (ha) in farms < 5ha of UAA (list the relevant crops below)	25,182
Livestock (LSU) per type (list the relevant types below)	Not available at NUTs 3
Livestock (LSU) per type in farms < 5ha of UAA (list the relevant types below)	Not available at NUTs 3
Annual work units (AWU) by UAA farm size:0-5, 5-20, 20-50, >50ha	
Total family labour per farm size: 0-5, 5-20,20-50,>50ha	



The SF have experienced two major shocks in the last three decades: the collapse of the former big state agri-food enterprises and the cut in subsidies due to the accession to the EU.

In the past the region had three big state-owned agri-food companies: Vindija, PPK Varaždinska and PZ Ivanec. Vindija was specialised in dairy cows and dairy products while the other two produced a range of arable crops, grape and fruits, as well as livestock – which were processed in several cereal products, oil, feedstuff, wine, fruit juices and meat products. These companies were exceptionally important for SF. Besides, being a free-of charge source of know-how they were also buying all surpluses produced by SF. The price for the produce was fair and the payment was realised the next day in cash and this income was not taxable. No registration or contract was needed to realise the sale. All was done ad-hoc when suitable and opportune for the farmers. The SF were not subject to any agricultural/veterinary inspections, financial or any other type of control. After the collapse of these state-owned companies, SF have no secured market and have to struggle where to sell their produce. Vindija remained the second biggest Croatian dairy processing industry, but the number of milking cows and milk quantities in Varaždin County have been in constant decline. After the privatisation, instead of relying on local milk production Vindija started buying cheaper milk (often of lower quality) from very big milk producers located hundred kilometres away from Varaždin County, including those from abroad.

The second shock relates to the accession to the EU. The CAP rules in terms of subsidies are not favourable for SF of Varaždin County. The subsidies they used to receive before the EU accession were substantially higher in comparison what those receive now (or could receive – because many are out of key administrative frameworks and do not ask/receive any subsidies).

Contrary to the situation in most other New Member States, in which joining the EU meant a substantial increase in farm subsidies, the EU membership resulted a considerable drop in subsidies for many farmers in Croatia. Although Croatia's production subsidies were to a large degree justified politically as support for struggling small farmers, they did allow these people to hold on to their land and to earn a bit of money from farming. Croatia has spent the last decade shifting its systems of mainly coupled subsidies into line with the EU's CAP which favours income support, decoupled from specific products and based on compliance with a sets of standards. In the past, agricultural subsidies were coupled to production of different crops and were based on reference yields (e.g. per litre of milk, per kg of honey). With relatively intensive production even the small farms were able to earn substantial proportion of their income from subsidies. After the change to per hectare payments and introduction of various standards such as cross-compliance which are difficult to fulfil, direct payments have almost no relevance for small farms. Actually, many of them stopped claiming any farming-related subsidies.

Implementation of the CAP in Croatia also decreased the amount of subsidies that were important for small farmers in Varaždin County. The case of subsidies for indigenous breeds illustrates this situation well. A vast majority SF in Varaždin County produce an indigenous



turkey (Zagorje turkey) and hen (Hrvatica hen) breed. Before the accession to the EU they were entitled to receive a subsidy of 20 EUR per one turkey beak and 8 EUR per one hen beak. Now they can get only 5 EUR for the same turkey and 3 EUR for the same hen. The biggest change for small farmers happened with the so-called income support scheme and a maximum annual payment of up to 3,200 EUR per farmer. After joining the EU Croatia replaced this type of support with the so-called small farmers' scheme, a simplified system of support for the smallest beneficiaries, with a maximum annual payment of up to 657 EUR per farmer. Although this scheme reduces the administrative burdens for these farmers, for example by exempting them from greening and cross-compliance rules it also represent almost a fivefold decrease of their previous payment.

Key products and regional food balance sheet

a. Key products produced and consumed in the region

The most common arable crops produced in the region are maize, wheat, barley, oats and pumpkins. Vegetable production is dominated by potato and cabbage. Vine and fruit is also being produced. The most significant livestock produce are cow's milk, poultry and pork. Although cereals account for the vast majority of the crop produced, most of it is not consumed by humans, but by livestock. The two selected key staples are potatoes and pork meat. These two produce are selected because:

- They are part of daily diet by majority of the households (largely also because they can easily be stored and kept over a longer period of time).
- They are produced locally and in sufficiently quantity (no significant import exists)
- Both are very characteristic produce for the region
- Both are produced on small farms. Actually, a large number of small-scale farmers produce pigs/pig meat and potatoes almost exclusively for own consumption with some surpluses sold at the local markets.

b. Balance of production and consumption of key products in the region

The food self-sufficiency of the region is 70-80%. The balance of production shows that almost 91% of cereals (corn, wheat, barley) are consumed in the region (primarily as livestock feed). Out of the total production of pork meat, 70% is sold outside the region. Since this region, due to its small and chopped surfaces, is "condemned" to the type of production yielding high per unit of area, the region has traditionally been producing potatoes. Potatoes account for 23% of the population's nutrition. Of other cultures, self-sufficiency (similar to potato) is evident in cabbage production. There is a significant negative balance in the production of milk, dairy products and beef meat.

The production of pork meat was 15,000 tons and consumption was 4,038 tons. The surplus of the production was 10,962 tons (271%).



In 2017, the production of potatoes was 43,355 tons and consumption was 9,739 tons. The surplus of the production was 33,616 tons (345%). In total, potato was grown on 1,571 ha, of which 657 ha were on a small farms.

c. Official statistics and key products in the region

Unfortunately, agricultural statistics are not always reliable and sometimes a time-lag exists, resulting in late release of some important data. The data provided here are a combination of official national statistics, data from the Varaždin County (local government) and all other available databases. The data have been responsibly collected, analyses and interpreted.

Food system: Key nodes and flows and role of small farms and small food businesses

3.1. Key product 1: Pork

a. Nodes in the regional food system: production, processing, commercialization and retail

In 2017 there were 66,363 pigs in Varaždin County, which corresponds to 19,909 livestock units (LU). Out of 15,000 tons of pig meat produced 75% were produced on small farms and 25% on medium/large farms. Small farmers are producing piglets which are then further fattened either on their farms or sold to other farms in the county or outside of the region.

Consumption of pork is changing, mainly due to changes in the consumer's purchasing power. As their purchasing power is decreasing, consumers are buying more and more produce in large shopping malls. This is not only because of the very low meat price (often offered on sale), but also because there they can pay with their credit cards and postpone the payment. Consequently, pork produced in traditional way by small farmers lose its customers, especially in urban areas. In addition, there are some changes in distribution channels. In the past, hotels and restaurants used to order pork meat directly from local butchers. Now they buy it from wholesalers and other middlemen.

b. Flows connecting the different nodes in the regional food system

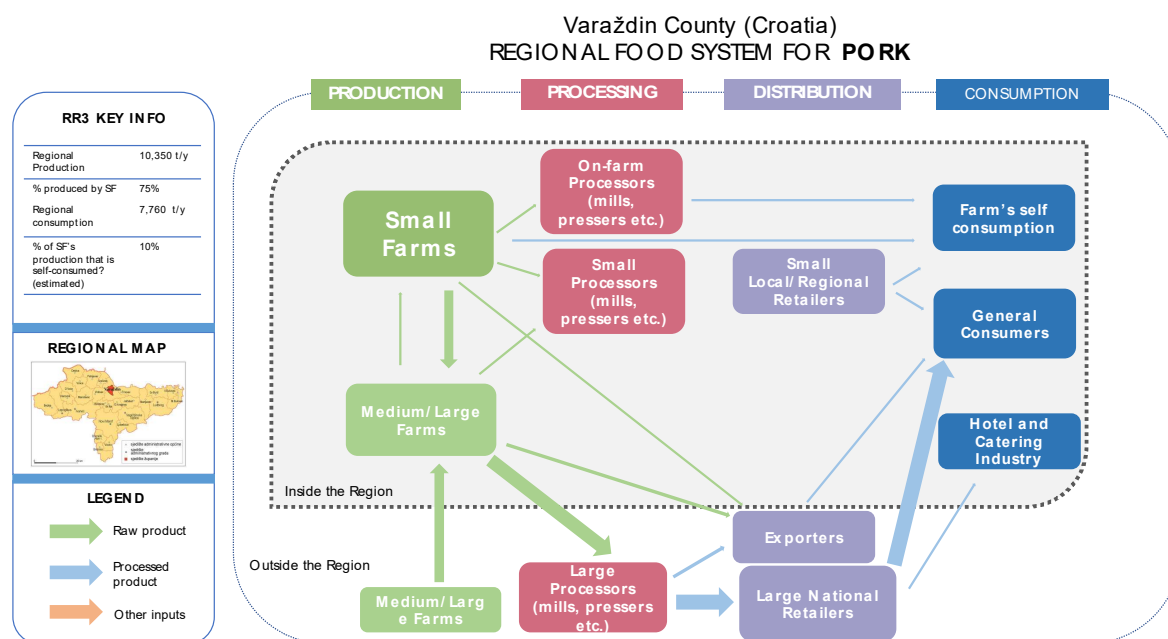
Small farms sell pigs on farmer markets (15%), to small retailers (45-50%), and to lesser extend to wholesalers (20 %) or processors (10 %), and 5-10% is for the own consumption. It is estimated that 30% of pig meat is consumed within Varaždin County while 70% is sold outside of the region.

It is difficult to trace pig meat once it is sold outside of the region. However, within the Varaždin County consumers are buying it in supermarkets (40%) and smaller shops (25%); some 30% is sold through informal channels (usually on farm) to extended family, neighbours and friends and the rest in restaurants/hotels.



c. Role of small farms and small food businesses within the food system

Processing capacities in Varaždin County are very limited and there is no slaughtering and processing industry. Most of the processing is done on farms and there are just a few small businesses (butchers) that are processing smaller quantities of pig meat. According to key stakeholders, approximate total annual amount that is processed in the region is 1,500 tons/year, mostly on small farms and only 30 tons (2%) is processed by small businesses.



3.2. Key product 2: Potato

a. Nodes in the regional food system: production, processing, commercialization and retail

In 2017, the production of potatoes in Varaždin County was 43,355 tons, including production both by small and large producers. In total, potato was grown on 1,571 ha, of which 657 ha were on a small farms.

Large producers account for 78% of the total production, while small farmers make-up 22%. It is estimated that about 5% of the total potato production in Varaždin County is used for own consumption, 5% is sold within the county, while 90% of ends outside the region. Croatia has several companies processing potatoes but in spite of a significant production, Varaždin County has just one very small potato processor.

In 2017, 9,739 tons of potatoes were consumed in Varaždinska County. Most small farmers produce potatoes for own consumption. As much as 90% of potatoes produced on small farms is consumed by the household while the rest is sold at farmers' market (5%) or given (5%) to family or friends.



b. Flows connecting the different nodes in the regional food system

Given the huge surplus in production, about 90% of potato is sold outside the region, unprocessed in bags (1 kg to 20 kg) or in bulk (wooden boxes weighing up to 1 ton). Bigger producers who produce potatoes primarily for sale rarely have any long-term contracts and every production year is a new challenge. Although there are no precise figures, it is estimated that most of the potato produced in Varaždin County ends up in large shopping malls where it's sold to consumers.

Varaždin County has several cooperatives and companies specialized in the purchase of agricultural produce. However, in spite of this, as well as a long tradition of production, the potato market infrastructure (warehouse and sales network) is still not well developed.

c. Role of small farms and small food businesses within the food system

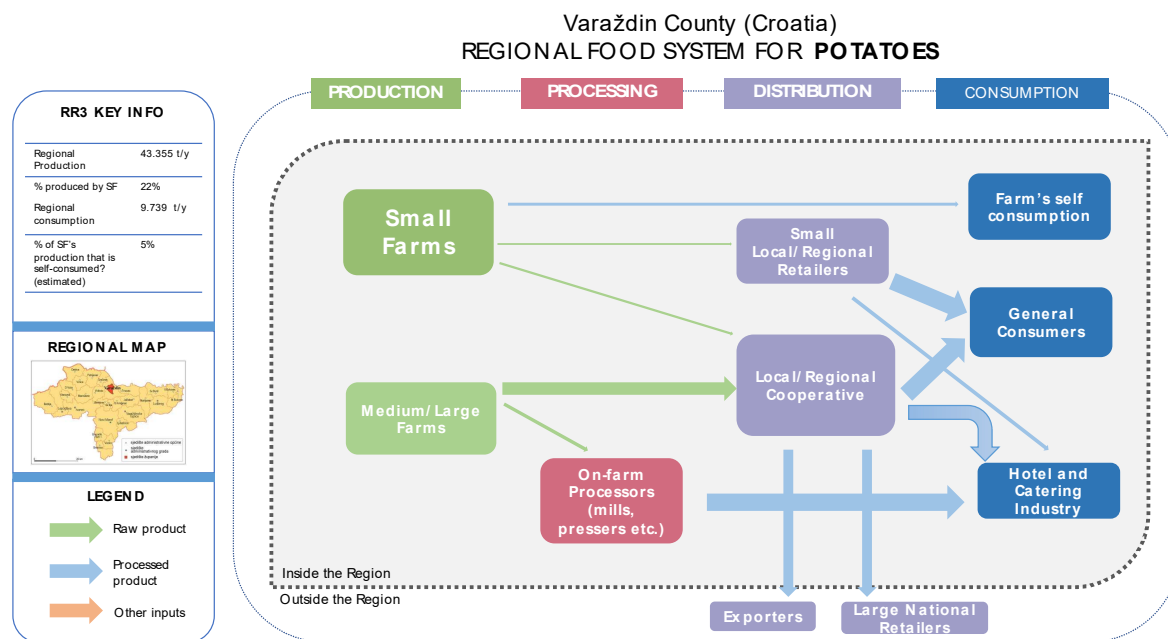
SF and SFB have insignificant role in supplying food processing industry. According to main stakeholders and interviewed farmers only 300 tons or 0, 7% of potatoes produced in Varaždinska County are processed in the region.

In spite of a huge demand for processed potato, (peeled, cut, vacuumed, with expiry date of 7 days) there is hardly any interest of farmers for adding value to their produce. Only one SFB in Varaždinska County is processing potatoes and selling them to hotels and restaurants, mostly the ones in touristic regions along the Adriatic coast.

d. Importance of household self-provisioning in small farms and small food businesses

Production of potatoes is also relevant for the food security of small farms in Varaždin County. The structure of agriculture in the region (small parcels, high fragmentation) and high yields are the reasons that almost all farms produce potatoes. Farms do not need to buy seed potatoes each year and can use their own; on small plots all cultivation can be done manually without special mechanisation and herbicides; each household has some small storage – which are all reasons to assume that potato will be the last crop farmers will stop to grow.





Typology of small farms in the reference region

	Classes in Regulation (EC) 1242/2008	Narrative
Subsistence farms producing almost entirely for their own consumption	I Standard Output < 2,000 EUR	Data from the Agricultural census (2003) – 27.175 farms (81%) These are farms whose main source of income is not farming but usually pensions or employment in public services. Most of them (74%) are not inscribed in the Farm Register either because they are not interested in it or they do not fulfill the criteria for registering. They are also not interested or not eligible for any kind of financial support. They are producing for their own consumption and wider circle of friends and extended family. Very few of them (some 7 percent) sell their products on the market, and the revenue from the sales is very modest and serves as a supplement to the household budget.
Semi-subsistence farms producing	II + III Standard Output of	Data from the Agricultural census (2003) – 3.120 farms (10%)



for their own consumption and selling part of their agricultural production (less than 50%)		2,000 – 8,000 EUR	<p>These are family farms inscribed in Farm Register. Their main source of income is not farming but usually pensions, employment in public services or some small business (e.g. machinery maintenance, hairdressing, dressmaking, etc.). They are producing for their own consumption and wider circle of friends and extended family. They are selling less than 50 percent of production on market, mainly through on-farm sale, farmer markets, fairs, exhibitions and various occasional events. These farms are receiving direct payments and also <i>de minimis</i> aid paid from the county budget. They are eligible for RDP funding but rarely apply for it because of administrative complexity or problems with getting bank loans and guaranties for the co-funding of their investments.</p> <p>Data from the Agricultural census (2003) – 2.340 farms (7%)</p> <p>For most of the farms in this category farming is the main activity and source of income, although part of them still has other sources of income (e.g. pensions, employment in public services, etc.). They are registered as legal entities and inscribed in Farm Register. They are getting direct payments and also <i>de minimis</i> aid paid from the county budget. These farms also make use of RDP funding, e.g. for farm investments, since they can get bank loans and guaranties for the co-funding of their investments. They are still producing for their own consumption, but their focus is on production for the market. Although these farms are selling their products via formal sales channels such as cooperatives or producer organizations, this is rather sporadic and main selling channels are still on-farm sale, farmer markets, fairs, exhibitions and various occasional events.</p>
Small commercial farms selling more than 50% of their agricultural production	IV + V	Standard Output of 8,000 – 25,000 EUR	<p>Data from the Agricultural census (2003) – 780 farms (2%)</p>
	VI	Standard Output of	



Commercial farms selling more than 50% of their agricultural production	and higher than 25,000	Commercial farms for which farming is the only source of income and their entire production is sold to the retail chains or processing industry. They are all registered as legal entities and receiving direct payments. They are also benefiting from RDP funding, in particular for the investments in the production or to achieve environmental standards (e.g. building proper manure storages). <i>De minimis</i> aid from county is not relevant for them.
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Governance

a. Main interactions of SF and SFB with governance structures in the region

Main interactions of small farmers with governance structures are the ones for receiving EU and national/regional subsidies. Their general perception is that these subsidies are too complex, requirements that needed to be fulfilled too demanding and amount paid too small.

In order to be eligible for the subsidies and/or to sell their products on the market, farms must be registered in the Farm Register of the Paying Agency for Agriculture, Fisheries and Rural Development. Farmers are not obliged to be in a VAT system if their income is less than 40,000 EUR per year. Farmers usually sell their products on-farm, at farmers markets, fairs and exhibitions, while a small part of the sale goes via middleman or to the processing industry.

One of the most important interaction is with the regional Administrative Department for Agriculture and Rural Development of Varaždin County. In accordance with the Agriculture Act, Varaždin County is supporting development of agriculture through *de minimis* aid from its own budget. Each farm in Varaždin County can get up to a maximum of 15,000 EUR during three financial years. Annually, 300,000 EUR is granted to 250-350 beneficiaries. Each year there is a public call for these measures, which is open for as long as the funds are not spent.

Through co-financing of fourteen measures support is given for purchasing and consolidation of agricultural land, soil analysis; preservation of traditional products and services; lifelong learning; planting of permanent crops; purchasing of greenhouses, irrigation and hail protection systems; harmonization of products and services with market needs; support to organic farming and sustainable agriculture; co-operative entrepreneurship; protection of biological and landscape diversity.

b. Levels of governance and their relative importance for SFs and SFBs



The most important governance level are the regional offices of Paying Agency and Advisory Service. In these offices farmers are submitting claims for direct payments and also getting all relevant advices related to changes in legislation, possible funding from RDP. Advisory Service offer free of charge trainings funded from the RDP.

Administrative Department for Agriculture and Rural Development of Varaždin County is very active in supporting small farms. Besides *de minimis aid*, this department is giving all relevant information related to possible funding; it is organizing various education and trainings; study visits; exhibitions, events and festivals where small farmers can sell their products directly to consumers. In addition, this department is exploring and initiating possibilities for public procurement of products from small farms in schools and kindergartens.

c. Constraints impairing full participation in the food system

There are several issues acting as constraints on participation of small farms in the food system. There is a requirement of delivering of minimum of 3,500 litres of milk per cow for receiving of coupled support which is for many small farmers too high. Minimum size for receiving coupled support for vegetables is one and for fruits two hectares which is also too high for many small farmers.

Small farms also have difficulties in complying with the minimal technical conditions, complex regulation related to hygiene standards, high VAT (25%) they have to pay on everything they purchase (e.g. inputs) and which they cannot deduct later since they are not in a VAT system.

d. External policies, decisions and social norms affecting food systems

Since Varaždin County is continuously boosting its economic development through new investments, notably the development of business zones at the outskirts of urban areas there is a pressure to convert agricultural land to construction areas.

e. Gender issues intersecting governance issues

Although their roles are usually different, men and women on small farms in Varaždin County are equal partners having equal access to markets and land. Though men are usually farm owners, according to Farm Register some 35 percent of farm owners in this county are female.

Men are usually in charge of crop production, rearing of livestock, purchasing and maintenance of machinery and inputs such as fertilizers and seeds while women are dealing with processing, sales, marketing, documentation and communication with the institutions.

f. Other actors and processes important for the regional food system



One of the important actors are banks which regard agriculture production as a particularly risky business sector. Although loans are available to farmers, high interest rates and guarantee instruments are limiting factors for small farms.

g. Forms of collaboration and organization between small farms

Small farmers in Varaždin County prefer to work on their own. There is a lack of trust among farmers that keeps them from organizing, communicating and cooperating effectively with each other. This is partly to a negative association with the former policy of socialism which forced them into co-operatives. However, farmers are recognizing more and more that without cooperation they will not survive and are starting to organize themselves into associations and to a lesser extent to co-operatives. In Varaždin County there are associations of pig producers and potato producers, thus these are often dominated by bigger producers. In addition, according to the law, these associations are not allowed to engage in any type of selling of products which is for small farmers one of the most important problems. Therefore, the main activity of these association is to provide advice and information to farmers.

h. Forms of collaboration and organization between small farms and consumers

The relations between the small farmers and the consumers are mainly on informal basis. Many farmers have well established links with the consumers who prefer to buy food produced locally on a small farms because they believe this food is healthier and tastier. Usually, well-educated and younger consumers are valuing these types of products. Products are usually sold on farmer markets or directly on farms. Often, besides fruits and vegetables, farmers are selling meat products processed on-farm (e.g. hams, sausages). Although these farmers do not comply with the legal requirements for slaughtering and processing of meat, there is a high level of trust and consumers believe that the products are of high quality and produced in hygienic way.

i. Relationship between small and large farms, and between small and large businesses

There are hardly any relation between small and larger farms and businesses. There are cases where larger farms rent a land from small farmers who are not able or interested to farm anymore.

Small Farms and rural livelihoods

a. Importance of household labour in SFs

Most SF are family farms, with 1 to 5 family members who are fully or short-term engaged. Usually one or two family members have other occupations or are retired. Men are usually in charge of crop production, livestock husbandry, purchasing and maintenance of



machinery and farm inputs. Women deal with processing, sales, marketing, documentation and communication with authorities.

b. Farm and non-farm income in the SF's households

Most SF households have at least one family member working outside the farm. However, there are great differences among SFs in terms of farm and non-farm income in the household. At some farms the income generated outside the farm is much bigger than the farm income, and vice versa. But generally speaking, most SF earn more than 50% of the household income outside the farm.

c. Shocks and coping mechanisms of SF households

As already mentioned, the SF have experienced two major shocks in the last three decades. The first one relates to the collapse of former big state agri-food enterprises. These were very important for the survival of SF because they were buying any surpluses produced by SF. The price for the produce was fair and the payment realised next day in cash. The second shock relates to the accession to the EU. The CAP rules in terms of subsidies are not favourable for SF of Varaždin County. The subsidies they used to receive before the EU accession were substantially higher in comparison what those receive now (or could receive – because many are out of key administrative frameworks and do not ask/receive any subsidies).

SF in the region are mainly seen as tradition-keepers, rather than important economic drivers. They are praised for producing local vegetable varieties (some also potatoes) and indigenous breeds, notably of poultry; maintaining the landscape; keeping religious and other customs, etc. Besides, their agricultural produce is perceived as of superior quality to those that can be obtained in supermarkets.

Role of Small Food Businesses

a. Main insights and patterns

The SFB are typically family farms with processing facilities or small butchers with one or two shops who purchase pig meat from Varaždin County but also from outside of the region. They are perceived as producers of high-quality local food based on traditional recipes.

b. Labour in SFB work

Besides family members that are working in SFB they are employing local labour force (usually 1-3 workers), often even from the same village. In many cases, preference is given to extended family members. The labour employed is often young, skilled and better educated. Some SFB have selling vendors at the processing location, which are quite popular and well attended, especially if they are located at the main village road. One of the



interviewed SFB (potato processor) is selling its produce exclusively to hotels and restaurants, mostly outside of the region.

c. SFB income

It is difficult to assess their income, but the two interviewed SFB (butcher and potato processor) earn 100% of their income through processing and selling of products. SFB that are family farms receive subsidies for their farming activities, but not for their food processing activities.

The Future

a. Main objectives and priorities of SF for the future

A vast majority of the small farmers of Varaždin County are elderly, poorly educated people whose skills at the labour market are not highly valued. They know how to do farming in an old fashion way. But farming has never been their primary choice. Although for some of them farming is also a style of life, majority was forced to become farmers because farming is their survival strategy and can provide means of survival for their family. The SF of Varaždin County are rather traditional and are not oriented towards seeking innovation and building additional skills and knowledge. Basically they are resistant to, and oppose any change. Their short-term goal is just to maintain the *status quo* and to survive by producing as much as possible food for their family (sometimes also for close relatives). Some of them – and notably their family members – have a full-time job outside the farm. Their long-term goal is to provide a better future for their children. They hope that their children will not have to work on the farm and be small farmers like themselves. Notably because there are enough opportunities for getting better paid jobs outside the farming sector. The unemployment rate in the region is just 4%. Unlike in other Croatian regions, younger people of Varaždin County do not move abroad. They tend to stay in the region – moreover living in a rural area – because life is cheaper there. But they do not want to work in the low paid and hard-working agricultural sector. There are hardly any differences in terms of short and long-term goals among different types of small farmers.

b. Main objectives and priorities of SFB for the future

Unlike SF, the SFB nevertheless see a brighter future, primarily in terms of expanding their own processing and own sales networks and channels. Although the number of SFBs decreases, some of them still find new market channels. This enables their businesses to survive or even to expand. Unlike SF, the SFB aim to educate and involve their children in the business. Many see the own, as well as the future of their children in continuing, improving and expanding the business they are in. Their main short-term goal is to withstand the pressure of cheap industrial production; to maintain/improve the quality of produce; to find high quality reliable employees – and to repay the (in many cases unfavourable) loans. Their long-term goal is to expand the business and pass it to the next generation. They are



aware that in order to do so, they need to work stronger on promotion and improving the quality of their products – many of which are based on traditional recipes and technologies. There are hardly any differences in terms of short and long-term goals among different types of small farmer businesses.

c. Risk perception by SF

The main risks identified in the production are the weather conditions (which according to SF interviewed become more extreme and unpredictable due to climate change), livestock diseases, lack of labour and own health conditions. Non-production related risks comprise big price fluctuations in the market, imports of food, market pressure of the big players and the administrative burden.

d. Risk perception by SFB

The main risk for SFBs are the market competition with bigger producer and ever-changing legislation on food processing requirements which require them to practice the same production standards as big industry. Important risks are also the shortage of qualified and reliable labour, as well as shortage of capital for promotion and further expansion of the business. However, for many, the biggest risk/fear is whether their children will be willing to continue the business.

e. Food system forecast in 5, 10 and 20 years

It is expected that in the next 5-20 years many SFs will go out of the business. Some of them might expand by taking over the neighbouring farms but this will not be the main trend. Large company farms will prevail and produce most of the produce. However, the overall agricultural production is expected to decline because the big companies will not be able to make-up for the production loss by SFs. However, there will still be surplus of potatoes and pork meat, which will like today mainly be sold outside the region.



Annex: List of resources

g. List of key experts interviewed

No.	Institution
1.	State Agriculture Advisory Service - Advisor
2.	Croatian Agriculture Agency-Advisor
3.	Association of pig producers of Varaždin county - President
4.	Development Agency North – DAN - Director
5.	Agriculture co-operative „Varaždin vegetables“ - President
6.	Primary school Bisag-Headmaster
7.	Kindergarten „Zeko“-Headmaster
8.	Association of vegetables producers of Varaždin County „Zeljari“ - President
9.	Desyre Ltd.-potato producer company-Owner
10.	Varaždin County- Administrative Department for Agriculture and Rural Development-Head of Department

h. SF and SFB interviews and focus groups information

Stakeholder typology	N° of participants						How were they contacted?
	Interviews			Focus Groups			
	Me n	Wome n	Tota l	Me n	Wome n	Tota l	
Farmers	5	1	6	1		1	First contacted by phone, then face to face interview
Producers’ cooperatives				1		1	First contacted by phone, then face to face interview
Slaughtering facilities							
Processors (small/large)	1	1	2				First contacted by phone, then face to face interview
Wholesalers							
Retailers							
Caterers							
Other small food business							
Exporters							
Importers							



Farm inputs suppliers							
Advisory services				1	2	3	First contacted by phone, then face to face interview
Agricultural administration/Ministry of Agriculture							
Consumers' groups/organizations							
Local administrators and policy makers				1		1	First contacted by phone, then face to face interview
Political leaders and PMs							
Other programs/initiatives					2	2	
Nutritionist							
NGOs (producers associations)				2		2	First contacted by phone, then face to face interview
Traditional and religious leaders (for Africa)							
Total	8			10			



4.4. RR4 Jihočeský kraj –Czech Republic– Food System Regional Report



WP3

Jihočeský kraj (RR4) – Czech Republic – Food System Regional Report

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Table of Contents: Food System Regional Report

1) Socio-economic and agricultural profile of the reference region.....	101
2) Key products and regional food balance sheet.....	102
3) Food system: Key nodes and flows and role of small farms and small food businesses.....	103
3.1. Key product 1: Chicken eggs.....	103
3.2. Key product 2: Goat cheese	105
4) Typology of small farms in the reference region.....	106
5) Governance	107
6) Small Farms and rural livelihoods	111
7) Role of Small Food Businesses.....	111
8) The Future	112
9) Annex: List of resources	114



Socio-economic and agricultural profile of the reference region

Jihocesky region (Southern-Bohemia region in Czech) is a region with a long border line with Germany and Austria. The largest capital, and the industrial centre of the region, is Budweis (České Budějovice). The region has got the lowest density population in the Czech Republic and the region as such is generally viewed as an agricultural area with high shares of forest land (33%) and ponds (4%). The region is famous for the National Park Šumava (690 km²), which is very popular for holiday visits. Majority of the area is located in altitude 400-600 m, which results in rather rough climatic conditions and in a high share of organic farms with cattle husbandry. The agriculture production is mainly focused on plant production (cereals, rape seeds and fodder crops). Livestock mainly includes cattle and pigs. The region is typical of a long tradition of fish farming. The region contributes approximately with 10 % to the overall agricultural production of the Czech Republic.

Table 1: Basic data for the region

Indicators	Data per Region - Nuts 3
Land size (km ²)	10,058 km ²
Population (thousands of people)	638,782
Density (people/km ²)	63.50
GDP (thousand USD/inhabitant)	15.30
Total labour force in AWU	10,829
Total number of holdings	2,927
Total Agricultural area (ha)	489,107 ha
Total Utilized Agricultural Area (ha)	413,385 ha
Agricultural Area in Mountain Area	103,200 ha
% of UAA in the RR	41.1
Average Farm size	141.23 ha
Number of farms by UAA farm size: 0-5, 5-20,20-50, >50ha	0-5 ha 600; 5-20 ha 1,000; 20-50 ha 500; 50 ha and more 800
Average size of farms < 5ha of UAA	2.14 ha
Area of main crops (ha) (list the relevant crops below)	wheat 76,824 ha; barley 32,097 ha; triticale 8,136 ha; oat 8,340 ha; rye 3,287 ha; potatoes 2,606 ha; rape seeds 43,267 ha
Area of main crops (ha) in farms < 5ha of UAA (list the relevant crops below)	N/A
Livestock (LSU) per type (list the relevant types below)	cattle 224,899; pigs 107,973; poultry 2,293,718
Livestock (LSU) per type in farms < 5ha of UAA (list the relevant types below)	N/A
Annual work units (AWU) by UAA farm size:0-5, 5-20, 20-50, >50ha	0-5 ha 557; 5-20 ha 2 507; 20-50 ha 788; 50 ha and more 8 5
Total family labour per farm size: 0-5, 5-20,20-50,>50ha	N/A



There are two major historical processes that account for the current structure of the agriculture in the region: (1) the transfer of the German population after the WWII and the (2) socialist collectivization in 1950s. The first process resulted in severe depopulation of the area, which is still visible in low density of population. The second process severely affected the tradition of family farming and structure of the farm holdings. One of the outcomes for nowadays is a high concentration of land among the large-scale farms with an intensive agriculture.

Key products and regional food balance sheet

a. Key products produced and consumed in the region

Jihocesky region includes areas that are suitable for intensive agriculture and also areas that are typical for a less-intensive agriculture. The major crops for the large-scale farms are cereals (namely wheat and barley), rape seeds, maize and occasionally potatoes. The mountain areas of the region are mostly covered with perennial grassland with grazing cattle.

In case of the small farms (less than 5 ha) their production is determined mostly by economic conditions. In the Czech context we have identified two groups of small farms:

- (1) Mixed-small farms with perennial grassland and small animals (sheep, goats, poultry) and/or small farms with specialized production – orchards or herbs.
- (2) Mixed-small hobby farms with meat production (such as beef) based on its own provision of feeds (e.g. wheat, potatoes).

Our selection of the key products was based on the ‘purposive sampling’ that follows information obtained from the expert interviews and reflects the practices of small farms that are common in the researched region, can be observed on empirical level and represent specific examples of small-scale farming that is viable from economic point of view.

The small farms are underrepresented in the Czech agrarian sector. The reason is a specific historic trajectory that included collectivisation of farms in 1950s and post-socialist transition in 1990s. One of the outcomes is a specific size-structure of the farms with very high average size farms. Similar structure can be found in Slovakia and Hungary, which also experienced collectivization.

b. Balance of production and consumption of key products in the region

Chicken Eggs:

Poultry production and particularly chicken husbandry can be found on majority of small (hobby) farms. Statistics describing eggs consumption in the Czech Republic suggest that approximately 50% of the egg production and consumption is associated with the large-scale industrial production and originates out of the region, and 50% comes from the small farms



that produce eggs for their own and for direct local sale. This pattern can be observed all over the Czech Republic and it applies also to Jihočeský region.

Goat cheese:

It's not a typical staple food (more popular are dairy products from cow milk) for the region, however, it's very frequent food product among small farms. These small farms mostly rely on direct sale (on farms) and occasionally local farmers' markets. Therefore, the production is mostly consumed within a region. Only a small portion of the goat dairy products is bought in supermarkets, i.e. products that come from large farms out of the region (roughly 10 % of the consumption).

c. Official statistics and key products in the region

The official figures describing production of the major crops in the region are reliable. However, the data does not include information about the small farms (crop structure, yields, livestock stock production etc.). The official information about the regional consumption is also missing. The figures describing the consumption in the region have been estimated based on the number of inhabitants in the region and average consumption of the main food staples in the Czech Republic.

Food system: Key nodes and flows and role of small farms and small food businesses

3.1. Key product 1: Chicken eggs

a. Nodes in the regional food system: production, processing, commercialization and retail

Production: chickens are kept on farms that most likely (1) produce their own feed or buy the feed from a nearby producer. Only a small portion of chicken feed (2) comes from the large-scale producers out of the region. (3) Reproduction of animals is partly secured from the farm's sources. More intensive egg production requires to reproduce entire flocks of chickens based on a system of batches (usually keep one batch for one year). In this case the farms must rely on (4) industrial production of pure-breed chickens that come out of the region.

Processing: There is no processing in case of the eggs, only (5) sorting and packing the eggs, which represent negligible costs and is easily conducted on farms.

Retail: The most typical is (6) direct sale on farms, together with (7) distribution to local stores, but only in case of farms with a large production (roughly from 100 layers).



Production of eggs on small farms is based on relatively simply food system. This simplification enables farms to keep away from the 'bureaucratic-hygienic regime' that impose very strict rules on farm production and requires much higher costs.

b. Flows connecting the different nodes in the regional food system

Most small farms are engaged in local production and consumption. The feed is secured on local basis and demand for eggs is also local. These flows are well-founded and are not vulnerable to external shocks.

c. Role of small farms and small food businesses within the food system

The most important feature of the local egg production system is the fact that all processes (production, processing, marketing) can be conducted on and by small farms. Even the relatively small hobby farms can produce surpluses of eggs that can be sold or exchanged.

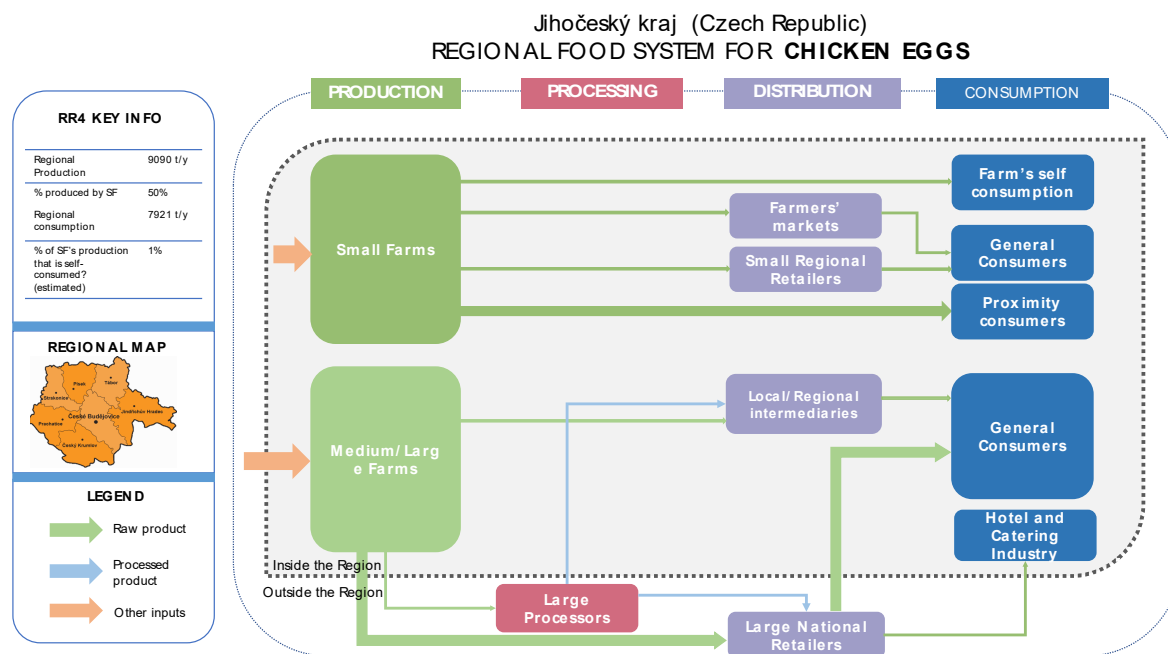
d. Importance of household self-provisioning in small farms and small food businesses

Chicken husbandry focused on eggs production has got relatively high fixed costs and relatively low variable costs. This means that the household consumption of eggs can be easily secured with only a few chickens, however, due to high fixed costs it makes sense to keep more chickens and sell the surplus of eggs.

e. Other relevant information

Chicken eggs produced on small farms are nowadays highly demanded by Czech consumers, who look for alternative (high) food quality. The Czech market is still dominated by the industrial production of eggs using the 'cage-system' that have been recently undergone a heavy critique from society.





3.2. Key product 2: Goat cheese

- a. Nodes in the regional food system: production, processing, commercialization and retail

Production: Goats are kept on farms that most likely (1) produce partly their own feed and the rest (2) buy from neighbouring farms (i.e. grains and hay).

Processing: the goat milk is only rarely sold raw, because it has got a great potential for valorisation when it's sold processed. The milk is (3) processed on farms to produce a wide range of dairy products (cheese, yoghurts, kephir, hard cheese).

Retail: (4) The SF mostly use direct sale, farmers' markets and eventually distribute to small shops. All these distribution channels are functioning within the given region.

The food system purposefully avoids intermediaries (distribution, re-sale etc.). Such structure enables producers to keep the high margin value. The small-farm cheese producers mostly rely on direct sales. At the same time, their production capacities do not allow them to expand their supply and distribute to large shops.

- b. Flows connecting the different nodes in the regional food system

The food flows for the goat cheese are mostly regional. The SF's (with lower acreage) rely on purchase of feed for animals. This flow is vulnerable to external shocks (e.g. extremely dry Summer may result in shortage of grass/hay and this increases costs of inputs).

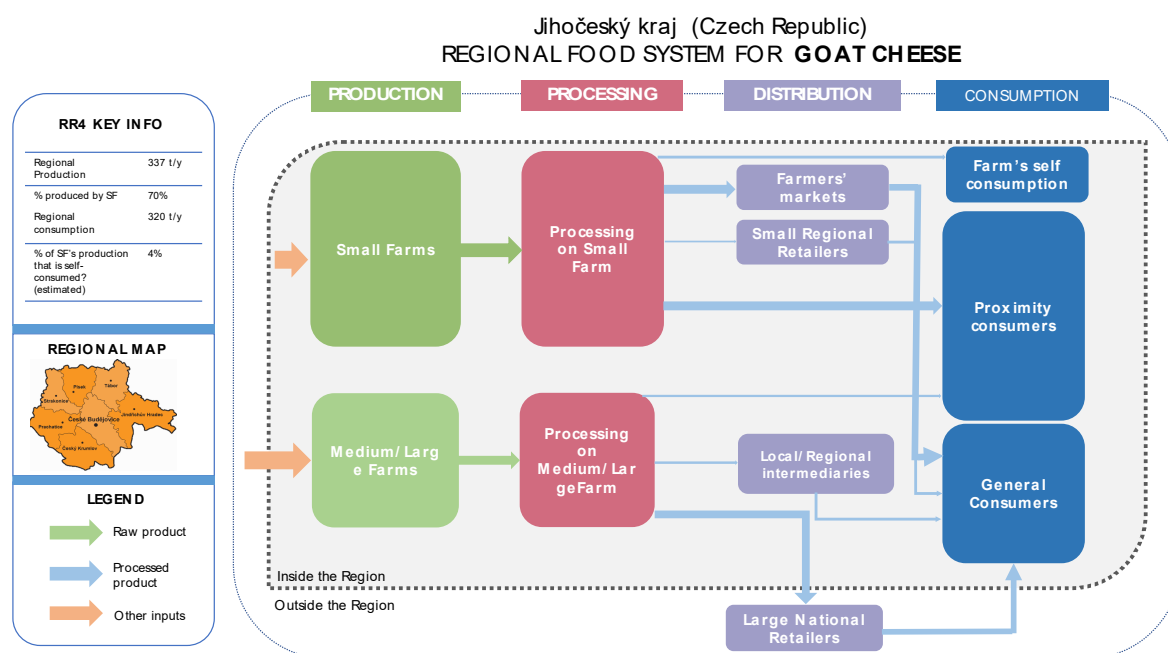
- c. Role of small farms and small food businesses within the food system



The cheese goat production is mostly provided by SF's. Large farms play only a minor role. The main reason is that the goat farms can operate even on small scale, contrarily to cows and there doesn't exist a massive consumption of goat milk products, which prevents this production from industrialization. At the same time, there is a relatively high demand for goat cheese products in the region, which enables farms on one hand to valorise their production by processing and on the other hand to distribute the products locally with low costs.

- d. Importance of household self-provisioning in small farms and small food businesses

The household self-consumption is important part of the SF's production. The farm families can substitute cow milk with the goat milk.



Typology of small farms in the reference region

- f. Small farm types in the region

		Degree of self-sufficiency	
		< 50%	> 50%
Degree of market integration	< 50%	Type 1	Type 2
	> 50%	Type 3	Type 4



The sampled SF's were categories with respect to the above-mentioned table. The specialized farms with a clear market focus represented the Type 3 and 4. The hobby farms with a weaker business orientation represented the Types 1 and 2.

Despite the absence of figures that would allow us to generalize, our qualified estimate (based on the interviews and contextual knowledge of the agriculture in the region) is that the most common will be the Type 1 and Type 2. Some SF's might be able to valorise their production and become Type 3. We consider the Type 4 to be quite rare, because it requires a strong business focus and at the same time to diversify the production to provide for the household. Such combination is unlikely to achieve with limited resources that are typical of the SF's.

In general there are two groups of small farms: (1) mixed-small farms with perennial grassland and small animals (sheep, goats, poultry) and/or small farms with specialized production – orchards or herbs. (2) Mixed-small hobby farms with meat production (such as beef) based on its own provision of feeds (e.g. wheat, potatoes). The first category of farms has got a high potential for economic viability. The second category of farms are most likely operated like hobby farms, their holders have additional income outside farming.

g. Role of small farm types in the regional food and nutrition security

The SF's belonging to the Type 3 and 4 play a crucial role in regional food production and consumption. They are mainly associated with alternative food networks on regional basis. The most common Type 1 is very important in terms of self-provisioning, since the production is mostly used within a household. However, the role of these farms in regional food security is quite limited, since they rarely produce food that can be traded (it is most likely consumed within a household, or donated) and that would include staple foods (such as meat, cereals or dairy products).

Governance

a. Main interactions of SF and SFB with governance structures in the region

The SF's often accentuated the motive of *independence*, particularly on hobby farms, where living in countryside has become a part of their lifestyle (moving out of the city, run your own business, not to rely on industrial system of food production). These farms often kept away from the CAP subsidies (which is also sometimes seen as a problem, especially in the case of the young farmers starting their agricultural activities). Another important motivation was *purity* in relation to nature and the quality of their food products. This motive was strong particularly on family farms with children. The SF's and SFB's represent very small group within a Czech agricultural sector and sometimes these farms are not even considered farms (note the average size farm in the Czech Republic is approximately 130 ha).

In general, the production quantity and production costs of SF are not fitting the standards of conventional food chains. So, the SFs are usually not integrated into the formal markets, but they are influenced by them in the way what they produce and how. Often, in order to



survive economically, SF produce very particular products, and/or their production is respecting ecological processes. In this way, SFs are filling the gap of products that are not accessible in conventional food chains. It allows to SF to gain customers, get the fair price for their products without the need to compete with the supermarket prices.

b. Levels of governance and their relative importance for SFs and SFBs

The operations of SF's are mostly driven by local and regional social networks. The informal exchanging help between farmers and their neighbours and/or nearly friends is essential. Often, the help is "paid" with the farm products.

At the level of the market, significant for SF is the personal communication with the customers which creates mutual trust between them. Most of the time, farmers meet their customers at their farm or the local farm markets. The internet connection with customers, especially from urban areas is also crucial. SFs produce on a local basis mainly for customers within a region. They keep out of the subsidy schemes administrated by the State, mainly because of the complicated administration requirements. However, they must follow universal hygienic and veterinary standards.

According to the interviews, most of the SFs were not involved in cooperatives or other formal collective market organisations. However, most of them were members of specific producers' associations which allowed them to be in touch with similar producers, be informed about the existing and new legislation and to get access to training activities related to a production or a transformation of the specific products.

c. Constraints impairing full participation in the food system

Operations of the SF's and SFB's is controlled in the same way as the operations of the large-scale farms. The interviewed farms often mentioned that such control is not in accordance with their scale, since it generates transaction costs which are difficult to handle. This applies mostly to hygienic and veterinary standards for the farms producing dairy products.

The certification of the products from SF is also seen as costly, complicated to understand, time-consuming and not compensating for SFs. These issues were mentioned especially by farmers having already their long-term customers trusting their farm's products.

Some farmers also mentioned that the available subsidies are not fitting well to the SFs. Additionally, the new farmers who need time and experience to adapt to the formal or informal markets need better-fitted policies, support measures and subsidies over longer time.

d. External policies, decisions and social norms affecting food systems

The agricultural policies in the Czech Republic are often criticised, because they do not consider the small farms. Generally, the support is focused on large-scale producers and



accentuates industrial quality of food. SF's and SFB's thus often operate on niche markets and struggle with the policy decisions.

e. Gender issues intersecting governance issues

Findings from the fieldwork survey suggest that the SF's and SFB's are currently gender balanced. All SFs visited were functioning as a family farm where both wife and husband were actively participating. Both genders were similarly engaged in decision making, farm management as well as in daily work on a farm. During the interviews, there was not clear who (man or woman) is the official manager on the farm, because both seemed to have an equal position. According to interviewees, the decisions related to the farm were made after the family agreements.

In the practical functioning of the farm, there was some division of responsibilities also respecting the physical skills. In general, men were participating more in physically demanding tasks, for example, tractor use and maintenance, while women were more engaged in the products' transformations.

In the observation comparison of small-scale farms with the large-scale agricultural cooperatives, the first ones seemed to be firmly in favour of women's engagement in the agricultural activities. Some observed reasons allowing women to work in small agriculture are the followings: (1) work on their farm gives women high flexibility in terms of time and work organization, which is essential for family life, (2) animal husbandry is focused on 'smaller' animals (such as poultry or goats), which can be handled even by women (3) they carry out numerous activities on the farms (e.g. feeding animals, cheese production, selling products).

f. Other actors and processes important for the regional food system

In the Czech Republic, most of the small-farms disappeared due to the collectivisation after the Second World War. However, nowadays it seems that the small-scale farms have been re-appearing.

According to the study, several actors and processes are influencing small-scale farms existence and functioning in RR4:

- Consumers – increasingly require quality food products. The quality is related not only with the local origin and healthy way of food production but also with production in the small-scale which also allows to a) surviving of local communities and b) seeing people behind the food production instead of food merely appearing in the supermarkets. This is going through a quality-turn related to food production and consumption. Consumers are increasingly demanding food with a local origin and of high quality, which implies a high demand for local food production from small farms.



- New rural inhabitants as new small-scale farmers - There is a growing interest in rural and healthy lifestyle, which seems to be one of the crucial processes influencing the regional food system. Nowadays, many people of all generations from urban areas are searching for more natural, slower and more healthy way of life. Part of this process is a diversified production of own, healthy food for family and friends.
- Legislations and regulations – Currently, the small-scale farmers are overloaded by administration responsibilities and hygienic controls which often do not differ from the obligations of the large farms. Responding to these duties requires substantial time, energy and finances of small farmers. For this reason, and many times as a question of farm surviving, they often decide to stay away from the official hygienic and bureaucratic regime.
- The access to the land and the land prices are significantly influencing the development of the small-scale farms in the region. Most of the agricultural land is owned by the giant agribusiness cooperatives not willing to sell any land. Often, the new small-scale farmers are able only to rent land or to buy only a small piece of land. The income from their farming is not allowing them to earn enough money for buying more land.

g. Forms of collaboration and organization between small farms

The SF's and SFB's appeared to be well embedded in local social structures. Farmers often mentioned ongoing informal exchange of goods and services with their neighbours and other people in their community. SF's also confirmed informal linkages between each other within the region. These linkages were used for exchange of information and agricultural knowledge.

h. Forms of collaboration and organization between small farms and consumers

The SF's and SFB's with higher market integration keep relatively strong relationship with customers. Either by personal contact (visits and purchases on farms) or on virtual basis (with the use of social networks). These relationships appear to be very important for enacting and keeping mutual trust between farmers and consumers.

i. Relationship between small and large farms, and between small and large businesses

Generally, the relationship between small and large farms is highly competitive, especially due to the access to the land. Their positions on market and also their production interests are extremely different. However, the small farms try to go along with large farms if they neighbour each other. The main source of conflict is the scarcity of land.

There are also radically different interests and agricultural practices between the small and large farms. The conflicts may arise when the large intensive farm is neighbouring with the



small organic farm. For instance, one small farmer was mentioning that he is not planning to make an organic certification for his farm because his neighbour is practicing very intensive large-scale agriculture.

Moreover, selling the old family farms where young family members are not continuing with farming is seen as a problem by some small-farmers. Usually, the farm is purchased by some large-scale agricultural holding practicing the intensive agriculture that is changing the soil quality for worse in a long-term.

Small Farms and rural livelihoods

a. Importance of household labour in SFs

Most SF's and SFB's depend on family labour that is not paid. The labour often includes only the part-time positions on farms. Only the farms that can valorise the production (e.g. by processing milk) can generate full-time positions for the family. The work is often seasonal and differentiated by gender.

b. Farm and non-farm income in the SF's households

The SF's and SFB's rarely receive subsidies. The farms with the lower market orientation are not usually able to provide sufficient income for all family members and they must simultaneously work outside of agriculture. High farm income on small farms requires a high valorisation of production, otherwise the farms are not able to generate sufficient profit from production of raw commodities.

c. Shocks and coping mechanisms of SF households

We have identified a quite high resilience among the interviewed SF's and SFB's. Generally, they perceived a fairly low risk that would threaten their business and had a quite high self-confidence in managing potential shocks. Such approach is supported by relatively low economic constraints (especially if they have another source of income and farming is more a lifestyle than a job for them).

One of the coping strategies against some potential shocks mentioned by some farmers was a diversification of farm income (e.g. a combination of food production with rural tourism) as well as a diversification of farm products (e.g. a combination of different vegetables, animal products and processing food).

Role of Small Food Businesses

a. Main insights and patterns

Please note, the information about the SFB's are based on one interview only. It was accentuated that the farm business is associated with the family. Running the farm and the



related family business (cheese production, meat processing and a restaurant) is viewed as an important element for family tradition that was renewed after de-collectivization in 1990s. Renewal of the tradition is (together with the rural lifestyle) one of the two most important motives for founding and running these small businesses.

b. Labour in SFB work

The labour in the observed SFB heavily relies on unpaid work of family members, just like in the case of the SF's. However, the given SFB was able to provide employment to non-family workers in the village.

c. SFB income

The studied SFB was successful on the market and generated sufficient income. This position was based on high diversification of activities, financial subsidies (SAPS, Setting-up subsidy for young farmers) and quality food products with the high added-value sold through direct marketing.

d. Shocks and coping mechanisms of SFB households

The SFB seemed to be very resilient. See the point 6 c) for a more detailed comment.

The Future

f. Main objectives and priorities of SF for the future

There was a clear difference between the farms operated by younger and elder farmers. The younger farmers put emphasis on growth of their business, acquiring more land, purchase of better machinery and/or increasing quality of their production. The elder farmers wanted to keep their business as it was.

g. Main objectives and priorities of SFB for the future

The SFB that was interviewed during the study confirmed the findings related to the above-described strategy of the SF's. The SFB was run by a young farmer and she mentioned that she would like to develop her business in future. She stressed the aspects of food quality and the range of food products that they sell.

h. Risk perception by SF

The SF's in general are not very sensitive to risks. Some of them mentioned a future risk of the climate change and scarcity of water resources (Note: the Czech Republic is nowadays experiencing a very hot and dry Summer, so the scarcity of water has become quite evident). Few of the farmers mentioned their ageing and uncertainty in their health conditions in the future that could potentially influence their work capacity.



i. Risk perception by SFB

The same holds for the interviewed SFB.

j. Food system forecast in 5, 10 and 20 years

It is very likely that the emphasis on the food quality will increase in time, as well as the emphasis on animal welfare. These processes related to consumers' demand will be in favour of SF's and SFB's. At the same time, it is expected that the concentration (or intensification?) processes in agriculture will go on and that will result in a higher concentration of land ownership among large-scale farms.



Annex: List of resources

i. List of key experts interviewed

Institution
Association of Private Farming
Association of Private Farming, Bavorov
Farm Advisor, Milínov
Institute of Agricultural Economics and Information, Prague
Institute of Agricultural Economics and Information, Prague

j. SF and SFB interviews and focus groups information

Stakeholder typology	N° of participants						How were they contacted?
	Interviews			Focus Groups			
	Men	Women	Total	Men	Women	Total	
Farmers	3	2	5				
Producers' cooperatives							
Slaughtering facilities							
Processors (small/large)		1	1				
Wholesalers							
Retailers							
Caterers							
Other small food business							
Exporters							
Importers							
Farm inputs suppliers							
Advisory services	1		1				
Agricultural administration/Ministry of Agriculture	1	1	2				
Consumers' groups/organizations							
Local administrators and policy makers							
Political leaders and PMs							
Other programs/initiatives							
Nutritionist							
NGOs	2		2				
Traditional and religious leaders (for Africa)							
Total	11						



4.5. RR5 Ille-et-Vilaine –France– Food System Regional Report



WP3

Ille-et-Vilaine (RR 05) –France– Food System Regional Report

Author: Doriane Guennoc, Catherine Darrot



Table of Contents: Food System Regional Report

1) Socio-economic and agricultural profile of the reference region.....	117
2) Key products and regional food balance sheet.....	119
3) Food system: Key nodes and flows and role of small farms and small food businesses.....	120
3.1. Key product 1: Pork.....	120
3.2. Key product 2: Apple.....	122
4) Typology of small farms in the reference region.....	125
5) Governance	127
6) Small Farms and rural livelihoods	133
7) Role of Small Food Businesses.....	134
8) The Future	135
9) Annex 1: List of resources.....	137
10) Annex 2: Methodology for the small farm typology in the reference region	138
11) Annex 3: Small farm characterization in Ille-et-Vilaine	140



Socio-economic and agricultural profile of the reference region

The Reference Region *Ille-et-Vilaine* is one of the four French departments (NUTS3 level) of Brittany (NUTS 2 level).



Figure 1 : Brittany map with the 4 French departments

Situated on the Eastern side, it is the most attractive of the 4 department. The population has increased of more than 1% every year since 2013 whereas the regional average is of 0,5 %. The number of inhabitants reaches 1 064 000 in 2017 in an area of 6775 km² (155 persons/km²). The attractiveness of the RR is due on the one hand to the presence of Rennes, a city of 213 454 inhabitants with a large peri-urban area and, on the other hand to its touristic coastal area.

Table 1: Basic data for the region

Indicators	Data per Region - Nuts 3
Land size (km2)	67,745
Population (thousands of people)	1,064
Density (people/km2)	154.8
GDP (thousand USD/inhabitant)	36.35(USD/inhabitant)
Total labour force in AWU	14,641
Total number of holdings	10,920
Total Agricultural area (ha)	16,454
Total Utilized Agricultural Area (ha)	446,381
Agricultural Area in Mountain Area	0
% of UAA in the RR	6.58
Average Farm size	46 ha
Number of farms by UAA farm size: 0-5, 5-20,20-50, >50ha	1,836; 1,449; 2,350; 3,995
Average size of farms < 5ha of UAA	2
Area of main crops (ha) (list the relevant crops below)	forage crop: 150,200; wheat : 97,015 ; maize : 19,970 , barley : 18,880 ; rape : 11,268

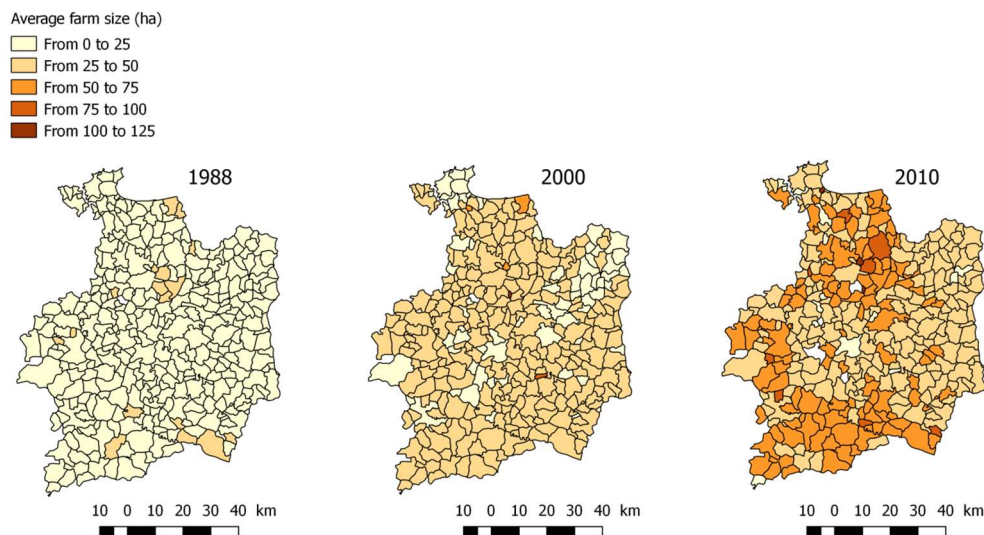


Area of main crops (ha) in farms < 5ha of UAA (list the relevant crops below)	cereals: 700; vegetables: 600
Livestock (LSU) per type (list the relevant types below)	cattle: 559,127; pigs: 198,697 ; poultry : 127,644
Livestock (LSU) per type in farms < 5ha of UAA (list the relevant types below)	Pigs: max 1,100 LSU
Annual work units (AWU) by UAA farm size:0-5, 5-20, 20-50, >50ha	1,471; 1,400; 3,291; 8,490
Total family labour per farm size: 0-5, 5-20,20-50,>50ha	0-20: 45%; 20-50: 22%, >50 : 13%

Historically the RR used to have a dynamic peasant agriculture with a production of milk, cereals, cider and pork mainly. Small farms around Rennes used to daily supply urban outlets. Today, despite Rennes Metropole's policy to preserve rural area around the city, there is a clear cut between the urban environment and the countryside.

On the one hand, there is a densification of the metropolis and of most of the regional cities and, on the other hand, the agriculture has been industrializing to supply the global market. Indeed, with the post 2nd world war farms modernization, the RR specialized in livestock farming and in crops production especially for fodder. As a result, the physical and economical size of the farms structures has been increasing constantly for 3 generations.

The dairy sector reorganization which occurred during the last decades also participates in the enlargement of the farming structures. The third of the bovine farms disappeared between 2000 and 2010 in favor of extension and fusion to create bigger businesses. The evolution of the average farms size is presented in the map below. It reaches 46 ha/farm in average in 2010.



Sources : Recensement agricole 1988, 2000, 2010

Figure 2 : The evolution of the average farm size per city

The increase of the farms size should continue in the following years since farms left by retiring farmers are in 2/3 of the cases integrated to large neighbour farms. Only about 1/3 of those farms are taken over by young farmers or new entrants.



However we can observe a renewed interest for the subsistence farming and the family farming models. The number of new settlements on small scale farms is increasing, with economic strategies based on high added-value productions marketed through short supply chains.

Key products and regional food balance sheet

a. Key products produced and consumed in the region

The production statistics reflect the extra-specialization of the agriculture in Ille-et-Vilaine. We can observe that the region produces a lot for extra-regional exportations especially for 3 types of products: cereals, pork and cow dairy products. After discussing with key informants we have chosen **pork** as a product which is largely produced and consumed within the region and dedicated to long industrial food chains as the majority of Brittany region's agriculture productions. Dairy products would also have been a relevant choice according to some of the key informants because we could have analyzed the industry's evolution after the suppression of the milk quotas. However we chose to focus on pork since it is already a key product for other regions in SALSA project and it seemed to be easier, at first, to find small farms with few pigs since they can value by-product as whey and wheat bran or vegetable wastes.

The objective for the second choice was to find a product which would be produced either in small or in big farms. The discussion with the KI (Key Informants) led to a choice between vegetables and apples. We decided to keep the **apple** suggestion mainly for its historical and cultural place in the Region and because we could observe that there are many projects at the moment to develop this product for local consumption.

The Key Informants we interviewed afterwards found our choices relevant for the following reasons: both of the products are part of the regional identity, they can both be produced by large and professional farms or by small and unprofessional farms, the types of small farms producing pork or apple would have very different characteristics.

b. Balance of production and consumption of key products in the region

When it comes to estimate the balance of production and consumption we think that the statistics should be interpreted very carefully. The regional food production is not intended for the regional market, the Region potentially exports as much as it imports.

c. Official statistics and key products in the region

Given the statistics we can say that all the regional needs in pork consumption could be covered by 3% of the regional production. We can rely on the national statistics to have a pretty clear picture of pork production since the animals have to be declared to be integrated to the market.



The estimation of the apple production is harder since the non-professional private orchards are not taken in account in the statistical data whereas they represent a significant part of the production. Moreover this production is highly sensitive to climate conditions so, depending on the years, the harvest can be good or low. A good statistical analysis requires data balance over three or more years. In our case we used the 2015 and 2016 results, two years showing different productions yield.

Food system: Key nodes and flows and role of small farms and small food businesses

3.1. Key product 1: Pork

- a. Nodes in the regional food system: production, processing, commercialization and retail

The regional food system for the pork sector is composed of different production and processing levels that makes its description complex and hardly exhaustive.

Regarding production, we have to distinguish the farrow operations from the fattening activities which can be done either in the same or in other holdings. About 46 % of the structures are specialized in fattening, 52% of the structures are doing both: the farrow-to-finish operations (they usually are the biggest holdings), and 2% only do farrow. With the prolificity improvement of the sows, the last type of holding is decreasing. Some interactions exist between small and medium farms at the production level since they can sell to others young pigs to be fattened.

The processing sector can also be divided into different types of structures. The slaughtering and the cutting are mainly done by the 3 biggest cooperatives: Abera, Gatines Viande and Cooperl but we identified 10 structures carrying these activities in total in the RR. They can either be specialized in pork or process different types of meat. The other levels of processing, which are called 3rd, 4th and 5th levels are either done in industrial factories (there are about 15 in the RR), in small factories and shops (we identified 230 of them in the RR) or directly on farm (there are about 12 farms doing all the last steps of processing after the slaughter).

- b. Flows connecting the different nodes in the regional food system

We have to be very careful when identifying the flows across the regional system. The pork processed or distributed in the territory was not necessarily raised and killed within the Region. In the agro-industrial system we cannot talk about local product since the different steps of the chain can have been carried in distant regions with low possibilities to accede the related industrial data concerning volumes and prices, which are confidential.

In terms of proportions, the industrial nodes represent 99% of the entire pork sector. Small farms and small food businesses are more and more marginal in the competitive context.



The pork crisis lead to a significant increase of the farms sizes with the repurchase of the weakest by the steadiest. However the situation of the industrial system is vulnerable. The variability of the prices is considered as the biggest problem for the producers integrated into the industrial market. Indeed prices are evolving every week regarding the demand (the prices are fixed at the auction markets of Plérin in the RR).

On the other side, small pork breedings are also developing and, even if they don't influence the pork sector in terms of volume, they play an important role in answering the consumers demand. Indeed the civil society is more and more looking for quality products with a low environment impact, produced locally and with a concern for animal welfare. Thus, such farmers are usually cost-effective despite their law production because:

- They reduce their logistic costs. They can sell pieces of pork directly to consumers at a lower price than the one fixed in the auction market, what is economically advantageous for both, the consumer and the producer who keep the margin usually given to the intermediaries.
- They add value to their products. The research of quality product (usually attested by certification like organic) and the on-farm processing are strategies developed by the producers to increase the added-value of their production

We can notice that the sector of organic pork is especially unbalanced between the demand and the offer. Few producers go for this sector: this situation partly be explained by the important investments required and/or the high number of regulations to be respected.

c. Role of small farms and small food businesses within the food system

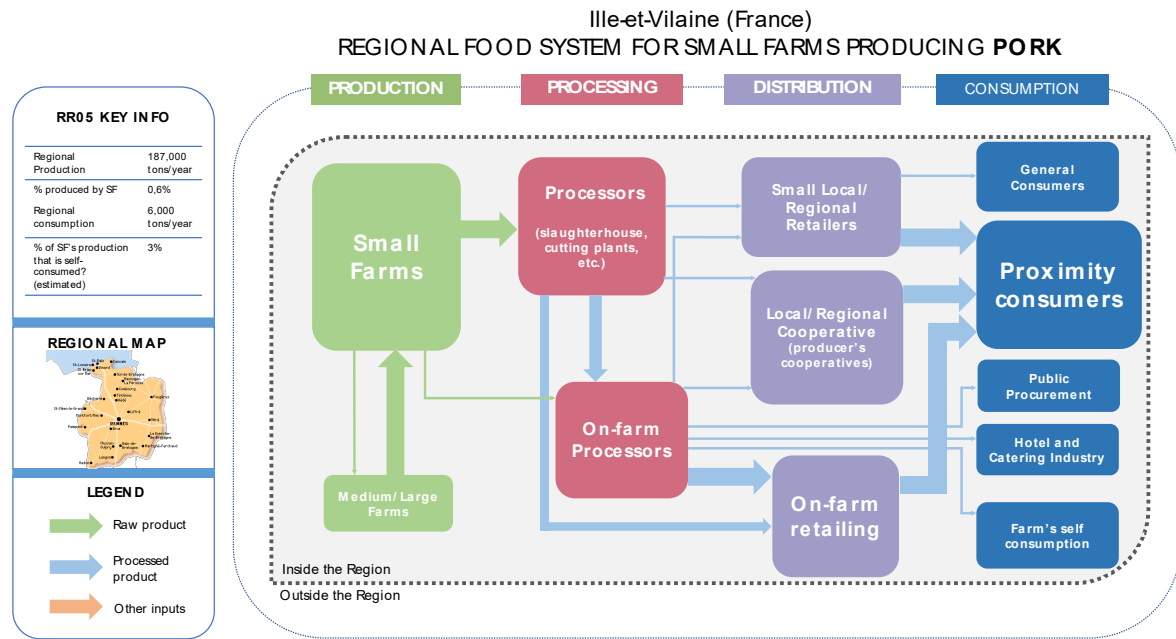
Small farms sustainability doesn't depend on structural factors but more on territorial evolutions. They are highly related to the proximity infrastructures especially slaughterhouses. For example if the last remaining proximity abattoir (situated in the north part of the RR) ends up to stop its activities in future, it would highly weaken the entire proximity sector for pork meat. Most of the farmers would lose the only actual cost-effective solution to slaughter their animals. We can however notice that some projects are in progress to facilitate the on-farm slaughter with mobile slaughterhouses. For the moment this practice is allowed only for pigs dedicated to self-consumption: a current challenge is to extend this possibility to on-farm direct marketed pork meat.

Therefore there might be a quite important source of pork production in small farms that can't be quantified since they are not integrated to the market. Pig production is common in small farms or at individual level to value by-products and wastes. They have to be declared only when there are more than two pigs at the same place.

d. Importance of household self-provisioning in small farms and small food businesses

We could observe that the farms which have one or two pigs usually reach a high level of self-sufficiency in the household.





3.2. Key product 2: Apple

- Nodes in the regional food system: production, processing, commercialization and retail

Apple used to have an important place in the regional culture as a subsistence farming product, mainly for on-farm cider production. However the apple production went through a major transformation these last 80 years in the Referent Region. It has to be mentioned to understand the actual situation and the dynamic of this product. Until the middle of the 19th century orchards used to be mixed with crop and livestock farming to form diversified and complementary systems. In the 50's the French State developed a policy for agricultural lands consolidation. The aim was, on the one hand, to control the cider production because of alcoholism problems in rural areas and, on the second hand, to adapt the production to industrial methods. The orchards created at this period were intensive and adapted to the cooperatives needs. We can see on the picture below the impact on the landscape of the apple production industrialization:





Image 1 : Evolution of the plots breakdown between 1952 (right) and 2014 (left)

Source : Remonter le temps – Portail IGN

On the left (in the black circle) we can see an actual orchard in a specialized farm. On the right we can see that 50 years ago we could find apple trees in most of the agricultural plots.

b. Flows connecting the different nodes in the regional food system

Today about 80% of the apples produced in the Region are collected by two cooperatives: Agrial and Les Celliers Associés. The first one is an agricultural and agri-food cooperative with international importance activities in many sectors (agricultural machinery, milk, meat, beverage etc.). It has two process factories in Ille-et-Vilaine for apple derivatives. It sells ciders and apple juice through different brands in large and medium-sized retailers and restaurants. The producers for this cooperative are big farms who sell their entire productions to the cooperative.

The second one was created in 1953 by apple producers and is specialised in cider which is sold through the brand “Val de Rance”. The distribution channels for these cooperatives are also the supermarkets and hypermarkets but the brand is more developed in local stores and restaurants. Both of the cooperative sell their products in Europe.

Regarding the vulnerability of certain productions and the flows variabilities, we can observe that the dominant system is more reliant on external shocks. First, farmers who contractualize with the cooperatives produce few apple varieties which weaken the farm stability. Each variety has its own characteristics which allows to resist or not to some climatic conditions. Secondly, the actors involved in the global food system are dependent on the national and foreign decision policy and on global economic context.

On the contrary, small or medium farmers and food businesses that diversified their outlets can make their own choices for their production and usually broaden the apple varieties.

The eating apple sector presents other specificities. The chain is not enough developed so we import most of the apples which are sold within the region even if the production does exist in situ. However it could evolve in the coming years with the mentality changes about local consumption. More and more people are collecting apples as well in rural areas as in cities to make their own apple juice which is an interesting way to preserve the fruits. We identify 4 apple presses in the region which offer their services to about 1000 individuals and small or medium farms and we estimate that their actual production represent about 5% of the global apple production. This sector is less easy to quantify since almost all the production is destined to self-consumption but it should increase significantly according to the processors we interviewed.

c. Role of small farms and small food businesses within the food system

When it comes to local production from small and medium farms it is important to distinguish two sectors which are eating apples (for juices and desserts) and apples for cider productions. They don't present the same organization and issues.

In the cider sector, which is the most important in the region, we identify 12 processors. Half of them does cider with their own production and the other half collects apple from other orchards.

Since few years it has become harder and harder to find apple for cider for these processors because of the orchards ageing and abandonment. Indeed the apples come from small and medium farms but also from individual gardens or from retired farmer exploitation.

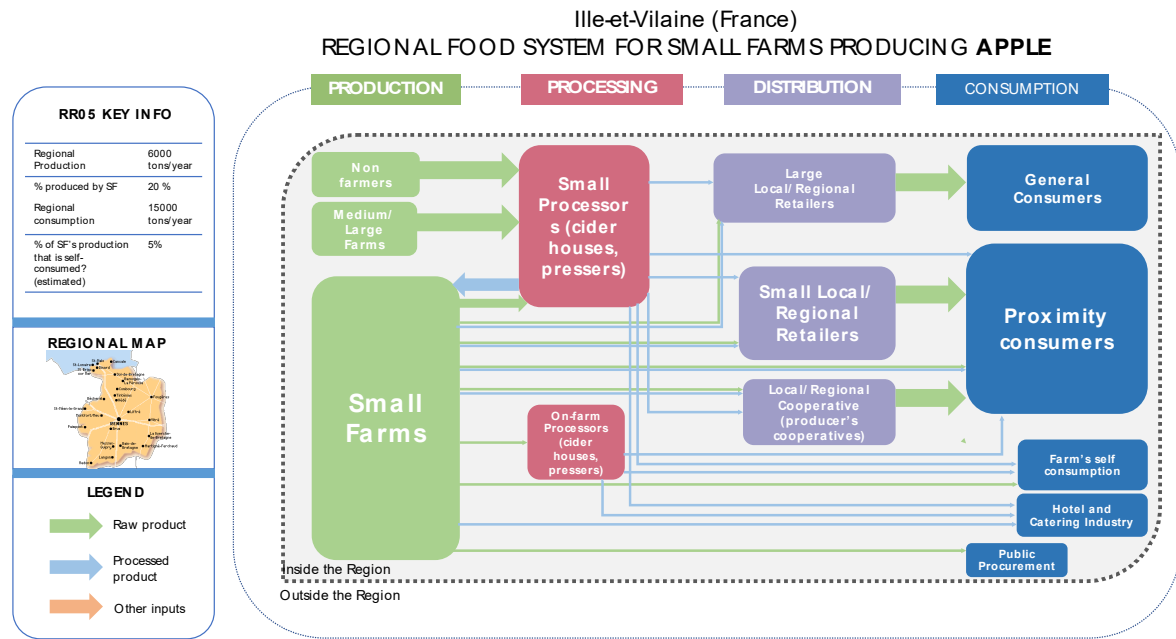
To answer this problem, one of the processors leads a territorial project to support individuals to collect their apples. It is a wide awareness project constructed with associations and professionals to preserve the regional skill in cider making. The aim is to maintain the apple cider production in the region.

These two types of processors represent about 15% of the apple sector. They are almost totally included in the market and their final products mainly go to local shops and restaurants.

d. Importance of household self-provisioning in small farms and small food businesses

We could observe that small farms usually reach a high level of self-sufficiency in the household.





Typology of small farms in the reference region

We would like to highlight two aspects in the approach that we considered as limits to propose a complete small farm typology.

- First, we focused on two products for the preliminary analysis and for the choice of interviewees whereas we expect to build a general small farm typology. In our case, the apple (as an interesting sector mixing a wide range of small and large farms) and the pork sectors (as one of the main regional productions) are not representative of the small farms variety of situations.
- Second, the quantitative criteria given in Salsa's project (upper limits for area and/or PBS) appear as inappropriate when trying to discriminate the small farms within the overall farming regional sector. For example, in the pork sector where farms areas are small but where the volumes of production can however be extremely high, it excludes less intensive farmers producing their own animal feeding whereas it includes intensive farms (small area though very high PBS).

Considering this, we launched a discussion with the KI, SF and SFB to propose another small farm characterization specific to our RR. From these exchanges and our observations, we detected common specificities that could define small farms in Ile-et-Vilaine. On the one hand, the small farms models are based on an economic empowerment and autonomy regarding the agro-industrial system. On the other hand, small farmers are willing to be integrated to the economic, cultural and social fabric of their own territory.

We developed what we considered as appropriate – and alternative - small farms characteristics in Ile-et-Vilaine in the Annex 3: Small farm characterization in Ile-et-Vilaine, that we recommend to read and consider as a necessary complement to this short document



Beyond the similarities between small farms, we identified different trends in their organization, objectives and drivers that allowed us to create the SF typology of Ille-et-Vilaine. The methodology used to do so is described in the Annex 2: Methodology for the small farm typology in the region. It includes the draft typology made from the KI interviews, the resources to find farmers to interview and the table of criteria considered at the first phase.

When selecting the farmers interviewed, we used two criteria which are:

- The number of crops or animal produced or reared in the farm
- The importance of the agricultural activity in the household.

TYPE 1: “Entrepreneur approach”

The farms which are tending toward type 1 are characterized by their capacity to value the combination of different productions to increase the farms profitability. They can be divided in small workshops with one person in charge of each activity. The global area of these farms is important but we can consider them as small because they are composed of small activities. They usually are established by young farmers who want to work collectively in order to avoid the isolation of the agricultural sector and to take less risks while setting-up.

This type of SF plays the particular role of creating employment locally and is highly implicated in the economic and social life of the territory.

TYPE 2: “Heritage priority”

This category includes the farms which are specialized in the production of one or very few products with a high added value. They can be oriented toward processed products, local varieties productions or local race breeding. They are usually certified and take part of local networks and associations to defend their productions.

They play the specific role to conserve local species productions which helps to increase the regional resiliency.

TYPE 3: “Pluriactivity, experimentation, slow start”

The young farmers and new entrants who keep their initial activity are represented in this category. Farming comes from a willingness to change their lifestyle progressively. The production is mainly sold to relatives, neighbors or acquaintances and not through formal outlets. Depending on the age of the farmers, they can aim at getting bigger. One of the objectives for the oldest can also be to prepare a supplement for their pension after they retire. As there is a financial security coming from another activity, these small farms can carry on innovations and experimentations (through biodynamic and agroforestry concepts for example).

*Figure 3 : Main characteristics of the small farm types in Ille-et-Vilaine NUTS3 region, France
Guennoc Doriane, june 2018*

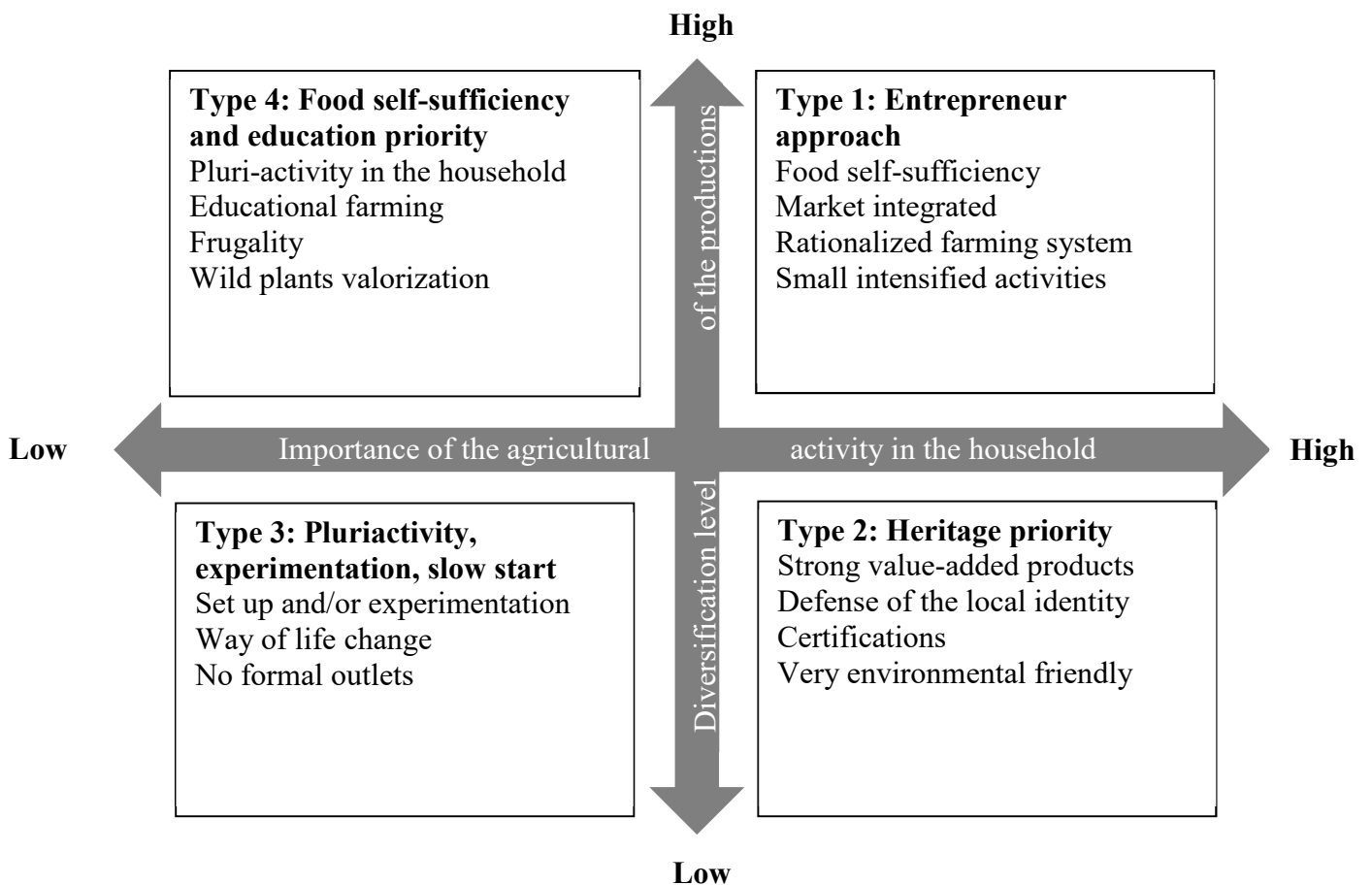


The dissemination of these farming models and of their potential innovation would help to increase the regional nutrition security.

TYPE 4: “Food self-sufficiency and education priority”

The farms included in this category usually develop some farms diversification: restaurant, lodge, nature classes, yoga training etc. The objectives are both personal and global. The farmers aim to self-sufficiency and use their activity as an educational tool. All the productions are valued and an important role is given to wild plants and animals.

The educational role of these farms is primordial and participates in the nutrition security of the RR in the long term.



Governance

- a. Main interactions of SF and SFB with governance structures in the region

With the small farms typology, we highlighted a general aspiration of small producers to stand out from the agro-industrial model by choosing a sustainable and more autonomous



way of farming. In view of this, the interactions with most of the governance structures are described as conflictual relationships.

Small farmers often identify themselves as resisters against the industrial farming model illustrated by larger intensified farms, and by the main farmers union, by the agro-industries, the agricultural training institutes, the state policies, etc. What especially differentiates them from bigger farmers is their willingness to be autonomous in their decision-making. Thus, they don't have interactions with governance structures except for certifications if they feel that is necessary. Indeed, their motivation is fuelled by the consumers demand which is more and more oriented towards local and quality products. Certifications like organic farming are known by the majority and are desired to attest a minimum level of quality. However, we have to notice that some producers refuse certifications because they want to be fully independent and/or because they don't consider that the regulations go far enough.

In sum, small farmers comply with the institutions and the regulations but their decisions concerning the shape and the evolution of their farming model depend on their direct social environment (consumers, friend /colleague advices, trainings from associations etc.), as well as on some more personal visions (of farming activity, of technics, of nature, of the best options for time share, and more globally on their vision of autonomy)

b. Levels of governance and their relative importance for SFs and SFBs

The levels of governance differ for each step of a farming project. During the settlement phase, farmers have to deal with different institutions. The legal procedure for land access is to get an authorization for operation given by "Direction Départementale des Territoires et de la Mer" (NUT 3 level) and to present the project to a commission made up of state officials, professional agricultural organizations of the department (NUT 3 level), territorial communities (locals), experts and associations. The final decision is given by the departmental prefect (NUT 3 level).

The land operators SAFER (limited societies placed under the responsibility of the Ministry of Agriculture) also plays an important role in land distribution. They have a pre-emption right on the farm land sales in order to ensure consistency between agricultural projects and local development policies. We have to notice that in Ille-et-Vilaine an innovative land leaseback system has been experienced together with the Department and the local SAFER. The objective was, on one side, to support project holders who don't have an agricultural background to settle and on another side, to avoid the dismantling of small farm businesses. One of the interviewee could settle thanks to this scheme.

However, even if there are policies recognising the importance to help new farmers to settle, most of the interviewee declared that they had difficulties in acceding farm land.

When it comes to developing the activity, local organisations (public or private) which propose farmers trainings play an important role for small farmers. Most of the interviewed SF and SFB mentioned the interest for them to follow these trainings, firstly because it gives



them the bases to develop their activity (in accountancy, technical informations, etc.) and secondly because it offers a local network of people with similar projects and concerns.

Another level of governance would concern the subsidies since they sometimes influence the way of producing. For example, several small farmers would like to rent one plot to other farmers to develop exchanges and experimentations (e.g. to introduce sheep in orchards) but mixed cropping/breeding farming is not compatible with the CAP organisation. Each plot has to be dedicated to one production in the declaration so only one of the producers would have subsidies while working in that way.

c. Constraints impairing full participation in the food system

The very low number of small farms producing pork reflects the high difficulty for SF and SFB to deal with the meat sector regulations. The cold chains norms and the controls are the same for big or small meat producers even if it necessitates important investments (equipments, blood tests for animals, etc.). In addition, on-farm slaughtering is forbidden when the production has a wider destination than self-consumption. Thus, small farmers who would like to have few pigs to value by-products and to sell them, have to work with slaughterhouses, a solution which is not always profitable because of logistic costs. This is especially true for some farmers who live in the south of the department since the last proximity slaughterhouse which is still operating is situated in the north-west part. The closure of this facility could highly jeopardize some small farms sustainability.

According to key informants the new regulation, which decrees that all the pig holders have to control the *Trichinella* risk for their animals, could also have an impact on the number of small livestock. Indeed, from the 1st of January 2018, all the farmers who have not had their livestock controlled by the veterinary services will have to pay for each pig at the slaughterhouse to check if the animals are positives or not to the parasite. (This is an obligation for all farmers who have two pigs or more). The law aimed at encouraging all the producers to make the verification before that date but one risk is to increase the number of undeclared animals.

Open-air breeding farms also have to comply with many other regulations. As the animals can be in contact with wild animals, some investments (e.g: special fences) and additional tests (e.g: brucellosis test) are necessary.

Another issue mentioned by small farmers concerns the access to land. The problem can come from the institutions: to qualify to buy new plots, farmers sometimes have to be a certain size for the SAFER. But the issue mainly come from the power relationship between farmers: the biggest can easily afford to buy new plots and discourage the neighbours to compete with them. Most of the interviewee agreed on the fact that the bigger the farm is, the bigger it gets. In this context small farmers who strive for development feel they don't have the same chances than bigger structures.



d. External policies, decisions and social norms affecting food systems

What mostly affects the regional food system according to SF, SFB and key experts is the dependency of the agro-industries besides the international economic situation.

An example of a mismatch between private and public interests concerns the apple sector. While the State develops a national policy to help farmers to renovate their orchards through subsidies, Agrial, the main cooperative in the RR for cider, proposes a bonus to producers to accept removing apple trees. The international competition constrains the cooperative to reduce its production, a situation which directly impacts the farmers activities. This decision seems inconsistent with the national objective to improve the apple sector competitiveness by investing in tree planting for a better environmental and economic performance of the apple production. Small farmers are not directly concerned by the cooperative decision since they don't contract with it but, for them, it reveals the brutality of the globalised food system at a local scale.

The territorial issues also affect the food system. The urbanisation dynamic is responsible for a wide loss of agricultural land. Between 2000 and 2010, 4% of the agricultural lands in the RR had their destination changed (Agrest, 2015) and it is especially true in city suburbs and on coastal areas which are progressively densifying. The actual planning documents are oriented through a limitation of the agricultural area artificialisation. However some farmers speculate on the evolution of some of their plots destination with the updating of the documents (every 10 years). As the farming lands are less expensive than the urbanized lands, they are targeted by many actors for development projects. Moreover, the territorial planning policies aim at avoiding the plots isolation which can be an argument for the collectivity to transform progressively a farming area to an urbanized area.

The preservation of the agricultural land is also contradictory with some nature preservation issues: protection of wetlands, of water catchment area, of natura 2000 area etc. It is especially true in our RR where the water pollution is a central problematic. The extra specialisation in pork, milk and cereal production leads to an important use of manure (to value the wastes) and of pesticides which, while they are spread in the fields, make the water nitrate and pesticides rates increasing. The local policies have been working for about 20 years to reduce the impact of the agricultural activity on the water pollution by forbidding conventional agricultural project which use these inputs on water protection area, therefore these regulations participated to the increase of the agricultural land pressure. However we have to notice that these regulations can sometimes work in favour of the small farm establishment. As they usually don't use any input for their production they can be encouraged to settle (or at least accepted) in these protected area by all the institutions (Regional Health Agency, General Council, etc.).

e. Gender issues intersecting governance issues

Our investigating method didn't allow us to detect significant gender issues for access to land and to subsidies as we interviewed men and women who succeeded in their establishment.



However, despite an evolution of customs and traditions in the agricultural environment, the statistics show persistent gender inequalities. Even if women and men are equally represented in the agricultural education (52 % of students are women in 2010 in France), the farm heads are men in 75% of the cases. Women are mainly oriented toward services and commercial sectors whereas men work in production.

Despite this significant inequality, we have notice that in our case we didn't have difficulties to find farms run by women. Indeed the statistics show that women operate in smaller farms than men and that they favour organic productions compared to them, what could a priori be confirmed with our field work. The type of farms that we are focusing on is thus consistent with the farm model established by women.

However we can mention that, from the interview, the establishment of women might be still quiet unpopular in the conventional sectors and in the most rural area. For example a farmer who runs his farm in association with his wife and his step-father told us that when his wife was welcoming clients or neighbours she was always asked where the real farm head is and everybody was surprised that she was allowed to use the farm machinery.

Thus, even if we didn't detect real gender issues for the establishment or the subsidies, the agricultural sector is mostly represented by males.

f. Other actors and processes important for the regional food system

The role of associations (CIVAM, Accueil Paysan, Agrobio 35, Terre de lien), federations (Fédération des races de Bretagne, Fédération des porcs blancs de l'Ouest) and of the agricultural chamber can be highlighted. On a one hand, these organizations offer trainings to help farmers throughout their settlements and their development and create networks of persons with similar projects. On a second hand, through public or private projects they participate to the preservations of some local varieties and races. This is especially the case for the apple sector in which we can observe many projects all around the region which aim at diversifying the apple production. We could also mention many other ecological associations with specific expertise involved in civil society awareness campaigns about the history, the culture and the technics of specific productions. They are important at different levels of the food chain since they can influence the producers and the consumers in their choices.

Another category of actors which could have been integrated to the food system map are the livestock feeding suppliers. They play an important role in small farms organization with animals. The quality and the price of the food influence the decisions. Indeed, some farmers would find more profitable and environment friendly to produce their own food, which impacts the farm size and production.

g. Forms of collaboration and organization between small farms



Different forms of collaboration between small farmers exist in the Region. They can be organized to sell together their products. It can take the form of a retail outlet created and managed by the producers themselves (as a private company). They can also have premises where they prepare food baskets that they deliver alternately (as an association). The size of this type of organization is very variable; it can go from 5 to 40 producers.

We can also find farmers who sell other small productions from neighbours on their on-farm markets. All these organizations concern small farms but also medium or even big farms. The choice of partners depends more on the type (to avoid competition) and on the quality of the productions than on the farm size.

The collaboration can also start at the production phase. Some producers are willing to welcome other producers on their land for experimentations. They can make available one or several plots for young farmers or new entrants to value area they wouldn't have time to harvest (win-win approach). We felt that this form of collaboration is significantly increasing in the region as 7 farmers out of 12 mentioned that they are willing to do it.

The number of shared agricultural projects is also increasing. It consists in investing as a group to rebuy medium or big farms in order to create several distinct workshops. The objectives of these projects are to diversify the productions in order to be economically viable and to avoid the isolation of the agricultural sector.

Informal collaboration also exists between farmers, small or big. Most of the interviewees indicated that they can find support from their neighbours for machinery and labour force even from conventional farmers who are better equipped. The exchange of products is also widely developed. Only two interviewees didn't mention that they give or trade their products, and it was explained by their high level of market integration (almost all the production is sold).

However it seems more natural to give a hand to neighbours in rural remote area. One of the interviewee shared his feeling that the closer we get to a city the more the exchanges get formal and money-based.

h. Forms of collaboration and organization between small farms and consumers

A form of association between producers and consumers that has been increasing for 20 years is called AMAP (association for the preservation of peasant agriculture), which is the main French community-supported agriculture system. It takes the form of a one-year contract between these two actors, with a one-year pre-paid contract for a weekly basket. They establish together a charter to define all the modality of the contract as the quantity and the diversity of the products the basket will be composed of, the prices, the selling points, etc.

The aim on the producer side is to make sure that his products will find customers and, on the consumer side, the objective is to get quality product by supporting local agriculture, as



well as a high expectation of social link and empowerment, both between consumers and with the producer.

- i. Relationship between small and large farms, and between small and large businesses

The cooperatives for the use of agricultural equipment (CUMA) are described as the privileged places to create link between farmers. These cooperatives correspond to every size farms which punctually need specific materials. We can notice that these cooperatives can influence the practices of the farmers. Conventional farmers can take advantages of the equipment intended for organic farming if they want to make changes in their methods. On the other hand, small farmers can benefit of the bigger farmers experiences to get advices in the use of some materials. These types of interactions are also described between neighbours when the relation-ships are cordials.

- j. Other governance issues

A governance issue, mentioned by several Key Informants, is the role of local collectivities in the food system strategies. Since 2013, the State launches call for project to finance initiatives that would play a part in relocating of the food offer. These subsidies are the occasion for the selected local collectivities to build an awareness campaign about healthy and local consumption, to introduce local food in mass catering, to develop local markets etc. In Ille-et-Vilaine, four projects have already been supported through that national action. It doesn't directly influences the productions but it has an impact on the local logistic solutions for producers.

Small Farms and rural livelihoods

- a. Importance of household labour in SFs

The establishment in a small farm usually meets the need of having a job corresponding to the personal values. Most of the interviewed farmers mentioned that farming is a lifestyle choice and rarely a family heritage. The professional activity is closely linked to the personal aspirations which blur the line between the private and professional life. Thus, even if only one person in the family has an agricultural status, the entire household is somehow involved in the activity.

However, the time spent for farming by the household members is hardly measurable and very variable from a farm to another. A difference with traditional farming is that the transmission of the farm usually depends on the children aspirations. Except if one or several children decide to carry on the business, there is an ad-hoc dedication to the farming activity.

Concerning the potential partner implication there is no general pattern. They can whether be part of the project or be considered as punctual supports. However, the development of



another activity linked to the farm (like rural accommodation, on-farm camping, on-farm processing, etc.) can go along with an important implication of the partner as it requires an extra-work.

b. Farm and non-farm income in the SF's households

Depending on the characteristics given on the small farm typology, the income coming from the agricultural activity is more or less important in proportion of the general income. For farms showing some type 1 and type 2 features, the turnover is significant and most of the farmers are able to earn a socially acceptable income. In the farms closed to the types 3 and 4, the objective is more to provide a non-monetary income through self-sufficiency than to make important benefits. In any cases, the subsidies are considered as an important support especially during the establishment. Only the farmers who are not definitely settled didn't take the step to receive subsidies but they indicated that they would do it later on. The proportion of the grants compare to the total income can go up to 100% in some cases but it is particularly important the first years of the activity.

c. Shocks and coping mechanisms of SF households

Concerning the mains shocks experienced or feared by the farmers, the health problems linked to an over-activity are considered as the most problematic. The lack of dissociation between personal and professional life can lead to an overwork and result in medical issues. To the question "what is your level of dedication is to farming activities, in terms of your total working time" most of the farmer mention that they spent more than 100% of their time working in the farm. In view of this, the objective is to increase the performance of the farm by keeping the same yield while reducing the working time.

Role of Small Food Businesses

a. Main insights and patterns

Our analysis focused on on-farm processors; firstly because we can find this type of SFB for both, apple and pork sectors, secondly because they play an important role for the small farms activities in the region. For example, pressing the apple allow the farmers to spread the benefits of their production over two years. It can be very important for them during poor harvest years as apple is a very variable production.

b. Labour in SFB work

From the interviews we could detect two patterns of Small Food Businesses. One of the SFB categories consists of independent family businesses. Those are transmitted from a generation to the next. They are recognized for their traditional know-how which brings the added-value. They usually are well-integrated in the territory and known by the major part of the locals. The other category concerns the new businesses that are created in order to



respond to the actual income needs. Thus, they don't consider changes and evolution of the activities on the same way.

c. SFB income

The new on-farm processing workshops are initially created with the idea that the activity would always be in evolution for creating income whereas, in the old family businesses, it requires long reflections to consider changes. These two categories of SFB didn't settle on the same contexts and didn't benefit from the same help at the beginning. It seems to be easier nowadays to be eligible for subsidies.

d. Shocks and coping mechanisms of SFB households

In a processing activity one of the main shocks that can affect the businesses are the technical failures. It can delay the activity and the equipment rehabilitation can represent considerable investments.

The Future

a. Main objectives and priorities of SF and SFB for the future

We could detect 4 different objectives depending on the age of the agricultural holding and on the age of the farmers. The priorities can be:

- The development of the activity. Some farmers are willing to develop their activity by creating new workshops, by experimenting new productions, by finding new outlets etc. It concerns young farmers who settled recently.
- The stabilization of the activity. In this case the aim for the farmer is to increase the profitability of the activity by producing the same volume of food while working less. It mainly concerns the new entrants who settled recently but who don't plan to do farming for the rest of their professional life.
- The progressive ending of the activity. Farming is a lifestyle for some farmers who don't disconnect their personal and professional life. When they are close to retirement they organize the activity in order to be able to continue partly the production for self-consumption. As the family housing is integrated to the whole agricultural equipment they don't consider the sale of the farm. It mainly concerns old farmers who settled a long time ago.
- The transfer of the activity. Some farmers are looking for reliable persons to whom they could sell their farm. They usually look for young farmers who would respect the actual production by working on the same way. It mainly concerns old farmers who consider their house as a professional accommodation and wouldn't have problem to live somewhere else after retiring.



We can notice that, in any cases, farmers have a long term vision regardless their priorities. Even if they plan to stop their activity very soon, they work at maintaining a productive environment by planting trees for example. The objective is to leave a sustainable place to the future generations.

b. Risk perception by SF and SFB

All the objectives of the farmers seemed reachable so the main risks for them concern their health (as mentioned in the above paragraph) or external factors. They fear a degradation of their direct environment by industrial farms practices or climate variations.

c. Food system forecast in 5, 10 and 20 years

Concerning the general farming landscape in few decades, what could be different according to the interviewees, is the organization of the industrial food chain. They imagine a repurchase of the industrial farms by the cooperatives what would strengthen their domination. The last safeguards would disappear since they wouldn't have to comply with farmers to fix prices anymore.

On the other side they imagine a development of small farms with different innovative models to respond to the consumer demand. The number of small farms with high added-value products sold in short supply chains would increase.

In sum, we can imagine two scenarios:

- or the gap between small and big farms would get bigger and the power relationship would be even more important than today,
- or a hybrid system will be created with the increase of both, alternative small farms and industrial big farms, in order to respond to all the needs of the consumers.



Annex 1: List of resources

k. List of key experts interviewed

Structure
Syndicat Mixte du Pays de Brocéliande
Chambre d'agriculture de Bretagne
DRAAF Bretagne
Cidrerie Coat Albret
Le clic des champs
Terralim
Les AMAP d'Armorique
CIVAM
Ferme à Marcus
Ecomusée de Rennes
UMR ESO
TVR

l. SF and SFB interviews and focus groups information

Stakeholders	Interviews			How were they contacted?
	Men	Women	Total	
Farmers	7	3	10	By phone By emails On markets
Producers' cooperatives				
Slaughtering facilities		1	1	By phone
Processors (small/large)	2	2	4	By phone By emails
Wholesalers				
Retailers				
Caterers				
Other small food business				
Exporters				
Importers				
Farm inputs suppliers				
Advisory services	2		2	By emails
Agricultural administration/Ministry of Agriculture		1	1	By emails
Consumers' groups/organizations	2		2	By phone By emails
Local administrators and policy makers	1	1	2	By emails



Political leaders and PMs				
Other programs/initiatives	2		2	By phone
Nutritionist				
NGOs				
Traditional and religious leaders (for Africa)				
Total	24			

Annex 2: Methodology for the small farm typology in the reference region

Methodology

The information given by the KI during the interviews allowed us to develop a draft typology of small farms. The diversification of the interlocutors helped us to get an overall picture of the small farm landscape especially for the pork and the apple sectors.

From these interviews we also got a primary list of contacts and a large panel of resources to delve into. We developed a table of relevant criteria according to the draft typology in order to be sure to diversify the farmers types that we interviewed.

Draft typology created from the key informant interviews

The KI indicated that the small farms in the Region can take the following forms:

- Permaculture farms, intensive in small areas
- Farms with another activity as lodge, campside, nature camp for children, etc.
- Farms with a processing activity in situ
- Farms with a specialization in local species
- Intensive farms producing pork which are installed in an area <5ha

We must observe that this typology describes only professional farming: KI spontaneously ignored part-time farming, retired farmers still handling a small area, and leisure farming (mainly for horses, but also honey for example), which constitute the main categories of non-professional farming in France in general. Following the KI vision, we ignored this non-professional category.

Resources framework for a representative panel of small farms

We used the following resources to find small farms responding to the SF pre-typology:

- The list of farmers who have another activity (Accueil paysan)
- The list of farmers who sell product through AMAP's (AMAP d'Armorique)



- List of small farmers on permaculture websites
- Interviews with small food processors who indicated where the products they use come from (in order to include non-professional farmers)
- The list of the members of the Federation of local races
- Prospection in open-air market, cider fair etc

Table of criteria relevant according to the pre-typology

The following table gives the distribution of the small farms according different criteria that we selected progressively while doing the interviews.

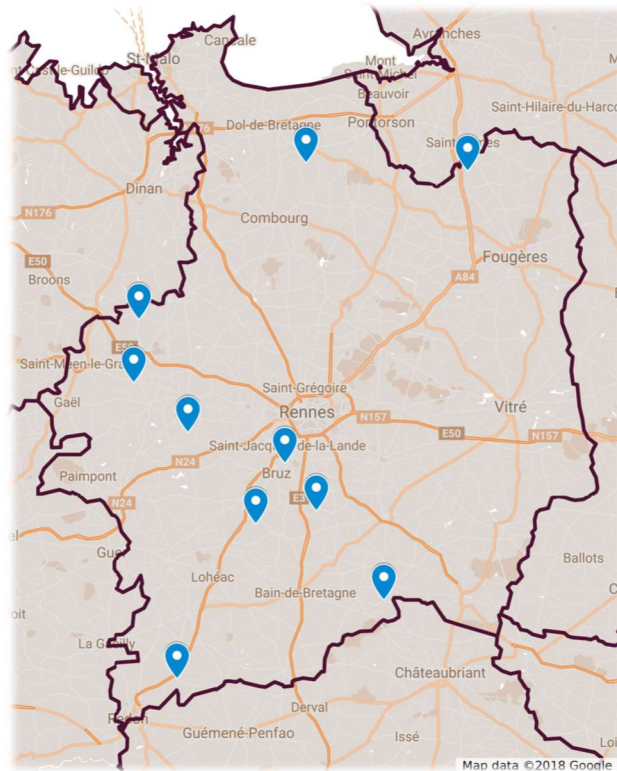
Small farms distribution according to the defined criteria				
Self-sufficiency level	Between 0 et 25%	Between 25 et 50%	Between 50 et 75%	Between 75 et 100%
	4	2	3	1
Market integration level	Between 0 et 25%	Between 25 et 50%	Between 50 et 75%	Between 75 et 100%
				10
Importance of the key product(s) production	Not declared	Secondary production	Main production	No hierarchy in the production
		3	5	2
Diversification level	Between 1 and 3 products	Between 3 and 5 products	More than 5	
	3	4	3	
Processing	No processing	On-farm processing	External processing	Both (on-farm and external processing)
		2	4	4
Geographical location*	Rural	Peri-urban	Urban	
	5	4	1	
Importance of the agricultural activity in the household	The agricultural activity is the main one	No differentiation in the importance	The agricultural activity is secondary	
	3	3	4	
Age of the farm	Between 0 and 5 years	Between 5 and 10 years	Between 10 and 20 years	More than 20 years
	4	1	3	2

*The geographical location has been established from an INSEE territorial division. According to this classification an urban unit is an area that offers at least 5000 jobs and where 60% of the residents are not attracted by another urban center.

Geographical distribution of the small farmer interviewed

We tried to pay attention to get a homogeneous repartition of the small farms that we interviewed. The map below gives their geographical position.





Annex 3: Small farm characterization in Ille-et-Vilaine

In order to collect comparable data in all the Referent Regions, the small farm criteria given in Salsa's project are quantitative and based on the surface (<5ha) and/or on the PBS (<9600€).

In our case the second criteria (PBS<9600€) cannot be used for the apple sector since it would represent a 3ha farm (if it only produces apples) which is more restrictive than the first criteria. For the pork sector it would represent a farrow hog operation with maximum 9 sows (there are 6 in all Brittany) or a farm which raises and fattens maximum 37 pigs (we don't know the exact number of farms that it could represent but they are very marginal). Thus, to find small farms producing pork corresponding to the Salsa's criteria we have to focus on farms settled in less than 5ha.

We considered that in Ille-et-Vilaine such criteria is restrictive and doesn't cover farms from a homogeneous category. It is particularly true if we focus on the pork sector. On one side this categorization would include intensive farms established in small surfaces. On the other side, organic farms (with pigs raised on straw instead of duckboard for example) would not be considered. It seems unappropriated to our point of view since the first category doesn't show any connections with small food businesses or small farms whereas the second one would be totally integrated to an alternative food system.



This problem of definition is particularly true for our Referent Region since the model of subsistence farming and family farming, which would have matched with the selected criteria, progressively disappeared since the 50's with the agricultural modernization. Thus, nowadays when we talk about small farms in the region, it alludes to the farms based on peasantry model which have been created in reaction to the development of the agro-industry. However from a preliminary analysis, these farms don't present any specific size or economical patterns. Therefore the question was for us to identify common characteristics of what is actually considered as small farms in order to propose criteria adapted to the regional context.

During each interview with the Key Informants, the Small Farmers and the Small Food Businesses owners, we asked what would be the most relevant characteristics of the small farms in the region, according to them. The following analysis comes from their answers but we admit that it can present a bias as we didn't interview any industrial actors.

We tried to focus on quantitative criteria with some interviewees as it allows a clear distinction between farms (in comparison with qualitative data). We collected the following proposals for potential characteristics to take into account (in addition to surface and PBS criteria):

- The number of persons working on the farms
- The volumes of production
- The number of persons that the farm could feed

The boundaries for each of these proposals were debated but none of them could be translated into a satisfying set of criteria allowing the discrimination of small farms in our RR. Indeed, the indicators always depend on many factors: the type of production, the climate hazard, the geographical situation etc.

We felt that all the quantitative characteristics are more the consequences of a farming model than criteria to identify small farms. Therefore we gave more attention to the meaning of these proposals than to their potential boundaries.

Thus, the analysis is based on the qualitative aspects emphasized by the actors.

The autonomy in decision-making was mentioned by farmers as the principal driver for a small farm activity.

One of the expressions of this priority is to limit the number of workers employed on their farm. The interviewed farmers were all reluctant to expand and to hire permanent labor force because they did not want to be accountable to other people about their choices. This notion of autonomy was very frequently brought up by the interviewees for different aspects of their activity.



Firstly, according to them, a small farmer should fix his own prices and be independent from clients and from word rates. A solution for them is to sell products through short supply chains and to diversify their outlets.

Secondly, they want to be autonomous in their decision-making for production. They reject the idea to adapt their farming methods and products to one client needs. They need to be able to make experimentations and to vary their productions from one year to the next.

The willingness to be autonomous is considered by farmers as inconsistent with the practices of the agro-industrial structures. Indeed, conventional producers usually have to contract with a limited number of clients and have to comply with cooperative or mass distribution specifications to orientate their production choices. Thus, most of the small farmers indicated that they want to be independent from the agro-industrial system.

From our point of view, it is difficult to consider this rejection of the agro-industrial system as a small farms characteristic. In practice, the boundaries are porous between the alternative system, in which the farmers are part of, and the agro-industry. For example, some farmers decide to sell a part of their production to the mass distribution; some want to buy some animal feeding in addition to their own feeding production; others would use organic inputs during bad years etc.

Therefore we will keep as a small farm characteristic their search for autonomy in decision-making more than their desire to be independent from the agro-industrial model.

The second common aspect that has been highlighted during the interview is the willingness for the small farmers to be integrated to their environment. Contrary to the common perception, autonomy doesn't mean autarky.

A small farmer objective should be to have a neutral or positive impact on his ecologic, social and economic environment.

One of the aspects that have been mentioned several times to distinguish small from bigger farms is that they pay an important attention to ecology. They wouldn't destroy the biodiversity, and on the contrary, they are willing to develop it. Thus, small farmers don't use chemicals inputs or phytosanitary products. They usually orientate their production methods towards organic farming, biodynamic, permaculture etc. It is sometimes materialized by certifications. The animal welfare is also a priority in the small breedings.

Small farmers are also looking for integration in the social life of their territory. The contact with the consumers was mentioned as a very important aspect for the interviewees. Some of them indicated that the choice in the outlets depends on the interactions they can have with their clients rather than on the quantity they would sell. They would also be implicated in different associations and farming networks where they can receive and give a hand when it is needed.



Small farmers are also looking for developing the local economy. They deliver the local shops and markets. They also care about not disturbing the neighbor's work with their own activities. This point was especially highlighted because some interviewees fear the establishment of an intensive agricultural holding or an industry next to their farmhouse that would impact their work (noise, smell, effluent discharge etc.). Small farms can therefore be distinguished from biggest by this aspect.

To conclude, the two characteristics for small farms given by the actors are:

1. the willingness to be autonomous in decision-making and
2. to be well integrated in their environment.

This leads to the development of a list of indicators to detect small farms according to us in Ille-et-Vilaine (even if some of them are instinctive):

- They sell their production through short supply chains and proximity channels.
- They diversify their clients
- They don't have contracts that imposes constraints on their production choices
- They have the possibility to make experimentations and make changings in their productions
- They prioritize environment friendly technics
- They usually have quality certifications (or would be eligible)
- They are part of local association and networks
- There is no distinction between their private and professional life as it correspond to a lifestyle choice based on their values

Our small farm typology takes into account farms which correspond to this model. We intentionally excluded intensive farms established in less than 5 ha to get a homogeneous category of farms. We paid attention to interview farmers whose activity corresponds to the Salsa's criteria especially in the beginning. For example we manage to interview people for whom farming is a leisure activity since they doesn't try to get any income from it.

However we expanded our analysis to an extra category of farmers who are established in a large land surface but that we consider as small because they have several small production



4.6. RR6 Vaucluse –France– Food System Regional Report



WP3

Vaucluse (RR 06) –France– Food System Regional Report

Authors: Amandine Aguera and Marta Debolini



Table of Contents: Food System Regional Report

1) Socio-economic and agricultural profile of the reference region.....	146
2) Key products and regional food balance sheet.....	147
3) Food system: Key nodes and flows and role of small farms and small food businesses.....	148
3.1. Key product 1: Wine	148
3.2. Key product 2: Olive oil	150
3.3. Key product 3: Cherry.....	153
4) Typology of small farms in the reference region.....	155
5) Governance	157
6) Small Farms and rural livelihoods	159
7) The Future	160
8) Annex: List of resources	161



Socio-economic and agricultural profile of the reference region

The geographical location of the Vaucluse department between the north of Europe, Spain and Italy, its Mediterranean climate and the fitting out of a dense irrigation network allowed an important agricultural development since the '80s. On this period, the "Rhône corridor" became a major exchange axe for agricultural productions, and the different part of the region found different production specialization. In particular, the *Comtat Venaissin* plain is more specialized on fruit and vegetables production, whereas the northern department developed more the wine production. The Durance valley on the southern part of the Vaucluse is more characterized by grapes, wine and cherry production, whereas on the Albion plateau (west department) livestock, lavender and cereals are the main productions. This regional specialization has as consequence a decrease on the number of farms and an increase on the average farm dimension (from 10ha in 1970 until 21 ha in 2007). Moreover, in the recent years, we observed an increase of urbanization and the abandonment of the traditional farming due to the progressive aging of farmers. Today, agriculture occupies 34% of the total surface of the department (it was 40% in 1970). The cause of this abandonment can be found on: the market evolution, the decrease of the regulatory tools of the common agricultural policy and the demographic pressure.

Table 1: Basic data for the region

Indicators	Data per Region - Nuts 3
Land size (km ²)	3,575
Population (thousands of people)	543,105
Density (people/km ²)	152
GDP (thousand USD/inhabitant)	26.6
Total labour force in AWU	12,498
Total number of holdings	5,710
Total Agricultural area (ha)	119,729
Total Utilized Agricultural Area (ha)	116,000
Agricultural Area in Mountain Area	
% of UAA in the RR	32.5
Average Farm size	21
Number of farms by UAA farm size: 0-5, 5-20, 20-50, >50ha	2,169; 2,026; 1,180; 480
Average size of farms < 5ha of UAA	2.11
Area of main crops (ha) (list the relevant crops below)	Wine Grapes = 46,097 Cherries = 2,472 Olive groves = 1,100 Vegetables = 1,710
Area of main crops (ha) in farms < 5ha of UAA (list the relevant crops below)	Wine Grapes = 1,845 Cherries = 167 Olive groves = 280
Livestock (LSU) per type (list the relevant types below)	Ovins = 4,161
Livestock (LSU) per type in farms < 5ha of UAA (list the relevant types below)	



Annual work units (AWU) by UAA farm size:0-5, 5-20, 20-50, >50ha	932; 2,097; 3,870; 6 509
Total family labour per farm size: 0-5, 5-20,20-50,>50ha	

Key products and regional food balance sheet

a. Key products produced and consumed in the region

The main agricultural production in the Vaucluse reference region are viticulture, fruit production and vegetables. In order to have a good representation of the agricultural sector, we choose to select one production for each production chain.

Viticulture is the first agricultural production in Vaucluse, contributing to 40% at the total agricultural GDP. The wines are mainly labelled. Moreover, wine production is very present on small farms and it is a cultural food production on the area. In terms of food balance, wine has a high amount of consumption on the department, but the production is so relevant that it represents a strong surplus and it is addressed also to national and international markets.

Fruit production contributes to the 30% of the agricultural GDP of the reference region. Apple and cherries occupy most of the surfaces. Concerning small farms, most of them are devoted to cherry and olive production whereas apples are produced more on big farms. The olive oil production on the reference region is lower than other French or European regions, but it becomes relevant if we consider just small farms. Moreover, on the study are there are many olive mill and oil cooperatives (27 olive mill considering the cooperatives and the private ones). Actually, the vauclusian population has a high amount of olive oil consumption, comparing to the rest of France, and it is more integrate on the Mediterranean diet. At the same time, the olive oil consumed on the region mainly do not come from the local production. For all these reasons, we considered olive oil production as a relevant case study in terms of food system.

Concerning cherry production, the issues at stake are very different. Vaucluse produces one third of the French cherries and the production chain is very structured (central purchasing, wholesalers). Cherries are mainly produced by medium-size and big farms and just a small percentage (6%) of UAA's cherry is on small farms. At the same time, Vaucluse has a high cherry consumption.

In the frame of the SALSA project, we decided to focus the analysis on the olive oil production chain because of its importance for small farms. At the same time, we also decided to have a look also on cherry production, because of its importance in terms of “cultural food”, but also for the volume and structuration of the food chain.

The vegetables production represents 12% of the agricultural GDP. The main products are: melon, strawberry, salad and “ratatouille vegetables” (tomato, peppers, eggplant, zucchini). In terms of the whole produced volumes, melon, strawberry and salad are the most relevant



production, but small farms are usually more devoted to the “ratatouille” vegetables. In fact, usually small farms are not specialized on one single production. For this reason, it is not pertinent to choose a single representative product, also considering that data about vegetables consumption are usually aggregated for group of production. On the frame of the SALSA project, we focus the analysis on the group of production including tomato, zucchini, eggplant and salad.

Food system: Key nodes and flows and role of small farms and small food businesses

3.1. Key product 1: Wine

- d. Nodes in the regional food system: production, processing, commercialization and retail

The Vaucluse production of wine is around 2,209,000 hl on 2016, mainly based on quality labelled production (67%). The 10% of the wine production is also labelled as organic. Wine are mainly red or *rosé*, and it is a very well-known production thanks to its membership in the Rhone Valley and its image recognized worldwide. This image is also reinforced by the healthy and reasoned side of the production accentuated by the increase of organic wines.

There are three types of business working on wine commercialization: cooperative cellars, private cellars and traders.

There are 39 wine cooperatives in Vaucluse, and they vinify about 80% of the wine grapes. Some cooperatives are grouped in two cooperative unions, in order to improve the marketing and commercialization capacity. Together they account for 40% of the production of the cooperative cellars of the department. The others vinify on average 25 000 hl each and have their own marketing scheme. Due to this organization, it is difficult to give a general scheme of marketing and commercialization, but we can identify a general trend: around 60% of the production is sold in bulk (40% bottled). The main markets (34%) are international (United Kingdom, United States and Belgium mainly), mass retailing is at 31%, traditional networks are at 25% (in caverns mainly but also catering, hotels, traditional stores, agricultural shows, Internet and wine shops, etc.) and hard discount at 7%. In the case of direct sales, it is important to note that 70% of customers are tourists. This means that the sale is direct, but often the consumption is not inside the department. In fact, knowing that wine is a product that can be kept for a long time (minimum 1 year), wine consumption by the tourist will be mostly outside the department. Concerning the farms members of cooperatives caves, they represent 68% of the wine producers. In average, the farms have a surface smaller than 12 ha.

Concerning the private caves, they are around 600 and they process 23% of the vauclusians wine grapes. They are constantly increasing since 2000, when they were 187. Bulk sales remain important with around 70% of the cellar volume. As for cooperatives, each private cellar has its own marketing scheme that can greatly vary depending on the farmers’



strategies. In general, 1/3 of the production is for mass distribution, 1/3 for export and the last third for traditional networks (private vaults, restaurants, hotels, traditional stores, agricultural shows, Internet and wine shops, etc.). But there are also particular cellars that sold 80% of their wine for direct sale. As for direct sales, clients are mostly tourist (about 80%). The farms with their private cellars are mostly medium and large farms (36 hectares on average).

Finally, traders market 9% of Vaucluse's vineyards with marketing channels targeting exports (60%) and mass distribution (40%).

e. Flows connecting the different nodes in the regional food system

This summary shows that the Vauclisian marketing and vinification structures are numerous and scattered throughout the territory, but that the wine produced in the department does not target local consumption but rather national and international markets. Indeed, the current strategy of the wine marketing is to increase exports to the maximum in order to counter the decrease of the national market demand on the last years.

Regarding wine consumption, the French buy 50% of their wine in supermarkets, 21% at a wine store, 14% at the producer, 12% in agricultural trade fairs and 4% on the Internet. However, it should be noted that when the customer buys his vauclisian wine in a supermarket, the wine often left the department to be stored in a central purchasing. Then, it is sent again in a Vaucluse store. In the frame of this project, we counted this wine as marketed outside the department.

f. Role of small farms and small food businesses within the food system

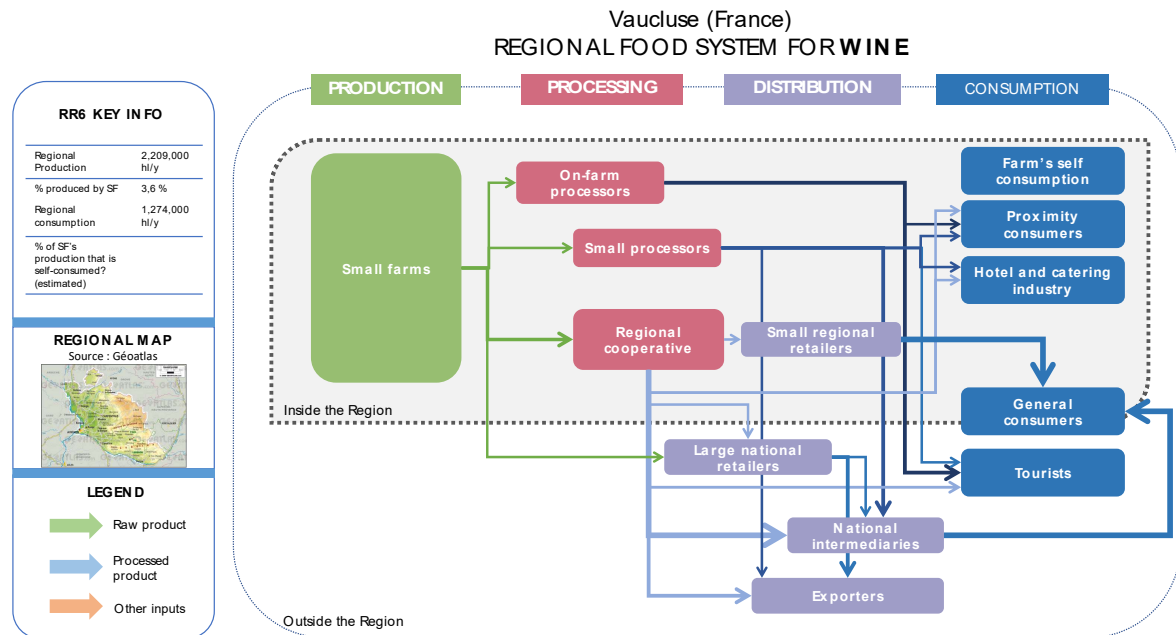
Focusing more on small farms and small winemakers, they produce only 4% of the wine grapes produced in the department but at the same time wine grapes are present in about 30% of farms under 5 Ha. On the other hand, if we consider also the economic factor (less than 5 USD) for identifying small farms, the number producing wine grapes drops drastically. This shows us that small farms manage to earn a decent income on an area less than 5 ha. We find several types of small vineyards that we will detail in the section 4.

g. Importance of household self-provisioning in small farms and small food businesses

Concerning the self-consumption of wine in small farm households, we find two distinct cases. On the one hand, farmers who sell their production in a cooperative cellar or to traders and they do not have the possibility to recover their own wine. For cooperative wineries, they have a cooperating price which allows them to buy wine at a reduced price. In this case, we did not consider this as self-consumption since the wine purchased does not come solely from wine grapes produced on the farmer's farm. On the other hand, farmers who vinify the production in their private cellars consume a very small portion of their wine. In this sense,



the wine is a production with a very few level of self-consumption. But at the same time, it can be easily exchanged for other agricultural products or services.



3.2. Key product 2: Olive oil

- a. Nodes in the regional food system: production, processing, commercialization and retail

In 2016, Vaucluse produced 1,994 tons of olives for oil production on an area of 1,100 ha, which corresponds to about 370 litres of olive oil. This corresponds to 11% of French olive production. A portion of the department is also included on the appellation AOC Provence. Moreover, 26% of the French olive orchard is organic (the highest percentage in Europe). In this sense, Vaucluse olive oil is a key production both because of its importance at the national level, and by the recognition of its labelling and the associated farming practices.

- b. Flows connecting the different nodes in the regional food system

As olive oil is a processed product, it follows a similar pattern to that of the wine industry. In particular, there are various patterns for olive oil marketing and commercialization. First, there are farmers who grow the olive tree and who own a small mill to make themselves the transformation of their olive: the *oliverons*. In this case, they only process their own olive production. These are farms of less than 5 ha that wish to optimize their agricultural production by controlling all the steps in the chain. The sale of the oil is 100% direct: farmer markets or direct selling in farm, but also on the Internet, during agricultural events and with the personal network of the farmer (friends and family). Just like wine, direct selling does not mean that the product will stay in the department. In the interviews with farmers, they told that their clientele was 70% of tourists and 30% of locals.



On the other hand, we can find private mills that can have two types of operations. In both cases, the millers are also olive growers. There are some private mills that make the transformation to other farmer under payment. After processing, the oil is returned to the operator who keeps it for personal consumption and sometimes sells a portion of it for direct sale (market and / or sale on the farm). In addition, there are private mills that process the olive and sell the processed oil. The commercialization depends on the farmer choice and the contract that has been signed between the farmer and the mill. In some cases, the olive grower can recover all of his oil for consumption and / or for directly managing the selling process. In this case, farmer just pays for the transformation service. On other cases, the farmer can leave a part (or sometimes the farmer does not have the choice to leave a part as soon as it was defined in the contract with the mill) of his production at the mill who manage the selling process. In this case, the mill buys the oil from the farmer, deducing the price of the olive processing. Finally, the farmer can leave all his production to the mill, but we never met this type of settlement in the practices, because usually farmers still wants to recover some of the production for his personal consumption. About 10% of olive growers compare at least the offer of 2 mills to compare the benefits of each. For example, an olive grower can bring some of his olives to a "good" mill to recover the oil for personal consumption and bring the rest of his olives to a mill with a low crushing service rate for the oil that he will market. Based on the interviews with the mills, we know that on average 85% of the volume of milled oil is recovered by farmers. On average there are 70% of privates and 30% of farmers who give their olives to the mill, a mill can count up to 1 000 olive growers. The rest 15% of the oil processed and marketed by the mill (10% of the oil coming from other farms and 5% coming from the mill farm). Marketing opportunities will then be 90% of mill sales, 2% on the Internet, 2% in catering and 2% in grocer's shop. Customers are 70% tourists and 30% locals on average, as in the case of *oliverons*.

The third possibility is the cooperative mills grouping olive growers who are all members of the mill. Generally, mills have at least 500 members with 30% of farmers who bring 80% of olives and 70% of hobby farmers who bring 20% of olives. We consider in this case as hobby farmers people who do not have agriculture as their main professional activity. As before, the oil can be recovered in full by the farmer after processing (in exchange for the price of crushing) or a part can be left to the mill for marketing. In this respect, the mill either buys the oil directly from the farmer or it pays the farmer once the oil has been sold by the mill. In general, 40% of the oil produced is recovered by farmers and 60% is sold by the mill. Concerning the marketing, 45% of the production is sold in bottled (43% mill sales and 2% on the Internet). Bottle sales is devoted 50% of tourists and 50% of locals. The rest, 55% of the oil, is sold in bulk to other mills including the group of olive mills "Terroirs Oléicoles de France" (TOF). The latter was created in 2001 to meet the demand of the large distribution of olive oil. TOF bottled and marketed to GMS under the brand of distributors. They do not export. The Vaucluse has a total of 27 co-operative and private mills.

c. Role of small farms and small food businesses within the food system

Concerning the type of farmers bringing their production to the olive mill, 5% of farmers who live from their olive production, 25% of farmers whose olive production is not their



main production, 30% of individuals who have a professional activity outside agriculture and who have more than 1 ha of olive trees and 40% of individuals who have a professional activity outside agriculture and who have less than 0.5 ha of olive trees. This large diversity of people cultivating the olive tree makes it difficult to collect statistical data on their overall number in the Vaucluse. By crossing the sources, the department would count 2,412 people cultivating the olive tree (on 3,297 ha) of which 1,068 with the status of farmer (that is 44% on 1,093 ha). Of these, about 20% would be farms under 5 ha and less than 5USD. 2,412 people who grow the olive tree seems a rather low figure in view of the number of olive growers in the mills. Nevertheless, this mix of producers allows the maintenance of a sufficient level of production for the actors of the sector and in particular the mills. This large diversity of people cultivating the olive tree makes it difficult to collect statistical data on their overall number in the Vaucluse.

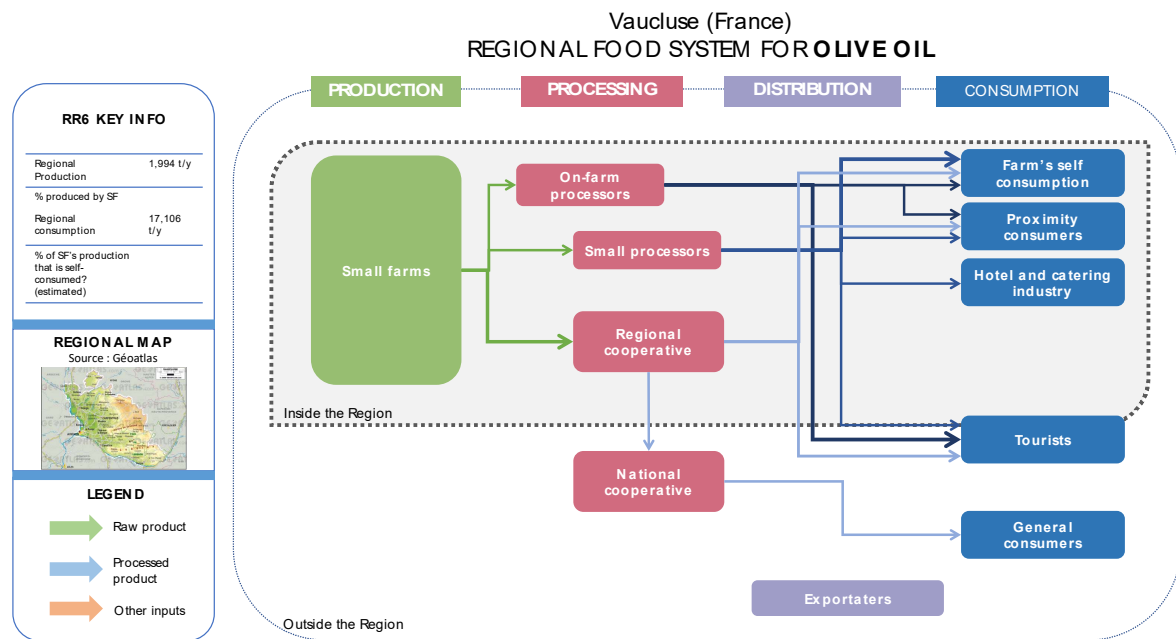
d. Importance of household self-provisioning in small farms and small food businesses

Crossing the sources, the department would count 2,412 people cultivating the olive tree (on 3,297 ha) of which 1,068 with the status of farmer (that is 44% on 1,093 ha). Of these, about 20% would be farms under 5 ha and less than 5USD. This situation indicates that self-consumption and short circuits play a key role in the marketing of Vaucluse olive oil. We estimate self-consumption per household at 30 to 70 L of olive oil / year. This scheme does not differ from the national scheme for olive oil, which accounts for 50% for self-consumption, 25% for direct sales and 25% for marketing.

e. Other relevant information

Olive oil follows a domestic and / or local food model. For oil going on the market, it will be marketed on the regional or national market and just a small part is sold on the international market. We can also note that the olive sector ensures a strong territorial animation by maintaining a production intended for the local consumption, a maintenance of the orchards in a good state also against the olive tree fly recurring in recent years and a recognition of the territorial specificity of regional olive oil. The olive tree also plays a strong role in territorial cohesion with a network of producers, a network of small agro-food companies (mills). The olive sector is not very structured to wholesale and over long distances, but its fragmented operation allows for local supply (albeit in insufficient quantity) with strong aspects such as intra-household distribution, equitable distribution throughout the food system and the involvement of local people as food system actors (farmers and non-farmers).





3.3. Key product 3: Cherry

- a. Nodes in the regional food system: production, processing, commercialization and retail

The Vaucluse produced in 2016, 15 000 T of cherries which corresponds to a third of the French production. By calculating the Vaucluse consumption in cherries, the department is in cherry surplus at 41%. However, only 23% of Vauclusian production remains in the department.

Before the 2000s, cherry was a historic crop, with a significant portion of farms and small farms growing it and marketing it in different way. After the years 2000/2010, the market specialized and also the wholesalers. Today, they often follow private label (MDD) or European standards such as Global Gap. On the other side, some wholesalers also specialized in niche markets such as restaurant or destocking. In this way, customers have become increasingly demanding on production (traceability standards, food safety, good farming practices, etc.). Moreover, the evolution of regulations and the abolition of phytosanitary products against cherry fruit maggot mainly required farmers to increase their technicality and investments. Some preferred to stop growing cherry (the areas have decreased), especially small farms that could not afford strong investments. On the other hand, those who continued, had to become professional by adhering to the standards of the large distribution.

- b. Flows connecting the different nodes in the regional food system



Today, cherries become an expensive and speculative food product. The post-harvest processing generates additional costs and new losses. After that, the cherries are also examined by the wholesalers causing further losses by refusal and destruction. The cherry market is thus rather unstable. All these factors mean that today the cherry market in the Vaucluse is complicated and according to experts, it is a fruit that will disappear because it is increasingly difficult to sell via long supply chains and because of the little local demand.

c. Role of small farms and small food businesses within the food system

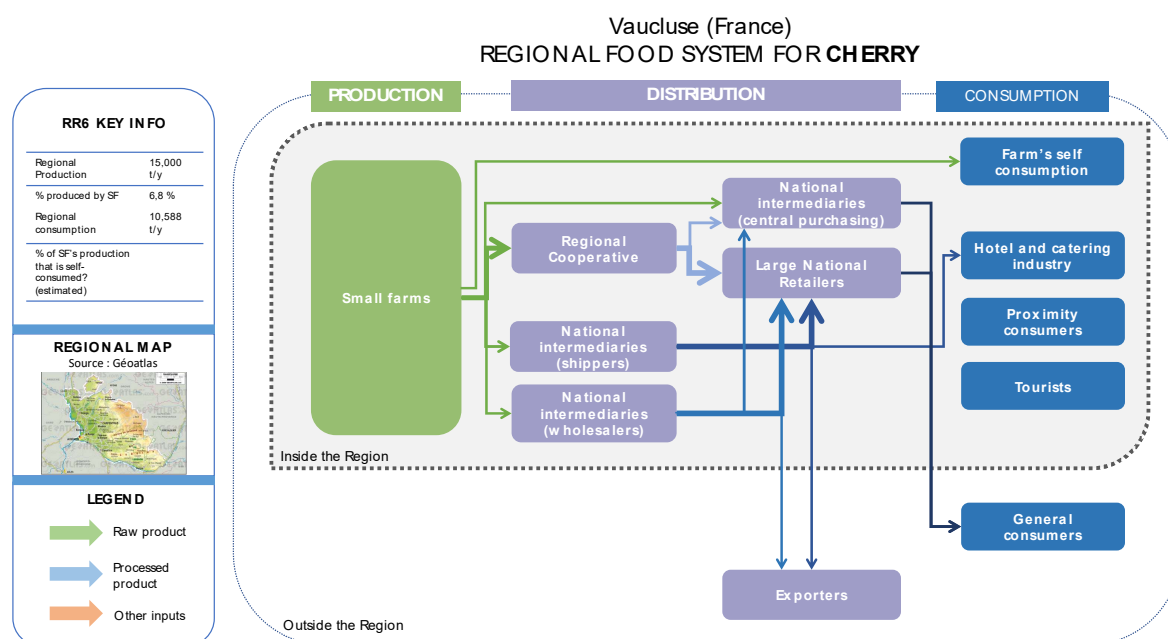
On the production side, we can identify different types of producers. "Amateur" growers who own small cherry orchards and sell directly. These are the least numerous and they are progressively disappearing for the reasons mentioned above. They are declining after the arrival of the cherry fly. Then, there are polyculture farmers, where cherry production is associated with wine and table grapes in a traditional system called "Ventoux". They are also declining since the arrival of the fly but remains the most numerous. They mostly market in producer organizations. Finally, specialized farmers: they produce several varieties of cherries, continue to invest in new plantations with high densities of trees. They have more and more important surfaces (on average 15 ha) but they are not very numerous. They sold their production mainly to producer organizations and wholesalers.

On the distribution side, the sector has a well-structured organization with producer organizations, shipper unions and an association of producer (AOP Cerises de France). The marketing of cherries follows two distinct operations. The first, borrowed by 80% of Vaucluse cherries, is the long circuit: 45% of the cherries are sold to a producer organization (or SICA) where they are packaged and then shipped to 80% in central purchasing supermarkets and 20% to retailers. The 35% of cherries on the long circuit are sold to shippers and wholesalers. In this case, 90% of the cherries are sold to the GMS buying centres, 8% to the grocery shops and catering and 2% to the export. Then, the central purchasing offices of supermarkets supply the national market by distributing cherries in their stores. There is a strong demand in Ile de France, West and East of France. Cherries using this distribution channel are intended for the national market.

d. Other relevant information

The second market channel used for 20% of the Vaucluse cherries is the proximity circuit. In this case, cherries can be sold to wholesalers and retailers (6%), station markets (7%) and direct sales (7%) (roadside, farm and open market). This circuit can target more Vaucluse consumers even if producers can sell to wholesalers and retailers (directly or in the station markets) outside the department. The market situation explains the interest of collective structures such as producer organizations. Another important structure is the National AOPs. Indeed, they play an important role in the marketing of cherries. In concrete terms, they make the link between supermarkets (and district managers) and producers. The AOP makes communication to encourage supermarkets to market cherries.





Typology of small farms in the reference region

To define the typology key, we crossed the methodology of the agrarian diagnosis and that of the food system analysis. On the one hand, we sought to understand the physical constraints of the agricultural landscape and the historical determinants of the study area. Then we characterized the production systems and the means of production. On the other hand, we tried to place different types of small farms in the food system by quantifying the degree of market integration and the level of food self-sufficiency of households on small farms. In this way, we found 6 types of small farms:

- *Retired farmers who still have a profitable agricultural activity.* Their pension is not enough to cover their needs, so they seek additional income. For this, they continue a part of their agricultural activity on a smaller surface. We find in this type mainly vegetable and vineyard farms. Vegetable farms have an average surface of 1000m². They can retail at the farm or in a farmer market once a week or in semi-wholesale at the local central market. The sale in half-gross is less profitable than the direct sale. They also consume some of the vegetables they produce. The sale of vegetables allows them to have between 110 and 170 € / month of agricultural income, which corresponds between 10 and 20% of the total income of their household. Retired winemakers have kept an average of 2 to 5 ha of farmland and have some of their vineyards in the Côtes du Rhône appellation. He sells wine grapes to the cooperative cellar. They also usually have around 1 ha of olive trees. They bring the olives to a mill and get the oil that they sell in farmers' markets. In addition, they grow some vegetables and chickens for their personal consumption. Their agricultural activity allows them to earn around 450 € / month which corresponds to 30% of the total household income.



- *Vegetables farms.* In this class we can find vegetable farms of round 5000m² to 1 ha in Organic Farming. They can have from 20 to 40 different productions. They sell the majority of their production through direct sale but they can also use semi-wholesale marketing channels for larger volumes. They consume a part of their production. Usually, there are 2 full time persons for a 1 ha farm. The agricultural activity allows the farmer to earn around 1200 € / month. On the same class we can also find intensive vegetable farms with around 5 ha of UAA. They have from 3 to 6 different cultures. The most important crops are tomato, strawberry, melon and salad. They sell their production in long circuits (wholesalers, shippers and station market). They use seasonal labor for harvesting.
- *DOC vineyard farms.* They cultivate from 2 to 6 ha. To sell the grapes, they are looking for the best possible markets: private caves or traders. They also have fruit groves for their personal consumption. This agricultural activity allows them to earn 30 000 € / year, which in most cases corresponds to 80% of household income.
- *Diversified arboriculture.* They have 1 to 3 ha in fruit groves. The production is sold to a producer group (SICA). They also grow olive trees, which are crushed by a mill and they recover to sell on their farm. They also have a vegetable garden. They consume their fruits, their oil and their vegetables. Vegetables are not sold. Their income is 19 000 € / year which corresponds to 100% of the household.
- *Small farms associated with food business.* Winemakers grow from 2 to 4.5 ha of wine grapes. They transform their grapes themselves into wine. The wine is sold directly on the farm (private cellar). Associated with wine grapes, they have fruit groves and vegetables for their personal consumption. This agricultural activity allows them to earn around 95 000 € / year, which corresponds to 100% of the household income. The oliverons are farmers who cultivate between 2 and 4 ha mainly in olive groves. The olives are turned into oil on the farm. They sell it by direct sale. On the rest of the farm, they own fruit trees and vegetables for household consumption. Surplus fruit is sold on the farm or in the market. Olive oil and crushing allow these people to earn about 14 000 € / year. In some cases, the agricultural activity can be coupled with a tourist activity which allows to increase considerably the household income.
- *The double-active who has another work outside their agricultural activity.* In this class we can find two sub-types. On one hand, employees who cultivate from 1.5 to 5 ha. The main crop is wine grapes. They sell grapes to a cooperative cellar. Part of the vineyards is in the Côtes du Rhône appellation. In addition, they grow fruit trees that sells in a group of producers (SICA). Part of the fruit and vegetables are used for household consumption. This activity allows them to earn about 10,000 € / year which corresponds to an average of 20% of household income. On the other hand, there are double-active people who have from 1 to 4 ha of olive trees. The olives are then given to an olive mill. They keep some of the oil for their consumption and the rest is sold on the farm or left to the mill. They also groves vegetables for their personal consumption. Farm income is about € 8,000 / year, which is also 20% of household income.



Governance

a. Main interactions of SF and SFB with governance structures in the region

We can identify difference types of governance on the small farms of the Vaucluse.

First, there are important relationships between farms and state structures. These interactions can be perceived positively and negatively. Those who are perceived as positive by farmers are for instance subsidies to organic farming (AB). AB farms can benefit of an annual tax credit of € 2,500 (to be increased in 2019). In addition, the obligation of school canteens to introduce products from the AB into the menus encourages farms in this direction. These rules encourage small farms. Farmers often denounce a lack of social recognition of their work. Their activity is often poorly perceived by civil society, due in part to the poor image of farmers conveyed in the media. Their agricultural activity has a role of food production but also enhancement of the territory, social link in rural areas, generator of biodiversity, etc. Conversely, the ban on the use of peasant seeds for vegetables is perceived as a limit against their independence. The latter is seen as a brake on their resilience to potential economic crises.

b. Levels of governance and their relative importance for SFs and SFBs

Land Use Plans (SOPs) and Territorial Coherence Schemes (SCOTs) become policy tools to enable some families to earn a financial income from farmland. This trend becomes a real obstacle to the installation of new farms and the operation of farms with the closure of roads for agricultural use for example. Indeed, a recurring constraint for farmers is access to land, both for established farmers wishing to expand and for farmers looking for land to start their business. Village policies are twofold. On the one hand, they want to achieve short-term goals satisfying the electorate and on the other hand, to meet long-term objectives of planning and preservation of the local agricultural territory.

c. Constraints impairing full participation in the food system

Moreover, social security charges (MSA) represent an important fixed charge for farms that try to limit their spending as much as possible. In some cases, the MSA represents the largest tax of the farm. In this respect, farmers with the status of solidarity contributor to the MSA sometimes feel disadvantaged because they do not have access to the same resources as other farmers: access to land, a location in a market, etc. Similarly, for farmers growing below the Minimum Installation Area (MIZ), they do not have the same rights in terms of marketing (access to open markets) and subsidies. This concern was particularly raised by retired farmers. They have difficulties in gaining access to farmers' markets due to their retirement status. Small farms then feel constrained by administrative tasks. Bureaucracy often become a constraint, "we are overwhelmed by the forms" taking time from the farm labour. Some farmers have preferred not to apply for subsidies because of excessive administrative tasks.



On this subject, small farms rely heavily on homemaking and neighbors for heavy farm work. This aid cannot be declared as agricultural labor since it is not remunerated. The fear of control is often mentioned by farmers but it often explains that they have no choice. Farmers would also like to share equipment and labor, but also in this case they are restraint by administrative procedures.

Secondly, dual active agricultural workers reported the requirement to pass CERTIPHYTO as a government constraint. The Individual Certificate of Phytosanitary Products (Certiphyto) is a training in the use of chemicals in agriculture. If they are not certified in this terms, they are forced to buy the phytosanitary products in stores for privates, which is much more expensive for them than in stores for professionals. Subsequently, vegetables organic farmers denounced the ban on using farmer seeds as a brake on the government's independence and resilience to potential economic crises. Lastly, winegrowers who were formerly vegetable farmers have denounced unfair foreign competition on many occasions, which has forced them to align with prices, while charges in France are more expensive than abroad (labor, products, etc.). Many small farms deplore that it is not the farmer who decides his selling price but the market. A phrase from a winemaker reflects this collective feeling: "Farmers work a lot to earn little [...] I work for the state first, after the bank, then the dealer and after for me. ".

d. External policies, decisions and social norms affecting food systems

In terms of external policies, there is a cleavage between agricultural and urban policies. The demographic pressure that affects the entire South of France causes the increase on land tenure price. Rural communities are becoming suburbs and urban sprawl is spreading in rural areas. This is particularly evident on the Vaucluse department, where there are not big urban areas, but all the region is characterized by medium/small cities surrounded by the urbanized countryside. This phenomenon favours land speculation.

e. Forms of collaboration and organization between small farms

Most of the small farms comes from family recovery. Some operation pattern and farming practices are recurrent because they come from “family traditions”. This applies not only to agricultural practices but also to marketing opportunities and more particularly to cooperative structures. There is a strong attachment of parents to forms of cooperation, a feeling that seems to disappear with the new generations.

f. Forms of collaboration and organization between small farms and consumers

Concerning producer-consumer relationship, direct selling makes possible to have contact with the consumer, vegetable farmers explained that this rapprochement encouraged them to reflect on these practices and, for example, to diversify these vegetable crops.

g. Relationship between small and large farms, and between small and large businesses



Moreover, there is an agreement between the small and large farms, implying that each type of agriculture is useful to the territory. Small farms have the means to cultivate small inaccessible areas, landlocked, sloping, etc. while large farms cultivate larger areas through mechanization (operation that will not be possible elsewhere).

Small Farms and rural livelihoods

a. Importance of household labour in SFs

Family labour is capital for most of small farms. In general, only one person works on the farm and receive the support from family and neighbours labour to do the most of the farm work (cutting, harvest). These people are not paid but there is often a principle of exchange or barter put in place. For mechanized labours (tillage, spreading manure, etc.), it is often the neighbour who comes to do the operation in the small farm in exchange for another service rendered. The farmer's network has an important role in the viability of the farm. Without these services, the sustainability of the operation could be questioned. On the other hand, this informal work force does not always allow to do agricultural work in the optimum time step. Farmers explain that they could sometimes be more efficient if farm work was better defined in the calendar. They are in some way dependent on the availability of this workforce.

b. Farm and non-farm income in the SF's households

In the case of double-activity, the situation is different. With little time for agriculture due to their second job, heavy agricultural work is sometimes done by service providers. Domestic work is less present. The importance of self-employment in small-scale farming reflects the involvement of non-farm people in the food system. These self-help activities enable various groups in society to be in touch with agricultural production, to be aware of farmers' issues and thus to guide their food choices. Agri-tourism plays a similar role in raising awareness by connecting farmers with people from outside the countryside.

Regarding the share of farm income in total household income, our study area has encountered two cases. On the one hand, retired farmers and double-actives: their farm income does not exceed 30% of the total household income since a large part of the income comes either from retirement or from the salary received by the second professional activity. On the other hand, full-time farmers: in this case farm income is at least 80% of household income. In some cases, an activity complementary to agriculture can increase agricultural income such as agro-tourism, educational activities, etc. But these last cases are minimal in the whole of the small farms. This 2nd case shows us that today it is possible to live by cultivating an area less than 5 ha. But if we look at the percentage of small farms whose household income comes from 80% of agricultural activity, this percentage remains low.



c. Shocks and coping mechanisms of SF households

During the last 30 years, as we described before, we observed a decrease on the number of farms in Vaucluse. This was mainly due to two economic shocks. The first economic shock occurred in the 1980s with the arrival of foreign competition (Spain and Morocco mainly) on vegetables production. Two strategies emerged. Farms may have specialized in a few crops, or they have abandoned vegetable farming to turn to wine grapes. Many farmers went to work on other farms as an agricultural worker before their vineyards were in production to survive during this transition period. The second shock concerns more specifically arboriculture with the arrival of quality and traceability standards forcing farms to specialize in a crop to meet the expectations of the market. The adaptation was done by a rationalization of the work, investments and sometimes a reorganization of the exploitation. When this could not be possible, the farms also changed their activity to turn to wine grapes.

The Future

a. Main objectives and priorities of SF for the future

As already pointed out, small farms are not very positive about their future. Of all the farms surveyed, 40% will have no recovery behind them and plan to sell their farm when they can no longer handle it. Many farmers want to sustain the farm in order to "keep the memory of [their] parents". They have no goal of improvement. They rarely want to increase production, they have neither the means nor the desire to grow. They believe that producing more or growing would lead to increased costs without increasing farm income. They say they do not have interest in making new investments if nobody wants to resume the business afterwards. They continue until their physical conditions no longer allow them and then they think to sell the land.

For whom who have more future perspectives, the two main possibility are the implantation of a transformation activity for vegetable farming or the transition to organic farming on the wine farms.

b. Risk perception by SF

The main risks that farmers see on their future are three. The main one is the climate risk. Climatic hazards that can significantly impact the annual profitability and they are considered as increasing because of climate change. One of the main risk factor in this sense is linked to water resources availability.

c. Other future related issues

We can notice that economic risk is rarely mentioned by smallholders. The latter have put in place commercial strategies allowing them to have a maximum of independence making them less sensitive to economic risks. The arboriculturists have diversified their production,



market gardeners are mainly direct sellers while winemakers ensure their selling price by promoting quality.

Annex: List of resources

a. List of key experts interviewed

Stakeholder typology	N° of participants			How were they contacted?
	Interviews			
	Men	Women	Total	
Farmers	26	8	34	By phone
Producers' cooperatives	3		3	By phone
Processors (small/large)	6	4	10	By phone
Farm inputs suppliers	1		1	By phone
Advisory services	2	3	5	By phone
Agricultural administration/Ministry of Agriculture	1		1	By phone
Local administrators and policy makers	2	1	3	By phone
Political leaders and PMs				By phone
Research center	1	2	3	By phone
Total	42	18	60	



4.7. RR7 Gushegu District –Ghana– Food System Regional Report



WP3

Gushegu District (RR7) – Ghana – Food System Regional Report

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Table of Contents: Food System Regional Report

1) Socio-economic and agricultural profile of the reference region.....	164
2) Key products and regional food balance sheet.....	165
3) Food system: Key nodes and flows and role of small farms and small food businesses.....	166
3.1. Key product 1: Maize	166
3.2. Key product 2: Rice.....	168
3.3. Key product 3: Soybean	170
3.4. Key product 4: Lamb	172
4) Typology of small farms in the reference region.....	174
5) Governance	174
6) Small Farms and rural livelihoods	179
7) Role of Small Food Businesses.....	180
8) The Future	182
9) Annex: List of resources	183



Socio-economic and agricultural profile of the reference region

Gushegu District is one of the 26 districts in the Northern Region, Ghana with a population of 111,259 persons (48.7% male, 51.3% female) and a population density of 22 persons/km². It has 395 communities, mainly rural with its capital at Gushegu, 114 km from Tamale, the regional capital. Households reflect the extended family system. Dagombas form 57.4% of the population, Konkombas are 33.1% and other ethnic groups together 9.5%. Only 14 communities are connected to the electricity grid. Land is held in trust for the people by Paramount, Divisional, Sub-divisional or Village Chief. Acquiring land for farming is not difficult.

The district celebrates ‘Damba’ and ‘Bungum’ (fire) festivals among others. It has 68.1% Muslims, 22.2% Traditional Worshipers and 7.8% Christians. Economic activities are agro-based. About 43% of the population is estimated to be economically active of which 80% are into agriculture. Major staples produced include; maize, rice, soybeans, yam, millet, groundnut and sorghum. There are traditional crops: sorghum, millet, rice and maize, produced for household consumption though surpluses are sold and cash crops cultivated mainly for sale (about 75% is sold).

A few women do agro-processing (shea and rice) and trading in foodstuff. Some men are into small scale industry (welding, mechanics: auto and bicycles) and salaried workers. Mixed farming is commonly practiced by most households. Animals kept include cattle, sheep, goat, pig, local fowl and guinea fowl. Cattle are mainly owned by families or clans with very few individuals’ herds. Cattle are used first for ceremonies before economic.

Table 1: Basic data for the region

Indicators	Data per Region - Nuts 3
Land size (km ²)	5,796
Population (thousands of people)	111,259
Density (people/km ²)	22
GDP (thousand USD/inhabitant)	
Total labour force in AWU	
Total number of holdings	1,433
Total Agricultural area (ha)	270,480
Total Utilized Agricultural Area (ha)	38,338
Agricultural Area in Mountain Area (ha)	0
% of UAA in the RR	6.61
Average Farm size (ha)	1.08ha
Number of farms by UAA farm size: 0-5, 5-20, 20-50, >50ha	80%, 17%, 3%
Average size of farms < 5ha of UAA (ha)	1.2
Area of main crops (ha) (list the relevant crops below)	38,338
Area of main crops (ha) in farms < 5ha of UAA (list the relevant crops below)	



Livestock (LSU) per type (list the relevant types below)	Cattle 33,058; Pig 730; Sheep 2,616, Goat 2,946; Horses 16 and Rabbit 66
Livestock (LSU) per type in farms < 5ha of UAA (list the relevant types below)	Cattle 33,058; Pig 730; Sheep 2,616, Goat 2,946; Horses 16 and Rabbit 66
Annual work units (AWU) by UAA farm size:0-5, 5-20, 20-50, >50ha	
Total family labour per farm size: 0-5, 5-20,20-50,>50ha	1-3, 3-6, 3-6, 3-10

The major crops are Maize, Rice, Millet, Sorghum, Yam, Groundnut, Cowpea & Soybean. The major animals and their populations are: Cattle 33,058; Pig 730; Sheep 2,616, Goat 2,946; Horses 16 and Rabbit 66. Dried legumes for grain 16,417 acres (6,566.8 ha) and Cereals 19,610 acres (7,844 ha) Local leafy vegetables, cabbage, shea mango.

Key products and regional food balance sheet

a. Key products produced and consumed in the region

Crops cultivated are Cereals: maize, rice, millet, sorghum, Legumes: soybean, groundnuts, cowpea, pigeon pea, Bambara groundnut, Root and Tubers: cassava, yam, Vegetables: pepper, tomato, okro *neri*, sesame, Fruit: water melon and shea. (Local leafy vegetables not mentioned). Rice, soybean and shea are considered commercial crops. The four main staple crops are maize, rice, yam and sorghum. The main food is *Tuo zaafi* often called TZ, made from maize for most of the population but among the Konkombas it is mainly from sorghum or millet. During lean season maize is mixed with cassava flour to prepare TZ. Rice is consumed during ceremonies and during the peak production period. Yam is mostly produced and consumed to the south and up north of the district. Groundnut is the major source of sauce used with the carbohydrates. The most consumed animal is sheep which is used for ceremonies such as naming, Islamic festivals, and also slaughtered for sale at butcher's shops.

Maize was selected because most small farms produce it for food and the excess for cash. Rice is the commercial crop for most small to medium farms. Soybean is being promoted by NGOs and now serves as a commercial crop also for women. The most used animals and easy to keep by small farms including women.

b. Balance of production and consumption of key products in the region

The balance sheet for these staples shows that about 60% of the maize produced is consumed in the district and 40% sold outside the district; 40% of rice produced is consumed in the district and 60% sold; about 15% of soybean is consumed in the district and 85% sold; 30% of sheep is consumed in the district and 70% sold. Some imported polished rice is sold in supermarkets and in the lean season negligible amount of fresh maize is brought into the



district. Generally, the district is a food basket and has surplus of about 50% of food which it trades to other regions.

c. Official statistics and key products in the region

The Department of Food and Agriculture is responsible for data. It has some data on selected crops though limited. Researchers and NGOs also generate some statistics which are captured at national level.

Food system: Key nodes and flows and role of small farms and small food businesses

3.1. Key product 1: Maize

a. Nodes in the regional food system: production, processing, commercialization and retail

Maize is produced by both small and big farms but majority of the producers are small farms. Small farms are the main suppliers of maize to households in the district but sometimes, big farms also supply maize to households. Out of the total maize produced in the region, between 40-60% is exported out of the district by aggregators. A typical small maize farm in the district is about 3 acres (1.2 ha) and a large farm is more than 20 acres (8ha). The average yield of maize is about 8 bags per acre (2.0 tons/ha) but official statistics puts it at 1.62 tons/ha. Usually maize is exported out of the district by aggregators but some individuals also export small quantities. The aggregators usually export the maize to places like Accra, Kumasi, Techiman, Bawku, Yendi and Tamale.

b. Flows connecting the different nodes in the regional food system

The usual role of aggregators (food business) in the food chain includes buying and gathering small quantities of food, finally getting large quantities, storing and transporting to markets for higher prices. Aggregators have large warehouses where food purchased is stored before exporting. In the off-season when there is no maize production in the district, small quantities of fresh maize (less than 2%) is imported from other towns like Techiman to the district. In effect, the region is a net exporter of maize. Traders bring maize from neighbouring towns and communities such as Karaga, Yendi and Nalerigu to sell on markets in the district. These are mostly exported hence not considered as imports. The role of the small farms is to produce and sell the surplus to traders as well as consume at home. Traders are in contact with the farmers both on the farm and on the market. Most aggregators go to the farmers and buy at farm-gate or on the local market.

Maize aggregators are the biggest buyers of maize in the district. They get between 70-75% of their purchases from small farms while large farms and retailers supply the rest (25-30%). Aggregators export 90% of maize that leaves the district while retailers export 10%. Big/large



scale farmers sell less than 1% to consumers. About 10% of large farmers export maize by themselves while 90% sell to aggregators.

There are maize retailers in the district who buy maize from both big farms and small farms, either in the farmers' house or on the community market, and in turn sell to households on the markets. The retailers also supply maize to processors and aggregators in the towns. Transportation is always difficult due to the bad nature of roads to the district but there are a few market trucks that transport maize to and outside the district usually on market days. The food map of maize in the district is attached.

c. Role of small farms and small food businesses within the food system

There are a few small-scale maize processors in the district who process maize into flour (for TZ) for households and community use and a few exported to neighbouring communities. There is no large scale maize processing industry in the district. There are small numbers of traders who process maize into flour and export outside the district. Small-scale restaurants operators and food vendors process maize into local maize meals such as "kenkey", 'banku' which they sell. The small food processors usually process about six bags (600kg) in a week. Retail is done mainly by women on the local markets on market day. It is mainly to consumers who do not farm or who get short of grain in the course of the year.

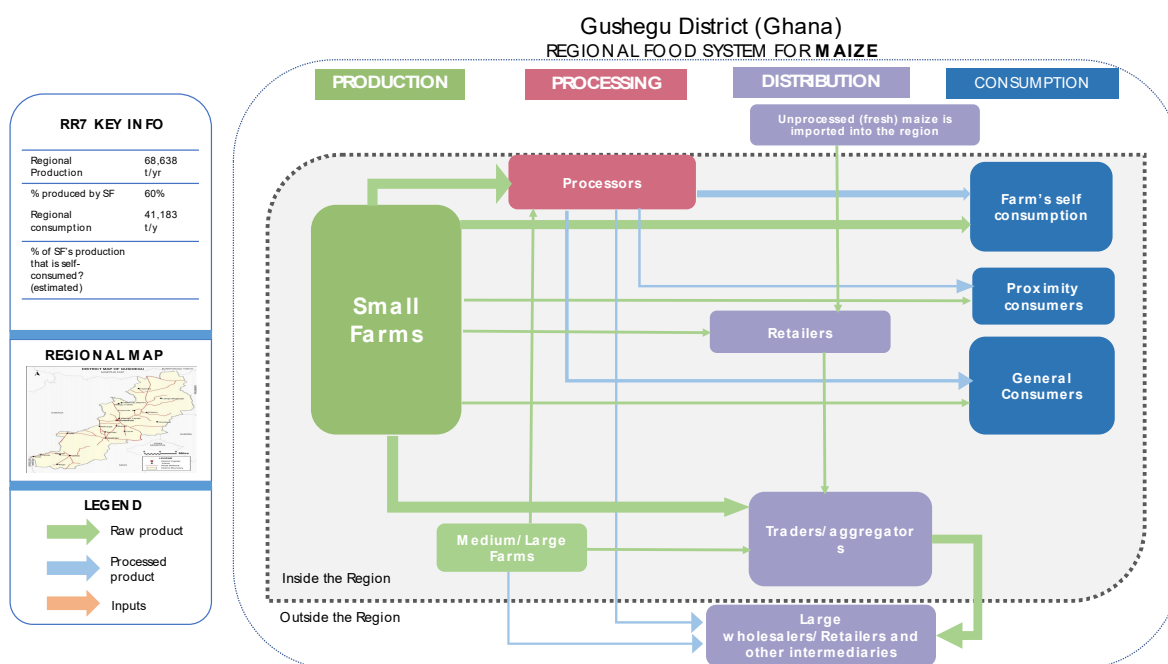
d. Importance of household self-provisioning in small farms and small food businesses

Households consume a lot, about 40% of the maize they produce within. About 40% is exported hence that which is processed within and traded is about 20%. This 20% is processed and sold by vendors and local restaurants. Often prices are determined based on the end market price hence the farmers are more vulnerable since the traders will still want to make their margins so the farmers get lower prices. The aggregators do not have the produce all year round since it is seasonal.

e. Other relevant information

There are a few public storage warehouse facilities in the district hence farmers store their produce in their homes resulting in high storage losses due to poor ventilation and pests attack. Some quantities of maize are consumed in households hence does not go through the market system. Only few households buy food from the market because they do not produce.





3.2. Key product 2: Rice

- a. Nodes in the regional food system: production, processing, commercialization and retail

The rice food system is similar to the maize food system. Rice is produced by many households in the district for both household consumption and for sale. There are both small scale farms, between 2-5 acres (0.8 to 2.0ha) and large scale farms (more than 20 acres ie 8ha) of rice in the district. However, the greater majority of farmers on the average cultivates between 4-5 acres (1.6 – 2 ha) of rice. The average rice yield per acre is 16 bags when fertilizer is applied (2tons/ha). Without fertilizer, the average yield is about 7 bags/acre (0.9tons/ha). Majority of the rice produced in the district is from small farms. About 70% of rice farmers in the district are categorized as small scale farmers while 30% are large scale farmers. The main source of rice for households is small farms but large farms also supplement in some situations. Rice production and consumption has increased in the district over the past 5 years.

The people are mainly engaged in agriculture therefore, their yearly turnover is basically the produce from their farms. The proportion of household income from farm is estimated at 94%. The rest, 4% is from other sources such as remittances from relatives and friends who live outside the district. The yearly turnover of farmers in the district is about GHc 1,800. The cost of production includes; Fertilizer the highest (44%), machinery (20%) and thirdly the cost of pesticides and herbicides (18%). Others are seed and transportation.



b. Flows connecting the different nodes in the regional food system

There is no large scale processing of rice in the district. However, there are small processors dotted across the district. Rice is usually parboiled before processing. (Parboiling involves putting paddy rice into hot water as a way of hardening to avoid breaking during processing). The parboiled paddy rice is dried and milled, winnowed and bagged. Some is consumed within the household and sold within and outside the region. Rice processing through parboiling is a common processing practice by women. The women buy rice from both small and large scale farms for processing. About 60% of the rice processed is purchased from small farms while 40% are from large farms through aggregators in most cases. The rice processors are able to process on the average between 10-20 bags of paddy per week. In terms of consumption, about 50% of the processed rice produced in the district is consumed within while the other 50% is exported. With regards to the processed rice, about 40% of what is processed is consumed and the remaining exported. The export destinations of parboiled rice are Yendi and Bawku.

Most of the rice exported out of the region is in the form of paddy. There are rice aggregators in the region who buy rice from small farms, retailers, wholesalers and large farms which they export. Rice aggregators are able to mobilize enough rice from the region and then export to neighbouring towns such as Tamale, Savelugu, Kumasi, Bawku Yendi and Mongu (Togo).

c. Role of small farms and small food businesses within the food system

There are local food processors (restaurants and chop bars) who mainly purchase parboiled rice from small food businesses and process into food. The food processors also buy rice direct from the market or through retailers. Labour is critical in rice production as most of the activities are labour intensive. Majority of the household members are youthful with ages ranging from 11 to 37 years. The small food businesses are mostly operated with the support of non-paid family members. However, some employ the services of hired labour. Food businesses on the average employ about three non-family members who are paid on weekly or monthly basis. They usually work for about 260 days per year. The workers are usually casual and their job schedule is usually not strictly adhered to.

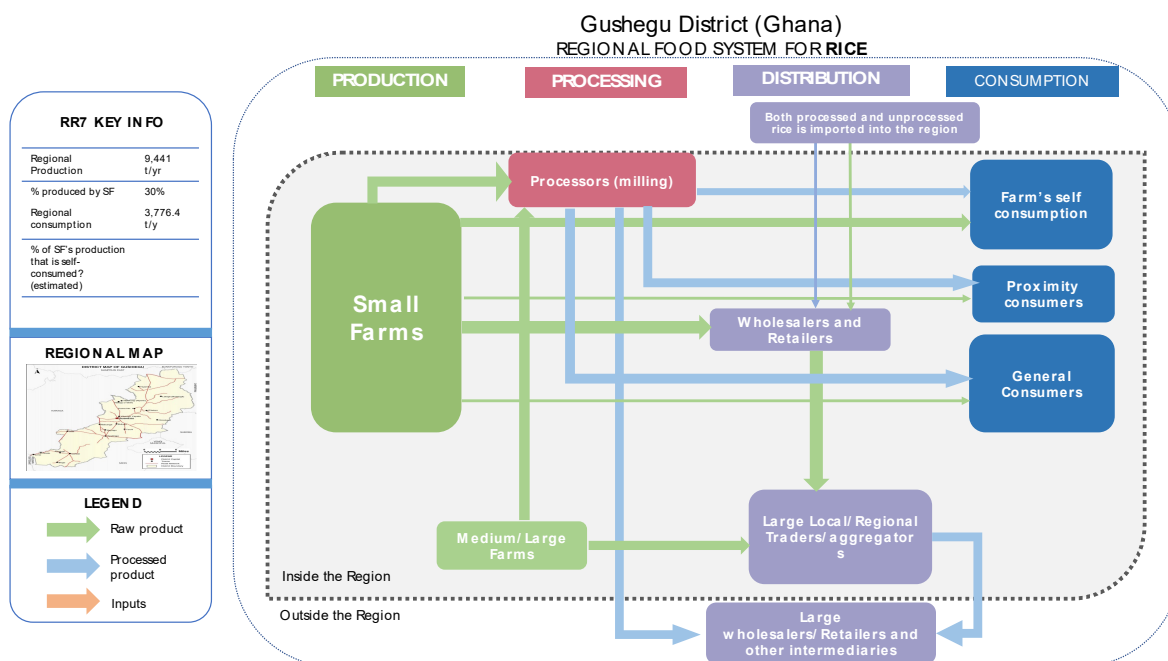
d. Importance of household self-provisioning in small farms and small food businesses

Not much of the rice produced in region is consumed. It is more of a commercial/cash crop. Farmers sell most of the produce as paddy rice to aggregators and traders who in turn sell outside the region and leave a little to sell on the local markets. What is purchased on the local market is processed as parboiled rice and sold to food vendors and local restaurants. Most households do their own processing for home consumption.



e. Other relevant information

Two forms of rice imported into the region. About 10% polished foreign rice often bought by strangers in the region for consumption. The presence of educational institutions and non-indigenes has increased the demand for foreign rice. Foreign rice is usually imported from Kumasi, Accra, Tamale and Togo, however, imports from Togo forms about 70% of the total. About 5% of paddy rice is also imported into the region but it is by traders from other regions who come to sell in the region but this rice is almost all exported.



3.3. Key product 3: Soybean

e. Nodes in the regional food system: production, processing, commercialization and retail

Soybean is basically a cash crop that is cultivated in the district. It is mainly grown for sale. Soybean is produced by both small and big farms. Small farms supply soybeans to households for consumption and also supply to the community market. Big farms supply soybean to processors within the community and traders (aggregators). Small scale soybean farmers usually cultivate about 3 to 4 acres (1.2 to 1.6ha) and large scale farmers cultivate above 10 acres (4ha). Soybean yields are very low and on the average, farmers obtain 3 to 4 bags per acre (0.75 to 1.0 tons/ha). Soybean is grown by large farms for export but this is often not sufficient and aggregators have to always fall on small farms.

Some soybean is imported from neighbouring regions (Karaga, Nalerigu, Chereponi and Yendi) but mostly not consumed in the region. This import is about 10% of total production from the region. Majority of the soybean produced is from small farms (more than 60%) and



the rest from large farms. Farmers hardly sell to each other but sell to aggregators and retailers. Aggregators are big traders who buy soybean from small and large scale farmers within the district, get large quantities and export to places like Accra, Kumasi, Techiman, Bawku, Sunyani and Burkina Faso. Kumasi and Techiman are the major centres where there are industries/factories (such as Ghana Nuts Company in Techiman and Vester Oils in Kumasi). Some companies outside the district have representatives who go round to buy soybeans for them. About 90% of the soybean produced within the district is exported.

f. Flows connecting the different nodes in the regional food system

There are retailers who buy from the small farms and sell to aggregators. Retailers also buy from aggregators and sell to consumers and processors. Aggregators are the main exporters but sometimes retailers also export soybean out of the district but this is minimal. There are retailers who buy soybean from the community and sell to the processors and export a little outside the district.

g. Role of small farms and small food businesses within the food system

There are no big or well established processing industries for soybean in the district. Soybean is processed into soymilk, *soya kebab*, *soya dawadawa* (local spice), local porridge (*tom brown*) and soya oil and sold on the market to consumers. These soybean meals are new products to the region hence it they are now gaining popularity. At the household level, soybean is processed into local foods called; *Tuo Zaafi* and *Tubani*. All processed soybean is consumed within the district. The soybean food map of the district is attached.

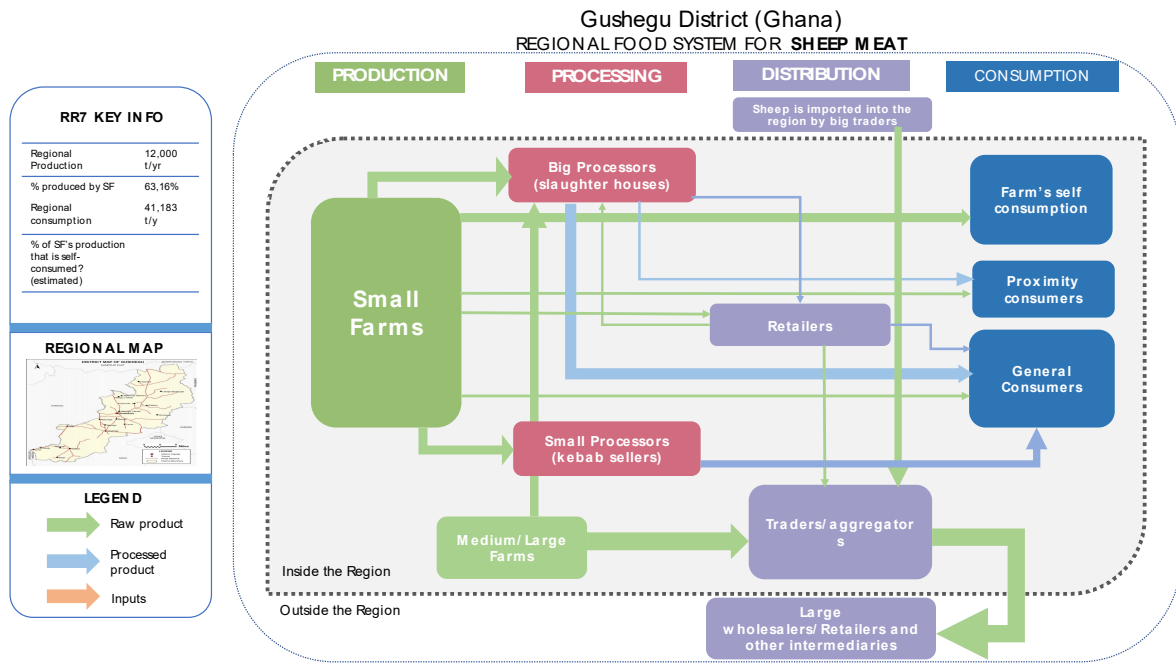
h. Importance of household self-provisioning in small farms and small food businesses

It is estimated that about 74% of the food consumed by households in the region is self-produced while 11% is traded with neighbours. The rest are traded at the local markets and super markets. A small quantity, about 10%, of soybean is consumed within the region of which only 2% of it is consumed within the households and 8% within the community sold in the processed form.

i. Other relevant information

There are loose bye-laws for trade and processing of soybean which are often unofficial thereby making enforcement very difficult for companies. The situation is worse among small farms hence, often aggregators prefer to buy directly from large farms.





3.4. Key product 4: Lamb

- f. Nodes in the regional food system: production, processing, commercialization and retail

Sheep is the most commonly kept livestock in the community due to the fact that it is used for religious purposes and the preferred meat during festive occasions. Sheep is very easy to rear as compared to other livestock. It is often referred to as an 'obedient animal'. Sheep easily adapt to new environments and they are able to roam and come back home on their own. There are both small scale and large scale sheep producers in the district but the majority are small scale. Sheep is the major and common livestock traded.

About 50% of sheep in the district is imported from neighbouring towns such as Chereponi, Bunkpurugu, Karaga, East Mamprusi and across Burkina Faso border. This is because there is a major livestock market in the region. Sheep imports from Burkina Faso usually arrive during festive occasions hence is not the normal practice and therefore forms only about 1% of all imports. There are some butchers who import sheep from outside the district process it and sell to consumers. Some traders from neighbouring towns such as Bawku bring in some particular breed of sheep which are usually bigger than those produced within the district to sell (less than 5%).

- g. Flows connecting the different nodes in the regional food system

There are sheep traders (aggregators) who go round the district markets and farms to purchase sheep and export out of the district. Sheep is exported out of the district to neighbouring districts and towns. Sheep traders usually buy sheep and export to towns such



as Kumasi, Accra, Bimbilla, Yendi and Tamale. The major export centres are Accra and Kumasi which Cities, urban areas. The district is a net producer of sheep.

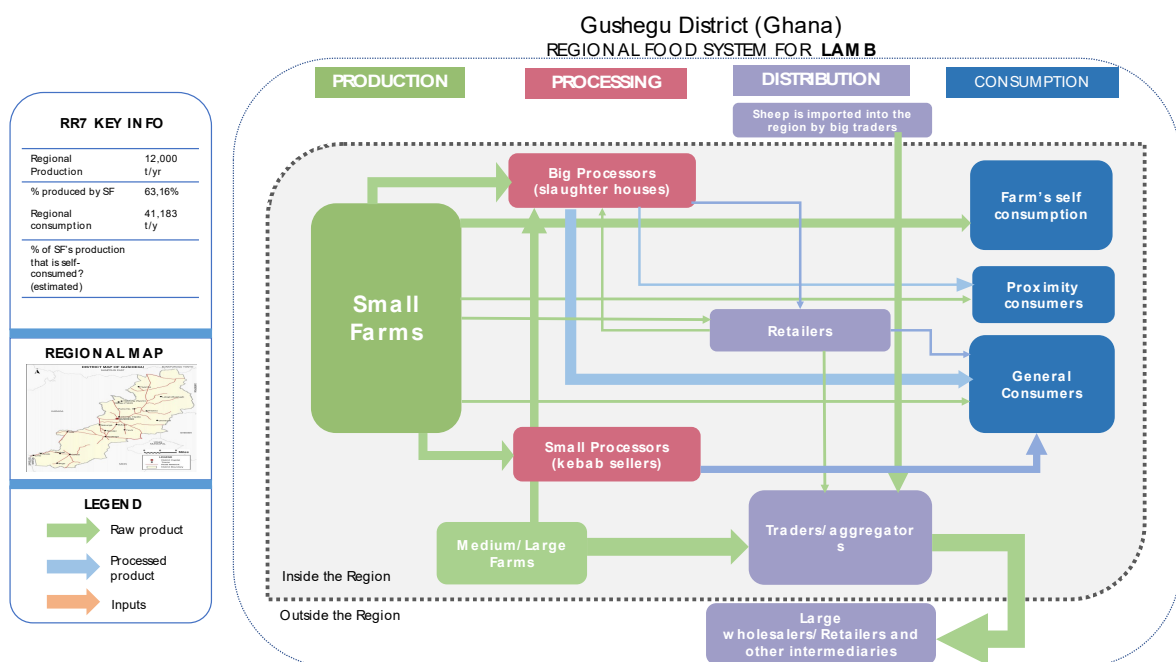
Local sheep production forms about 50% of the total trade in the region. A large sheep farms keeps 40 and above sheep while those who keep from 10 and below are considered as small sheep farms. Both the small and large sheep farms sell their sheep to aggregators. Aggregators go round with cash and often buy from the livestock markets. They often buy from both small and large farmers who bring their livestock to the market to sell. They do not discriminate who they buy from. The slaughter houses in the district are also supplied by both small and large sheep producers to process and sell to consumers.

h. Role of small farms and small food businesses within the food system

Sheep producers sell to both households and traders (big processors and small processors as indicated on the food map). The main processors are mainly butchers and food vendors/local restaurant operators. Butchers usually buy from large producers but also buy from small producers. Local restaurants (chop bars) process sheep they buy into meat that goes with the food they prepare. The small processors include those who prepare sheep meat popularly called “khebab” and sell to consumers. There are retailers who buy live sheep from small and large sheep producers and supply to the butchers.

i. Importance of household self-provisioning in SF and SFB

It is estimated that 20% of what is produced is consumed within the district while the majority, 80%, is exported. Retailers also buy sheep from small farms and supply to the aggregators who then export. Some retailers also export very small quantities, about 1% of sheep out of the district. The food map of sheep in Gushegu is attached.



Typology of small farms in the reference region**a. Small farm types in the region**

Small farms are classified as producing mainly for home consumption first and surplus is sold for cash to meet other living expenses. These farms fall under those that cultivate traditional crops mainly maize, millet and sorghum and those that produce other crops. For most of these crops over 60% are consumed at home. Most households are self-sufficient by the produce from these farms.

The second sets are considered as cash crops where over 75% of the output is sold and only a small quantity is consumed at home. These farms include yam, rice, groundnuts and soybean. Each household tries to cultivate at least one of the cash crops to meet living expenses.

The size of farms allocated to each of these crops depends on the size of the family and what the actual needs are. A family of about 5 to 6 persons may need about 10 bags (1ton) of maize per annum hence a farm of 1 ½ acre (0.6ha) can provide this need. Any produce above this could be sold. For cash crops the size of the farm depends on the land available, the resources accessible and the vision of the farmer/household.

There are also bush farms (farms far from the homestead which are relatively bigger) and compound farms (farms around the home which are normally small). These are all small farms but bush farms are as a result of insufficient land for compound farms.

Home gardens also exist which are very small, less than ½ acre (0.2 ha). These are mostly cultivated by women to local leafy vegetables that are mostly consumed at home but surpluses are sold.

b. Role of small farm types in the regional food and nutrition security

Produce from the bush farm are mostly sold while that on the compound are consumed. The garden produce, vegetables, are available late in the season and in the dry season for consumption. The types help stagger sales since they are harvested at different times.

Governance**a. Main interactions of SF and SFB with governance structures in the region**

Members of SF households are required to participate in farm-related activities, often regarded as family business. This arrangement reinforces existing cultural norms whereby farms or farm businesses are transferred from parents to their children in a cyclical manner. The businesses are operated in an environment where production assets and inputs are obtained from a variety of sources, depending on the type. For instance, seeds are mostly purchased, as indicated by 50% of the farmers while a few (8%) obtain their seed from other



farmers or neighbours. Small farmers who often produce or have their own seed constitute 13% of the sampled respondents.

Generally irrigated agriculture is limited in the region and the few who do so get water as input for production do not paid for it, as only 5% of the respondents bought water for production. Water is gotten from dugouts and boreholes for very small plots. This underpins the nature of agricultural production (rain-fed) in the area. Other inputs like fertilizer and pesticides/herbicides are purchased, as indicated by 93% and 100% of respondents respectively. In times when small farmers are not able to produce their own food, majority (65%) are able to access food from elsewhere, most of the time, mostly purchase from the market. Only 5% of the SFs indicated that they regularly had difficulty accessing food from elsewhere when they are unable to produce their own food.

The district assembly has the mandate to impose levies on selected activities including trading in the district. Consequently, the assembly levy Gh¢ 0.50 on every bag of cereal or grain brought to the market for sale (especially on market days). Traders who come from outside the district to buy food items for export are charged Gh¢1.00/bag on market days. This is one of the major sources of assembly revenue.

b. Levels of governance and their relative importance for SFs and SFBs

Calus and Huylenbroeck (2005) explain the governance structure of farmers as the way and manner they interact to influence decision making for their businesses. Such decisions may include the deployment of all factors of production as well as know-how to the production process. Drawing on this definition, the type of governance structure that operates in the district seems to be private, independent and largely localised. In its present state, the structure has little or no connection with any regional and or national arrangement. Responses from farmers and small business owners reveal a range of structures that are deployed to manage their enterprises as well as ownership arrangements. At the household level, the head of household has a farm which serves as a family asset. Consequently, every household member is required to devote some time to work on that farm. The produce from the household farm is used to take care of the entire family as the need may be. Beyond that, individual adult members of the household have their own farms which are entirely under their control. As illustrated by the findings, decision making with respect to what farmers produce largely rests with the respondents, who typically own the farm enterprise. The results show that 95% of the decision is made by the respondents while only 5% of the decision is made by their spouses. This seems to corroborate claims that women in the RR play limited roles as far as decision-making on agricultural production is concerned.

Ownership, control and decision making in the case of SFBs is similar to that of SFs in the sense that they are private and independent of all other structures at the regional and national levels. However, SFB operators (mostly women) are able to influence production decisions indirectly, especially when they enter into pre-financing arrangements with small farmers.

c. Constraints impairing full participation in the food system



Small farms are important in the food systems of the RR as they account for a significant share (about 74%) of food production. Majority (52%) of the farmers indicated that food supply in the region is most of the time or “always” stable (3%). The remaining 45% suggested that supply is “sometimes stable”. These findings suggest that the food security situation in the region is generally good.

However, the small-scale nature of farms creates productivity related problems and unfavorable marketing prospects which undermine its potential. For example, assembling produce from small farmers dotted across large geographical areas with bad road networks is a challenge. The scale of production is a reflection of the financial capacity of farmers. Thus their access to certain facilities like farm equipment is restricted or denied due to lack of funds. This position was reinforced by majority (63% and 70%) of the respondents who cited finance as their major difficulty in the past and present respectively. With regards to market relations, the respondents cited high cost of inputs (40%) and low purchasing power (38%) as the most important constraints in the food system. There are no apparent concerns relating to the type of SFBs that pose serious governance challenge in the RR. The primary requirement is that SFBs should maintain a clean environment and produce the type of food that is in high demand.

d. External policies, decisions and social norms affecting food systems

Traditionally, land tenure system in the RR does not favour women farmers. Ownership and control of factors of production rests with men, the interest of women is often relegated to the background, notwithstanding the roles they play in the food system. This trend is observed in national agricultural related policies which favour men. For instance, women are noted for cultivating vegetables on “marginal lands” which play important part in the food systems. However, the disaggregated nature of most policies on agriculture means that when it comes to implementation the focus is always on men, leaving that of women to fate. Secondly, the need to increase food production through use of chemical fertilizers is engendering issues of sustainability of soil and water bodies. Hence the objective of increased food production seems to be in conflict with environmental sustainability. The District Assembly have by-laws governing environmental issues but these are not enforced. Bushfire or wildfire, sometimes originating outside the region, is rampant in the district to the extent of destroying farms and reducing soil fertility but these are hardly controlled. In recent times, infrastructural development as a result of population growth and rapid urbanization seems to be taking over many fertile farmlands, thus posing a threat to sustainable food production and food security. Grazing of animals from outside the region sometimes destroy farms resulting in conflicts and clashes that takes life. There are no clear cut institutions or rather enforcement of by-laws on these issues.

e. Gender issues intersecting governance issues

Gender differences exist in both SF and SFB activities in the region. Roles seem to be allocated and accepted by most people in the RR through tradition. Married women do not



farm cereal, roots and tubers and neither keeps large ruminants. Only female household heads are exempt from these unwritten rules. Women's role and identity as farmers in the RR are largely less pronounced compared to their male counterparts although they play significant roles in all farming and related activities. Their seemingly subtle roles reflect in the resource governance arrangement, as their involvement in decision making regarding what to produce constitute only 5%. Women are considered as "helpers" for their husbands. On the farm there are gender roles; men do land clearing, ploughing and some weeding while women do sowing, water supply for spraying, preparing food for workers, weeding in some cases, harvesting, transporting of produce and most post-harvest handling. Although they have equal access to markets, women in the district traditionally do not engage in the trade of livestock. Even when they rear their own livestock at the household level, their husbands or sons sell on their behalf. Similarly, men do not engage in activities like food processing (e.g. shea/groundnut processing) and sale (retail) of food ingredients (tomatoes, leafy vegetables, etc.) which are the preserve of women. A few men however engage in the trade of specific products like pepper, on a large scale.

f. Other actors and processes important for the regional food system

Since production is seasonal the need for storage during the peak season to be released gradually in order to prevent glut, high post harvest losses and lower prices is relevant to the food system. There are a few warehouse operators who provide storage services for durations up to 6 months. There are aggregators who purchase food for storage and release them at times when prices are higher. Most times these storage business people make more profit than the farmers, making more than 50% profit on investment.

Transporters are equally important in the food system. They convey food from one place to the other. They are even more relevant in areas in the RR where roads are very bad and farmers have difficulty in selling their produce. In some cases tractor transport is the best and most used without which food would have been locked up in the areas. Tractor owners also provide ploughing services to farmers and sometimes on credit. This credit facility, without which many farmers could not afford upfront payment and may not farm, provides some relief to majority of poor farmers until after harvest when payments are effected. The findings suggest that the number of tractors is increasing hence making tractor service provision available and accessible to farmers.

Other actors contributing to the regional food system include the Ministry of Food and Agriculture (MOFA) and input dealers. While MOFA spearheads the development and dissemination of new farming innovations/technologies, input dealers are present in strategic locations within the district help farmers to execute certain activities in good time and more efficiently. For instance, application of herbicides relieves farmers of the burden of manual weeding which takes considerable amount of time and effort. Traders from various places who come to assemble food items from SFs offer better prices than those buying locally. This action apparently influences the production of specific crops that the traders are interested in. At the peak of the farming season, getting labour for farm operations is always difficult.



g. Forms of collaboration and organization between small farms

Farmers in the region collaborate under various conditions. At the informal level, they collaborate using the existing social networks which may involve relatives and or neighbours. Such collaborations are usually observed around peak labour demand periods of the season to provide labour services. In addition, farmers share information and knowledge that helps to improve on their production practices. Some selected crop farmers groups exist, though they seem not to be functioning as expected. Production and marketing are done independently.

h. Forms of collaboration and organization between small farms and consumers

Currently, collaboration between farms and consumers is weak or non-existent in the district. Existing interactions are mostly based on social networks and what is locally referred to as “customer” arrangements. These may be traders or consumers, who have established closer trade relationship with producers, after purchasing directly from them over a period. Two functioning commodity associations identified in the district include the Yam Sellers’ Association (YSA) and Small Ruminant Sellers’ Association (SRSA). Apart from these two, all other farm produce, including the cooked food sellers have no such arrangements. As a result, entry into and exit out of those commodity markets are without restrictions.

Another indirect form of collaboration between farms and consumers is expressed through the SFBs, some of who are able to influence production (what is produced/how much is produced) by providing credit facilities to farmers or processors who supply directly to them. Food businesses share information regarding consumption trends with farmers who in turn factor them into their production decisions and prioritization. Once assured of ready market for the produce, farmers produce more for the client. This arrangement helps both parties by ensuring that while the specific needs of SFBs are met, farmers are also assured of a regular market outlet and better prices.

i. Relationship between small and large farms, and between small and large businesses

Ordinarily, an expanding agribusiness environment and a liberalized market would pose a threat to the survival of small-scale farms in terms of full participation in the market economy. This is not the case in the district as responses from FGDs suggest that small-scale farms for various crops constitute the majority (at least 70%) of the total. Presently, SFs and large farms operate independently of one another. They however compete (indirectly) for buyers (aggregators and individual consumers). Their dominance (numbers) in the market seems to offset for the overall disadvantage in economies of scale that they face due to size.

Similarly, small and large businesses operate independent of each other. Operators in the same product market compete indirectly for customers using various strategies including enhanced environment and services. There are no large businesses except a few large produce



buyers. These sometimes contract small aggregators to buy for them. In some few cases the larger buyer crowdout the small buyers. For all processing businesses they are small.

j. Other governance issues

In an attempt to reduce the financial burden of farmers and increase food production, government introduced the fertilizer subsidy program in 2006. This sought to help farms to increase their overall output since soil infertility was an issue in many production areas but farmers are unable to buy and apply the recommended dosage of fertiliser.

Farmers also benefitted from the Planting for Food and Jobs policy introduced by central government in 2017. This was an improvement on the fertiliser subsidy programme. Although the program targeted medium to large scale farmers, (>4 ha), many SFs (<2ha) benefitted during the implementation phase. Also, SF and SFB owners are benefitting from credit facilities through the Microfinance and Small Loans Centre (MASLOC). The centre is committed to helping start-ups and small businesses to grow through provision of sustainable funds and business services to beneficiaries. SF and SFB in the RR have not benefited much from the MASLOC programme.

Small Farms and rural livelihoods

c. Importance of household labour in SFs

In most SF family labour is very important for family farms where the whole household contribute to the production process. All household members are involved. In large families all the labour for production is provided by household members but in small families hired labour is used to complement family labour. School-going members of the household work on the farm during weekends and on public holidays. Usually food production takes place between 4 to 6 months in a year. During this period full-time farmers in the household spend about 5 days a week for about 6 hours each day on the farms while others spend about 1 to 2 days a week. They spend the other days and hours on their personal farms. About 45% of small farms have 4 family labour, 27.5% have 3 family labour available for work on the farm and 12.5% and 15% respectively for 2 and 1 family labour.

d. Farm and non-farm income in the SF's households

Most of the people are farmers hence have little diversity in sources of income. Fifty-five percent of the people have all their income from the farm while the remaining 45% have one additional source of informal income. Only 2.5% of the people are public servants who in addition to salaried work have a small farm. The others get their extra income from on-farm activities such as fetching of fuelwood and the sale of other farm produce. In general farmers do not have additional income outside the main farming season and unfortunately they do not have facilities for dry season farming.

e. Shocks and coping mechanisms of SF households



Wild fire that normally occurs in the night burn all crop residues which would have contributed to soil organic matter and soil fertility. In some cases, farms are burnt hence farmers are under intense pressure to harvest their fields quickly before such fires come. Fire belts are created around the fields as a control measure and harvesting done early. There are bye-laws but hardly is anybody caught as the originator of the fire.

Droughts and floods occur from time to time but more frequently in the past 10 years. Irregular distribution of rainfall causing long dry spells that damage crops. Sometimes the fields are resown. Farmers take the risk and sow at the times they normally do hoping to get the rains. Sometimes it works other times not. Sometime rice fields get flooded very early that farming is not possible that year and other times the flood washed away the crop.

2017 was a peculiar year when there was infestation of a new insect – Fall Army Worm. It affected maize plants and destroyed many farms. Farmers who identified them early could save some parts of their farms by spraying with insecticides. Government has imported specific agro-chemicals for the control of the worms hoping that it could be under control this year, 2018.

Role of Small Food Businesses

a. Main insights and patterns

The SFBs have been operating for 16 years (on average). Close to 46% of them are into sale of cooked foods. The remaining are engaged in processing and trade; distribution, retailing. About 92% of the SFBs are operated by women, with 42% of them from the largest town. About 33% come from other parts of the RR while the remaining 25% of the operators come from outside the RR (not indigenes of the RR). It was revealed that 50% of SFB operators had up to primary education while 30% and 17% had up to secondary and technical/vocational education respectively. About 53% of the businesses were started as “new opportunities”, 25% were attributed to family tradition and 16% were started due to marriage and change in lifestyles.

Assessing the performance of SFBs over the past 5 years, 50% of operators indicated that business has been growing, 33% said that business has remained steady while the remaining 17% said that performance is declining. Notwithstanding these diverse opinions, all the SFBs believe that there is potential to do better in future. However, financial support will be the most important factor to uphold.

Participants in FGDs revealed that apart from improved production levels for most crops, diversity has not changed much. Accordingly, the range of foods consumed locally remains relatively steady, though there are claims that improved economic conditions over time has contributed to improved diets. Current dietary intakes/patterns include Tuo zaafi (TZ) (made from maize, millet or sorghum, mixed with cassava flour), rice and yam. Fufu



(pounded yam) is one of the popular meals served with soup. Koko (porridge) with kose or bread is often served for breakfast. Patronage of traditional foods would most likely remain steady for a while. There prepared/cooked foods are available at known spot in the towns and communities for people to buy.

b. Labour in SFB work

Most of the SFBs are informal, operated by women mainly as sole proprietorships businesses which engage one or few additional hands to help. The findings indicate that business owners engage the services of up to 4 family members (Av.= 2.5) in the businesses. They engage approximately one non-family paid person to work for the business. It was also observed that engaged family members worked 18.7% more (Av. = 243.7hrs/yr) than non-family members (Av.= 205.3hrs/yr) which helps in controlling operating cost and implicitly the cost of output. The owners suggested that increasing the cost of food to compensate for higher labour cost is unsustainable due to competition.

c. SFB income

The food business accounts for 98% of the incomes of SFBs. Their yearly turnover ranges between € 1,500 and € 23,000, with an average of € 9,458. SFBs also reported a total annual income (i.e. what remains after accounting for all expenses) of €3,816.7. These income levels were described by 83% of SFBs as lower than average. In other words, only 17% of them thought of their incomes as average, with no record of “higher than average”. Over 83% of SFBs do not have access to any subsidy or other forms of farm support. In addition, only 25% indicated that they have access to financial services when they need it leaving the majority without access. The few who had access to financial services mention World Vision International an NGO, the Banks and private companies as the source of those facilities, some of which are outside the RR. Many of those who did not have access had little or no knowledge about how to obtain such facility. Majority (83%) of the SFBs did not receive support from their neighbours nor customers. Worst still, production and marketing advice/training was not available to about 92% of the small businesses.

d. Shocks and coping mechanisms of SFB households

In a focus group discussion, SFB households cited some events which served as sources of shock to their organizations and governance systems. Key among them is the Fall Army Worm (FAW) infestation, which caused considerable damage to maize crops. This affected the volumes of supply and income. Apart from that, erratic rainfall pattern and drought caused significant yield losses which affected businesses and incomes. Some SFBs got opportunities to cook for workshop participants, which impacted positively on their businesses in terms of income. Some had training in conducive environment at business sites which attracted more patronage.



The Future

a. Main objectives and priorities of SF for the future

For most SFs the main objective is to produce more either by gathering resources to increase farm sizes or by improving the use of fertilisers and better seeds. A few are thinking of adding value to the produce before sale. They think they can do this if they have access to low interest credit or access to the subsidised inputs. If this is done they think they can increase their income. These cut across all types of SFs.

b. Main objectives and priorities of SFB for the future

For SFB the main objectives are to expand the businesses and improve the quality of the produce. This also cuts across all types of SFBs.

c. Risk perception by SF

Credit to expand the SF and SFB is the major risk. Most of them do not have access to financial services especially credit because they do not save with the few financial institutions in the area. Without credit they will continue to produce at this level or lower in the future.

d. Risk perception by SFB

Credit to expand the SF and SFB is the major risk. Most of them do not have access to financial services especially credit because they do not save with the few financial institutions in the area. Without credit they will continue to produce at this level or lower in the future.

e. Food system forecast in 5, 10 and 20 years

Land owned by families are divided among male children after the demise of the head of family. This reduces the size of land available to each male hence small farms may get smaller but yield may increase as a result of intensification. Another possibility is that most children would have had formal education and hence move away from farming hence the few left may have larger lands to cultivate hence there could be more larger farms.

As population increase demand for food will increase hence processors and other SFBs will have to expand their businesses. As awareness increases there will be demand for high quality products. There may be more people coming to the SFBs hence the sizes may not increase that much but there might increase in number of SFBs.



Annex: List of resources

a. List of key experts interviewed

Organisation
SEND Foundation, focal person
District Asseby, Development Planning Officer
Aggregator
Department of Agriculture, District Director of Agriculture
Department of Agriculture, Management Information System Officer
Tsongtaba Development Foundation, Field Officer
Department of Agriculture, Agricultural Extension Agent
Animal Trader
Nucleus Farmer
Food processor/restaurant
Farmers Association, Chairman
Gushegu, Traditional Ruler

b. SF and SFB interviews and focus groups information

Stakeholder typology	N° of participants						How were they contacted?
	Interviews			Focus Groups			
	Men	Women	Total	Men	Women	Total	
Farmers	34	6	40	21	2	23	They were all listed at the beginning of WP3 activities. When needed some are contacted by phone through the contact person in the region (Officer in the Department of Agriculture)
Producers’ cooperatives				2		2	
Slaughtering facilities				3		3	
Processors (small/large)		2	2		3	3	
Wholesalers					1	1	
Retailers		1	1				
Caterers		7	7		6	6	
Other small food business		2	2		2	2	
Exporters				2	1	3	
Importers							



Farm inputs suppliers/tractor service				5		5	
Advisory services							
Agricultural administration/Ministry of Agriculture				5		5	
Consumers' groups/organizations				4	2	6	
Local administrators and policy makers				3		3	
Political leaders and PMs							
Other programs/initiatives				1		1	
Nutritionist							
NGOs				2		2	
Traditional and religious leaders (for Africa)				4		4	
Total	52			69			

c. References

Calus, M. and G. Van Huylenbroeck (2005). Attitude of Flemish farmers towards alternative business governance structures, paper presented at the EAAE seminar on Institutional Units in Agriculture, Wye, UK, April 9



4.8. RR8 Imathia –Greece– Food System Regional Report



WP3

Imathia (RR 8) – Greece – Food System Regional Report

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Table of Contents: Food System Regional Report

1) Socio-economic and agricultural profile of the reference region.....	187
2) Key products and regional food balance sheet.....	189
3) Food system: Key nodes and flows and role of small farms and small food businesses.....	191
3.1. Key product 1: Peach.....	191
3.2. Key product 2: Cherry.....	194
3.3. Key product 3: Wine grapes.....	197
3.4. Key product 4: Beef.....	199
4) Typology of small farms in the reference region.....	200
5) Governance	202
6) Small Farms and rural livelihoods	207
7) Role of Small Food Businesses.....	209
8) The Future	210
9) Annex: List of resources	214



Socio-economic and agricultural profile of the reference region

Imathia is a NUTS3 region located in Northern Greece, with a GDP per capita 68% of the national average. As the whole country, this region has been hit by the crisis, as is evidenced by the sharp reduction in GDP per capita by 24% between 2009 and 2014. Agriculture plays a significant role in the regional economy, contributing to the total Gross Value Added (GVA) by 18.3% in 2014, in contrast with 3.7% for the whole country. Imathia also has a remarkable industrial base, as industry represents 15.7% of the total GVA (13.4% in Greece).

More than three-quarters of farms (78%) are classified as small (i.e. with a utilized agricultural area less than 5 ha), while the mean farm is slightly smaller (4.2 ha) compared with the mean farm in the country (4.9 ha).

Imathia RR ranks second in peach production in Greece. Peach tree cultivation expanded to areas previously cultivated with other tree-crops like cherries, sour cherries, pears, apples etc. Irrigated crops like peach trees, cherries, pears, apple trees as well as cotton, corn and sugar beet, reveal an intensive agricultural model. Currently vast areas are covered with peach tree monoculture, while in the mountain feet vineyards for wine are located.

Small farms employ 64% of the total labour force in RR's agriculture; 19.5% of this labour force comes from non-family members, mainly immigrants from Albania, Bulgaria, Romania, etc., in contrast to 27% which is the respective contribution of hired labour in the total labour of non-small farms.

Table 1: Basic data for the region

Indicators	Data per Region - Nuts 3
Land size (km ²)	1,686
Population (thousands of people)	141,436
Density (people/km ²)	84
GDP (thousand USD/inhabitant)	11,100
Total labour force in AWU	11,715.5
Total number of holdings	13,197
Total Agricultural area (ha)	64,200
Total Utilized Agricultural Area (ha)	55,056
Agricultural Area in Mountain Area (ha)	18,010
% of UAA in the RR	32.71%
Average Farm size (ha)	4.2
Number of farms by UAA farm size: 0-5, 5-20, 20-50, >50ha	10,339, 2,481, 293, 84
Average size of farms < 5ha of UAA (ha)	1.79
Area of main crops (ha) (list the relevant crops below)	
Cotton	14,487
Peach trees	13,771



Alfalfa	4,360
Maize	2,446
Fallow Land	20.33
Green Maize (for grazing)	1,760
Durum Wheat	1,390
Apple trees	1,205
Outdoor Vegetables	998
Cherry trees	882
Kiwies	789
Pear trees	421
Sunflower	404
Tobacco	360
Area of main crops (ha) in farms < 5ha of UAA (list the relevant crops below)	
Peach trees	8,125
Cotton	3,872
Alfalfa	1,325
Fallow Land	769
Apple trees	711
Outdoor Vegetables	526
Cherry trees	520
Maize	471
Kiwies	466
Durum Wheat	377
Green Maize (for grazing)	291
Pear trees	248
Olive Grooves for Olive-Oil production	204
Vegetables in Greenhouses	124
Livestock (LSU) per type (list the relevant types below)	
Bovine	11,540
Sheep	5,097
Goats	2,300
Pork	5,762
Poultry	4,821
Livestock (LSU) per type in farms < 5ha of UAA (list the relevant types below)	
Bovine	1,462
Sheep	467
Goats	183
Pork	5,647
Poultry	4,681
Annual work units (AWU) by UAA farm size: 0-5, 5-20, 20-50, >50ha	7,495.4; 3,567.9; 475.8; 176.4



Total family labour per farm size: 0-5, 5-20, 20-50, >50ha

6,036.7; 2,651.6; 302.3; 110

As part of the NUTS2 region of Central Macedonia, Imathia has historically had a significant industrial base in sectors such as textiles and various agri-industries. As a result of internal and external causes, during the last decades, the region has been seriously affected by de-industrialization (most apparent in the textiles industry), while it has managed to keep a vibrant agri-food sector. A key component of the latter is the canned peach sector, one of the most important branches of the Greek economy, which produces a high quality product and employs about 10,000 people on a permanent and seasonal basis. Despite production fluctuations due to weather conditions and other external factors, Greek annual production is about 300 thousand tonnes of peaches for canning, of which 99% is exported. It should be noted that for many years Greece has ranked first in global exports of this product, improving its relative shares from 24% in 2003 to 36% in 2012 (IERS, 2014). The production of this product takes place mainly in the Regional Units of Pella and Imathia (in the NUTS2 region of Central Macedonia), where 52% and 41% of the total area is cultivated, respectively (ELSTAT, 2018). Important advantages of this Greek product are its qualitative and flavor characteristics, as well as the certifications and reliability of the enterprises of the sector (Mantzaris, 2010).

In the last years of the crisis affecting the whole Greek economy (2010-2014), compared to manufacturing and construction, it appears that the agri-food sector in Imathia has suffered the smallest losses in terms of employment, while it has maintained almost a constant Gross Value Added.

However, one of the shocks that this sector and the whole regional economy has suffered, derived from the import restrictions introduced since August 2014 by the Russian Federation. This policy measure concerns a range of EU agricultural products notably meats, dairy products and fruit & vegetables, and runs until 31 December 2018. The ban has clearly had an impact on EU agri-food exports to Russia, which dropped from around €11.8 billion in 2013 to around €5.6 billion in 2016. Although this has seriously impacted Imathia, the regional agrifood system has managed to overcome this shock as is explained below in the section 5.

Key products and regional food balance sheet

a. Key products produced and consumed in the region

On the basis of our desk research and the interviews with stakeholders at the regional level, we have selected four key products. In the selection of these key products, apart from the criteria mentioned in the Analytical Framework, we have tried to take into serious consideration, firstly, the significance of small farms (so, peaches and cherries were chosen) and secondly, special characteristics which render some staples particularly important for this RR: wine, as a traditional product, peaches another traditional product, which has been the ‘engine’ of the regional economy for many years and beef, since beef is one of the most



deficit products in Greece, while Imathia is one of the few regions in Greece where beef is produced.

It has to be noted that in the case of beef production, the criterion of a UAA < 5 ha is actually misleading, as it does not take into consideration the main feature of these farms, i.e. the value of livestock products. Therefore, in this particular case, we have used a Standard Output of up to 8,000 €, as the criterion for identifying a small farm. According to Eurostat (Farm Structure Survey, 2013), in the NUTS2 region of Central Macedonia where Imathia belongs, 8.1% of all farms belonging to the Farming Type 'Bovine Farms' are small, i.e. they have a standard output less than 8,000 €; our estimation for bovine SFs Imathia, after the conduct of focus groups, is about 10%.

Therefore, the four selected key products are as follows:

Table 2: Key products selection

	Number of Small Farms/Number of All Farms [1]	Standard Output of Small Farms/Standard Output of All Farms [2]
Peaches (canned)	80%	55%
Peaches(fresh)	80%	55%
Cherries	80%	58%
Wine	70%	40%
Beef	10%	6%

Source for Columns [1] and [2]: Integrated Administrative Control System, Elaborated Data

As for the Balance Sheet, we used data from the Household Budget Survey, 2014, at NUTS2 level, since EFSA provided no data for Greece. More specifically, we have consumption per household, for a detailed list of food items, distinguished into five categories: (1) 'Purchases', (2) 'Own Production', (3) 'Own entrepreneurial activities', (4) 'Other Sources' (e.g. exchanges among households), and (5) 'From the employer'. Also, for some specific products of particular interest to our project (e.g. peaches), we have adjusted the above data, on the basis of information derived from our interviews with stakeholders.

b. Balance of production and consumption of key products in the region

Table 3: Balance Sheet for the key-products in Imathia region

	Surplus (+) or deficit (-) in the Balance Sheet [3]
Peaches (canned)	31,873%
Peaches(fresh)	2,455,782%
Cherries	7,164%



Wine	309%
Beef	236%

Source: Our Balance Sheet

c. Official statistics and key products in the region

According to the official data (Greek Statistic Authority) beef is in deficit in the RR, in contrast to opinions of stock-breeders and the local entrepreneurs engaged in the beef industry. In addition, taking into consideration that the country's largest slaughterhouse with modern facilities and equipment is located in Imathia, we are certain that the official data for beef production are not so accurate and therefore we use the owner's of the slaughterhouse estimates as more reliable. These estimates increase the beef production to 4,200 t/year resulting to a surplus of 236%.

Food system: Key nodes and flows and role of small farms and small food businesses

3.1. Key product 1: Peach

- a. Nodes in the regional food system: production, processing, commercialization and retail

Peach-growing contributes significantly to the Greek economy as peaches are among the main exported products of the country and this cultivation has expanded over the last 30 years. Imathia, along with the adjacent region of Pella, are the main peach-producing regions in Greece, accounting for 34% and 42% of the national production, respectively.

Peach trees are cultivated in semi-mountainous and plain areas, covering 20% of the utilized agricultural area of the region. Seventy percent of the peach farms are small (< 5 ha), producing 55% of the total peach production in the region. The farmers have adopted modern methods of cultivation such as dense planting, the use of anti-hail nets, cloud seeding, integrated production for the whole of cultivation and recently the sexual confusion of insects.

Almost 40% of the total peach production in Imathia is sold in the fresh market. These peaches come from the semi-mountainous areas, mainly from Naousa where it is cultivated the homonymous variety that is certified as a Protected Designation of Origin (PDO) peach. The rest 60% of the total peach production is sold to the wholesalers (cooperatives or private enterprises) in order to be canned. The totality of the canned peaches is processed within the RR.



There are 16 farmers groups¹⁸, along with 2 cooperative, 3 big private and 50 small private enterprises that concentrate the production of peaches, as well as 20-25 private and 2 cooperative canners. Germany and East Europe are the main importers of the Greek fresh peaches since they are very demanding markets with high quality standards.

In addition, there is a scheme, funded through the European Union's Common Agricultural Policy (CAP), which supports the distribution of 10,000 tones of peach juice on average every year for the last 3 years to schools, as part of a wider programme of education about European agriculture and the benefits of healthy eating.

The Russian embargo has negatively affected the fresh peaches market. At a cost of production of 0.25 €/kg and selling prices on the Russian market € 1/kg, one can reasonably realize how profitable this market was until 2014. Since then, East European countries (Romania, Bulgaria, Poland e.t.c) and secondarily Germany are the main importers of the Greek fresh peaches in lower prices. This is the main reason for the expansion of the cultivated area of canned, at the expense of fresh peaches (the utilized land of canned peaches in Greece had increased from 11,600 hectares in 2014 to more than 20,000 hectares in 2016). In addition, the production cost of canned peaches is slightly lower than that of fresh ones. However, the low production cost is the comparative advantage of the Greek peach cultivation, as the main competitors Spain, Italy and France have a significantly higher production cost (€ 0.34/kg, € 0.40/kg and € 0.70/kg, respectively) according to the estimates of the FG participants.

In 2017, the farmer groups in Imathia, started trading in supermarket chains of some foreign markets, including Central European (Poland, Hungary, Slovakia and the Czech Republic) and Scandinavian countries.

b. Flows connecting the different nodes in the regional food system

Almost the totality (98%) of the canned and 65% of the fresh peaches are exported. Germany, USA and Japan are the main importers of canned peaches, while East Europe and Germany are the main importers of the fresh peaches. Almost 35% of the fresh peach production is sold to other Greek regions and only a very small part of the total production (less than 1%) is consumed within the RR.

The main determinants of peach prices are the production volumes of Italy and Spain, the two leading countries in the sector; interestingly, the cost of production in these countries (as well as in France) seems to be higher than that in Greece.

Finally, the role of large canning companies is predominant in the formation of prices of canned peaches, as was stressed by FG participants.

¹⁸ A *Farmers Group or Producer Group*, is a legal entity, which is a micro-, small- and medium-sized enterprise and is made up of farmers producing similar agricultural products. The minimum number of farmers in order to form a producer group is: 10 for crops, 5 for livestock and 20 for wine. It aims at improving the organization of the production and marketing as well as the quality of its member's products, and enhancing the competitiveness of the products on the market, ensuring higher producer prices. EU supports Farmers Groups/Organizations through various programs of the 1st and 2nd CAP Pillars, provided they apply an approved business plan.



c. Role of small farms and small food businesses within the food system

Small farms are integrated into all the above mentioned nodes and flows of the system, producing 55% of the total produce of the region. Farmers groups handle almost three quarters of the production, but the farmers can also sell directly to private traders.

As far as food businesses are concerned, the vast majority of the regional produce is concentrated and distributed through big fruit cooperative or private companies.

It is worthy to mention that the canned peaches in Imathia are sold as products with a 'private label' of foreign multinational companies, such as 'Del Monte'.

d. Importance of household self-provisioning in small farms and small food businesses

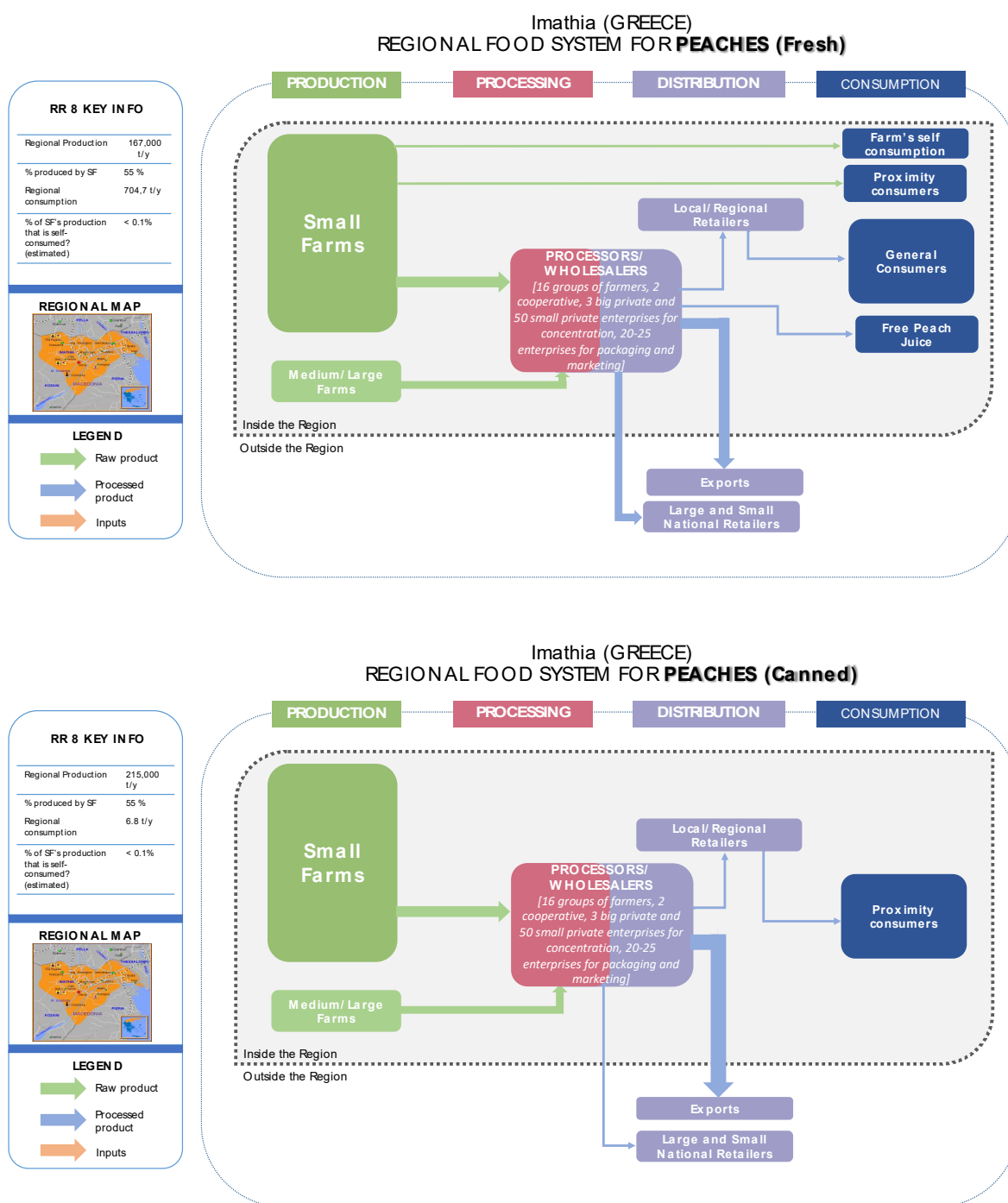
Self-consumption represents a negligible share of the total production of the region, <0.1% in both SFs and non-SFs.

e. Other relevant information

From our field research ensues, that many peach producers in the region undertake a significant endeavor of peach trees renewal, by trying to replace old varieties with new ones every 10-15 years, in an effort to respond to changing consumer patterns. This process is evolving gradually, as every 4-5 years they replace a part of their peach groves. In addition, new cultivation techniques are adopted (dense planting) and modern methods of pest control are used (sexual confusion).

FG participants pointed out the pressing need to eliminate the activity of various merchants (from Balkan countries and Greece) who buy Greek peaches directly from the field, without proper standardization and packaging, thus leading to a non-standardized product, which is also vulnerable to various diseases.





3.2. Key product 2: Cherry

- a. Nodes in the regional food system: production, processing, commercialization and retail

Greece is among the top ten cherries producers in the world, with Turkey taking the first place, followed by the US, Iran, Italy, and Ukraine. The Greek production has the comparative advantage over the rest of Europe except Turkey, to ripen earlier by 10-15 days.



The Turkish cherries are the main competitors due to their lower production cost and early production, so they let the Greek cherries to dominate in the markets since mid-July.

Cherries cultivation had expanded in the RR of Imathia a decade ago, but since 2012 the number of cherry trees has fallen by 17%, ranking Imathia as the second producing RR with a share of 10% of the national production, although in the neighboring area of Pella the cultivated area has increased by 200% over the last five years.

Almost 80% of the cherry farms have kept the traditional cultivation system (big trees in cup formulation). The standard cherry farm also cultivates apples in mountainous and semi-mountainous areas (in the surrounding area of Naousa and in the slopes of Mount Vermio) or peaches in the plain areas of Veroia.

The small farms account for 80% of all cherry farms and produce 58% of the total production in the RR. The vast majority of the production (65%) is exported to Cyprus, Germany, Netherland and Egypt, while the rest 35% is sold to other Greek regions. Only a very small part of total production (1.7%) is consumed within the RR.

More than 50 enterprises (private and cooperatives) deal with wholesaling of cherries. Many of them are small but there are also 2-3 big enterprises accompanied by some cooperatives, which are involved in the marketing and sales channel. Many enterprises have modernized their equipment such as calibrators and coolers and therefore can conserve the product for up to 2 months before it is released for consumption.

b. Flows connecting the different nodes in the regional food system

As mentioned above, 65% of the total production is exported to Cyprus, Germany, Netherland, Egypt and Middle East, while the rest 35% is sold to other Greek regions. Only a very small part of total production (1.7%) is consumed within the RR.

In 2017 in the Arab states, the producer price was 3.5 €/kg when the corresponding in Europe was between 2.7€/kg and less than 2.0 €/kg. It should be noted that the transportation cost is 1 €/kg and the production cost is not lower than 1 €/kg, therefore the producer price should be more than 2€/kg in order to be profitable the cherries production.

The whole sub-system of cherries in Imathia has been adversely affected by shocks such as: (i) Climate change: as participants in the FGs and our interviewees stressed, over the last years, the average temperature in Imathia has risen by 1^o Celsius, while the distribution of rainfalls during the year has changed dramatically; these changes have serious implications for the quantity and quality of the production of fruits such as cherries and peaches, e.g. a deterioration of the quality of the early varieties which enjoy high prices, due to fruit tearing and (ii) the interaction between the prices of peaches and cherries.



c. Role of small farms and small food businesses within the food system

Small farms are integrated into all the above mentioned nodes and flows of the system, producing 58% of the total produce of the region. Farmers groups handle the majority of the production, but the farmers can also sell directly to private traders. As far as food businesses are concerned, the vast majority of the regional produce is concentrated and distributed through big fruit cooperative or private companies.

d. Importance of household self-provisioning in small farms and small food businesses

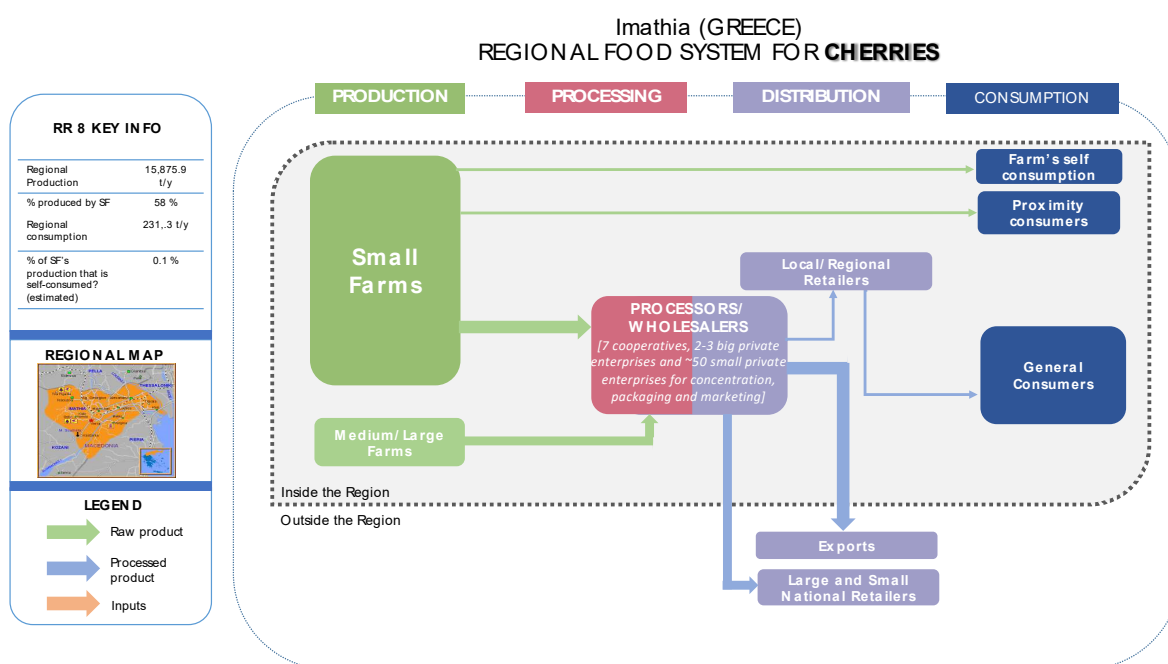
Self-consumption represents a negligible share of the total production of the region, <0.1% in SFs and in non-SFs.

e. Other relevant information

Although cherries are a more 'luxurious' fruit than peaches, their demand does not seem to have been affected by the crisis, as they are usually consumed by consumers with a higher purchasing power.

Every year, the old trees are replaced with new varieties even though the three main varieties remain the Greek ones: Petrokerasa, Tragano of Edessa and Tragano Vasiliadis.

As in the case of peaches, there is a pressing need to eliminate the activity of various merchants who buy Greek fruits and vegetables directly from the field without proper standardization and packaging.



3.3. Key product 3: Wine grapes

- a. Nodes in the regional food system: production, processing, commercialization and retail

When discussing wine production in Imathia, we refer to 'Naoussa', one of the areas of the region, with an PDO [Protected Designation of Origin] quality-appellation since 1972; *Naoussa* covers 85% of the vineyard acreage of the region, including 20 out of 29 wineries.

The data of the national statistical authority shows a reduction of the vineyards by 16% and a significant decrease of the production volume (-66%) between 2013 and 2014, which has not been verified by the stakeholders and the participants in the FG.

Naoussa is a mono-varietal appellation, dedicated entirely to 'Xinomavro', a dry wine, marketed with the Naoussa Appellation of High Quality Origin, which is exclusively made from the red grapes of Xinomavro, a well adapted cultivar in continental climates.

The vast majority of the vine producing farms are small (>70 %), while 60% of total grapes for wine production is delivered to the local cooperative winery ('Vaeni'). Xinomavro is one of the four Greek wine varieties which the Greek Inter-professional Organization of Wine promotes abroad in a systematic way as the flagships of the Greek wine.

The rest 71% of wine production is sold to other Greek regions (26%) or exported to other 27 countries (45%). The main importers are the EU, Russia, China and India.

- b. Flows connecting the different nodes in the regional food system

Less than 20% of the total production is consumed within the RR: 1% for self-consumption 3% are the direct sales from farmers to consumers (who process this quantity on-farm), 3.5% are the purchases of consumers from the wineries, and 10% are the purchases of consumers from super markets, wine stores, restaurants and hotels in the RR.

The rest >80% of wine production is sold to other Greek regions (>35%) or exported to other 27 countries (45%). The main importers are the EU, Russia, China and India.

The local cooperative trades almost sixty percent (60%) of the total production. Besides the coop, there are 3 big, 15 medium and 10 small wineries which have established a collaborative scheme for the promotion of local wines.

- c. Role of small farms and small food businesses within the food system

More than 70% of the vineyards are small (<5 ha) and produce 60% of the total production in the area. The grapes are vinified in the 29 wineries of the RR. It is worth mentioning that more than ten of the wineries can be visited by tourists, especially in the context of the 'Wine Roads of Northern Greece' in which Imathia's wineries actively participate. This wine-



touristic activity undoubtedly is an asset which enhances the inter-sectoral links in the regional economy.

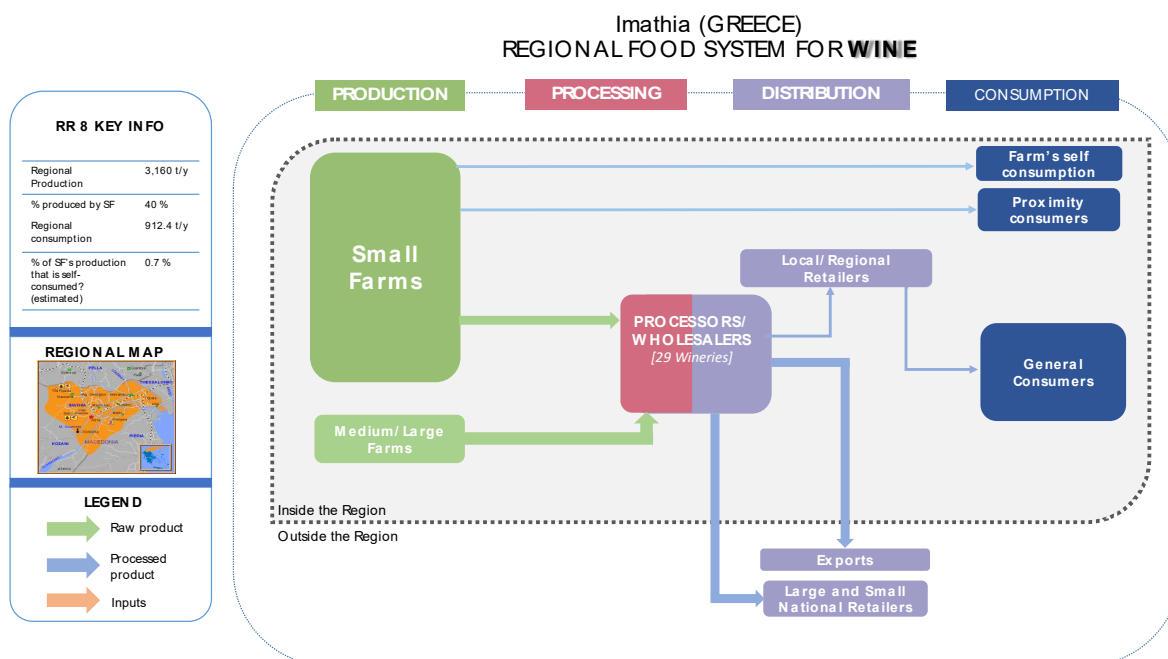
- d. Importance of household self-provisioning in small farms and small food businesses

Self-consumption is negligible compared to the total quantity produced in the region. It should be mentioned that the farmers are allowed to make no more than 1 tone wine from their grapes production.

The 4 big wineries (the biggest is the cooperative ‘Vaeni’) are export-oriented, addressing a multitude of export markets in all continents. The small wineries sell their production, which comes from owned vineyards, mainly inside the country. Three or four small wineries located inside the wine-production region of *Naousa* export the majority of their production. Also, the wineries outside the region of *Naousa* destine their product for the internal market.

- e. Other relevant information

Although there is a demand for new vineyards, however, very few permits (new licences for vine cultivation) are given by the authorities. Many wine makers are trying to diversify their products, towards producing white or rose wines in order to meet the demand.



3.4. Key product 4: Beef

- a. Nodes in the regional food system: production, processing, commercialization and retail

As already noted, according to Eurostat (Farm Structure Survey, 2013), in the NUTS2 region of Central Macedonia where Imathia belongs, 8.1% of all farms belonging to the Farming Type 'Bovine Farms' are small, i.e. they have a standard output less than 8,000 €. Assuming that this proportion also holds for Imathia, small farms hold the 6% of the bovines in the RR. It should be mentioned that a small bovine farm with the maximum standard output (= 8,000 €) owns 17 bovines without any owned agricultural land.

Eighty percent of the calves are imported from Romania, France, Ireland, and Hungary in the age of 8 months and the rest 20% belong to domestic bovine races. After 7-8 months of rearing these calves in the local farms, they are slaughtered in the unique slaughterhouse of the RR. There are also 10-15 wholesalers which are involved in the marketing process.

According to the data of the Greek statistical authority, beef is in deficit (-71%) in the country, but the local stock-breeders claim that they produce 25%-27% of national beef consumption. In, addition, the owner of the slaughterhouse, that is also the largest in the country, estimates that more than 14,000 bovines are bred in Imathia producing 4,200 tons of beef; according to these data, there seems to be a surplus of 236% in this region.

Almost 75% of the production is sold to other Greek regions, while 25% is consumed inside the RR. The wholesalers select the animals of the farms, and then buy the beef in the slaughterhouse in order to sell it to the local butcher shops and the super markets. Many wholesalers have their own place within the slaughterhouse.

- b. Flows connecting the different nodes in the regional food system

More than half of production is consumed outside the RR of Imathia while self-consumption represents a negligible share of the total production of the region. The local butcher shops and super markets sell the rest inside the RR and only an insignificant quantity is exported (<1%).

Between the 10-15 wholesalers which are involved in the marketing process, there is one famous enterprise which has its own farm applying many innovative technologies such the nutrition of animals that provides nutrition-rich beef and very high standards of living for the animals since they enjoy classical music.

- c. Role of small farms and small food businesses within the food system

SFs are less than 10% of the total number of bovine farms and thus their relative importance is limited. SFBs are mainly the local butcher shops. Some of them have their own livestock farms, hence fixed quality and reputation in the local market.



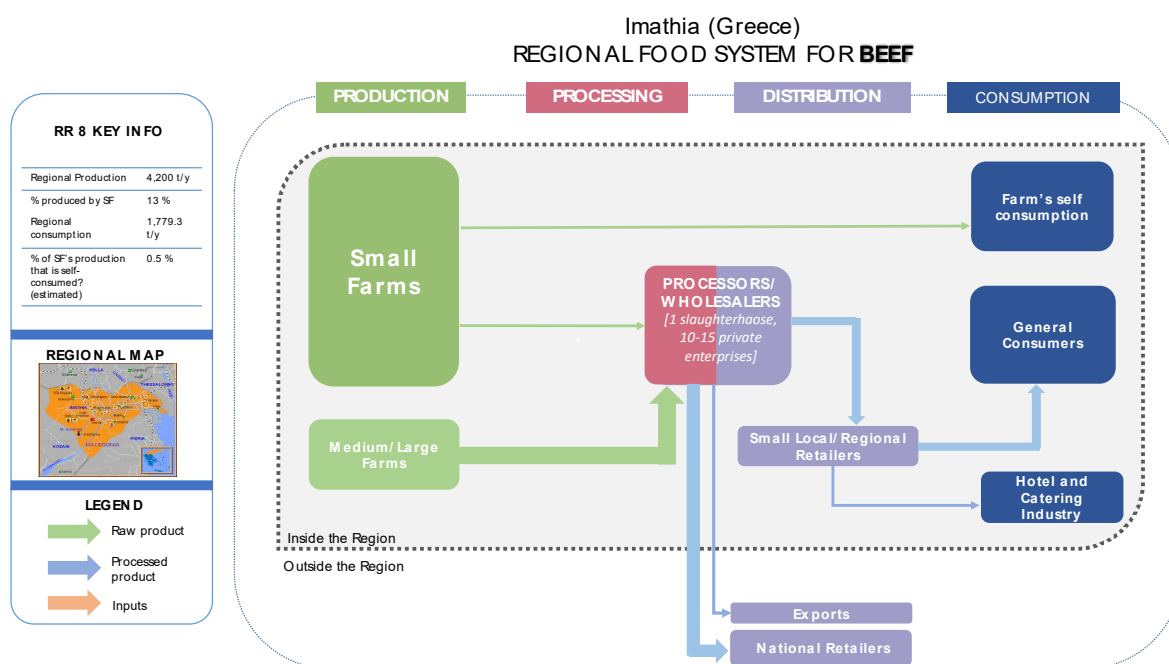
d. Importance of household self-provisioning in SF and SFB

Self-consumption is negligible compared to the total quantity produced in the region.

e. Other relevant information

Greek livestock sectors (especially pork and beef) have been the most seriously affected by the competition from other European countries since Greece's accession to the EC/EU in 1981. As a result, imports of beef and pork have skyrocketed, contributing to a serious deficit in the agri-food trade balance.

According to our interviews, the local livestock farmers rely heavily on subsidies through the Common Agricultural Policy for their economic viability, as they have a higher cost of production than their EU counterparts owing e.g. higher feed costs.



Typology of small farms in the reference region

f. Small farm types in the region

By using the typology proposed in the conceptual framework of SALSA, we classify all small farms of the region, according to two criteria, i.e. the degree of household self-sufficiency (the percentage total household consumption which is own-produced) and the degree of market integration of the farm (marketed production on total production). Thus, the following typology emerges.



On the basis of information derived from our interviews with stakeholders and the four FGs we have allocated SFs in four types, according to the proposed small farm typology:

		Degree of self-sufficiency	
		< 50%	> 50%
Degree of market integration	< 50%	Type 1	Type 2
	> 50%	Type 3	Type 4

TYPE 1:

Type 1 represents approximately 10% of all SFs of the RR, consisting of residents of Thessaloniki or Athens or Veroia or non-farmers, with family tree-groves or/and vineyards in Imathia. They work on their farms for a few weeks a year, during the harvesting period, assigning other works to local workers (e.g. pruning). These people have farming as a secondary occupation, and they produce wine and/or fresh fruits exclusively or mainly for self-consumption, hence they have a very low degree of market integration. Also, this production covers a low percentage of the total household consumption.

TYPE 2:

Type 2 consists of SFs with a holder aged more than 65 years, who cultivate vineyards exclusively or mainly for self-consumption; additionally, they produce various vegetables in their home gardens and own 1-5 domesticated animals (sheep, goats, poultries and/or cows). Thus, they have a very low degree of market integration along with a relatively high degree of self-sufficiency. This Type represents nearly 5% of all SFs of the RR. As in the previous Type, most of these farms are located in mountainous and semi-mountainous areas.

TYPE 3:

The majority of SFs (75%) falls into Type 3, with a high degree of market integration along with a small degree of self-sufficiency. These small farms have various combinations of tree-crops, mostly the following: Peaches (canned or fresh), Nectarines, Apples, Cherries, Pears, Kiwis, vineyards in mountainous or semi-mountainous areas, and cereals, cotton, rice, outdoor and greenhouse vegetables in plain areas.

TYPE 4:

Type 4 consists of another group of SFs (approximately 10% of all SFs) with high degrees of both market integration and self-sufficiency. These farms are quite diversified in terms of specialization, combining sheep and/or goats or bovines rearing, with fodder production for their animals (alfalfa, maize), as well as vineyard and vegetable production from home gardens, for self-consumption. Most of these farms are in mountainous and semi-mountainous areas, except their fields with alfalfa and maize, which are in plain areas of the region.



We have to stress that the whole process of searching for SFs for interviews, led us to a sample of SFs which were more ‘professional’ than the ‘average’ farms, depicted at official statistical sources. This is so, because: (i) our main informants for finding potential interviewees (agronomists, cooperatives’ staff, and agricultural administration staff) deal with small farmers who are more ‘professional’ than many of their peers, and (ii) many owners of SFs rely mostly on off-farm sources of income and live in other areas, including cities outside the RR.

g. Role of small farm types in the regional food and nutrition security

Three groups of SFs stand out with respect their contribution to FNS, from the analysis of our interviews. Firstly, those which, apart from one or more commercial crops, cultivate a home garden and raise a few domestic animals (e.g. cow, chicken, sheep, pig), thus covering more than 50% of all household food needs from own-production. These are 5 out of 38 SFs, of which 4 possess cows or bovines.

The second group covers more than 20% and less than 50% of all household food needs from their own-production. These are 9 out of 38 SFs, of which 6 raise a few domestic animals (chicken, pigs and cows), along with a small home garden.

The third group consists of those SFs, which are highly specialized and attain a farm income higher than the respective average household income of the region, thus covering all their food needs from the market; these amount to approximately 20% of all interviewees.

Governance

h. Main interactions of SF and SFB with governance structures in the region

A major shift in the behaviour of small farmers in Imathia has occurred since 2000, i.e. after the successful introduction of Integrated Farming, which is a broad-range technical, organizational and institutional innovation. More specifically, farmers’ relationship with experts has changed since they do not buy inputs and offered, as an incentive, technical advice. Existing networks have been transformed (from input to service providers), new networks have been created, linkages between actors and networks were broken (professionals – companies) while new have been created (PGs–companies, PGs–consultants) while weakened links have been re-strengthened (Research community–PGs).

Overall, this transition is characterized by the strengthening of collaborative action and collective institutions. In the case of canned peach the whole project can be also thought as a counter-oligopsony measure with PGs intending to gain a more balanced distribution of power in the specific value chain. Co-operatives/PGs that have participated in the niche have seen their negotiating power increasing within the value-chain, hence private merchants have actually been following market trends set by the PGs (see: Vlahos et al., 2017a).

In addition, one of the main interactions of SFs with governance structures is their engagement with the mechanisms of the Common Agricultural Policy (CAP), both the first



Pillar (direct aids to farmers) and the second Pillar, especially investment aids and the ‘Young Farmers’ scheme. During the last call for this scheme (July 2017), 203 applications have been approved in Imathia with an available amount of 3.7 million euros, while 39 applicants have been characterized as potentially beneficiaries and 118 as eligible but not covered by the available funding.

It is worth mentioning that in Imathia, as in the whole country, all second Pillar schemes, including the above two, have been hit heavily from the on-going crisis of the Greek economy, e.g. from the non-ability of the Greek state to cover the national contribution to these co-financed programs, as well as the under-staffing of all public administrative services. Likewise, due to capital controls, the lack of available funds from the banking sector deprives farms from borrowing, in order to cover part of investment costs.

Another interaction of SFs has to do with the training of small farmers on the sustainable use of pesticides, and the procedure for granting them a certificate which will confirm the sufficient knowledge of sustainable use of pesticides.

With regard to small food businesses, the support of investment projects through the National Investment Incentives Law or co-funded EU programs is the main interaction with governance structures. In our interviews, several entrepreneurs expressed a strong criticism for the delays observed for the granting of aids after the approval, as well as for the overall financing conditions of the investment projects.

Finally, a major problem for SFs in the region has been the cessation of fruit exports to the Russian market after 2014, as a result of the Russian embargo to EU food exports, which was a retaliation measure for EU sanctions against Russia.

i. Levels of governance and their relative importance for SFs and SFBs

Unlike many other areas in Greece, a large part of small farmers in Imathia apply integrated farming through their producer groups, especially in peach production. In this context, they are informed for and apply a series of new cultivating practices (e.g. spraying of pesticides) collectively, in a coordinated way; this coordination and flow of information is achieved through two networks of agronomists which operate in the region, one for provision of technical advice and another one for managerial advice to producer groups.

Moreover, as focus groups participants stressed, wine-makers within *Naoussa* PDO wine area are much more extrovert than their counterparts outside this area, who produce mainly for domestic market. In addition, 20 out of 29 wine makers participate in the *Association of Vine Growers and Wine-makers of Imathia*, while 4 wineries are involved in the *Wine Routs* of Naoussa and the related wine-touristic activities. However, although the degree of collective action is considered as quite satisfactory in comparison to that of other wine-producing areas in Greece, participants also pointed out that there is scope for improvement in the promotion of the collective identity and fame of their wines.



All the above initiatives actively involve SFs and SFBs, with a profound impact on their functioning and sustainability.

j. Constraints impairing full participation in the food system

A basic requirement for Greek farms to be eligible for support in the context of the 1st Pillar of CAP, is to receive direct aids of at least 250 euros; this holds for SFs in Imathia as in the whole country. Also, livestock breeders usually have to comply with a host of legal and bureaucratic procedures, which, in conjunction with the lack of a cadastral and a clear ownership status in rural areas (especially in forests), impedes their activities.

Furthermore, there are some implications arising from the asymmetry of power across various layers of the food system. For example, in some of the products of the RR the market structure is oligopsony, e.g. in beef. The imbalance of power across the food chain is partially mitigated by the effective operation of producer groups, especially in the case of peach for canning, where a strong vertical integration is found, with some of the largest canning enterprises belonging to the union of regional cooperatives. Likewise, 60% of the total quantity of grapes in Imathia is processed into wines by the co-op 'Vaeni', which along with 3 large private wineries dominate the wine sector in this region.

On the other hand, SFs participate in export markets through established marketing channels of large exporting enterprises (private or cooperative) based in the RR. These exporting enterprises in turn, are very small, compared with the much larger international importers, who most of the times impose the terms of the transactions.

A factor which could act as a constraint for the participation of SFs in the food system, is their ability to adopt new tree varieties, in order to attain a homogenization of the product and to overcome serious plant diseases, and thus securing their position in the markets. This is the case especially of peach and cherry trees, as, although the existing varieties have been very well acclimatized to the local area, new varieties should reach farmers in order to meet the changing consumer patterns. In this context, our interviewees and focus groups participants have stressed the lack of critical elements in the whole organizational and supporting infrastructure, such as certified nurseries, and effective collaboration with researchers (in both research institutions and universities).

k. External policies, decisions and social norms affecting food systems

A mismatch between food production and sustainable use of natural resources, emanates from an excess use of chemical inputs on behalf of Imathia's farmers. In particular, the spectacular increase in chemical fertilizers use during the last decades, resulted in adverse consequences, such as groundwater pollution from nitrates. It has to be noted that one of the seven Greek 'Nitrate Vulnerable Zones' lies in the region of Imathia, in which a program for the reduction of nitrate pollution is implemented.



As Vlahos et al. (2017b) point out, “input use (especially fertilizers) in integrated farming peach production has been reduced considerably. Evidence from the documentation archives kept by a PG covering 450 ha of peach trees in the area, suggests that during the decade 2006-2015, the amount of pesticides, measured in volume of active substances used, has been reduced by 28% due to the application of a system of monitoring weather conditions and the presence of insects through traps, combined with the application of sexual confusion pheromones. Furthermore, gradual application of chemical fertilizers after careful examination of needs through soil analysis, and application of techniques like green manure, resulted in a reduction in the N application rates of 52% (from an average 250 kg N per ha to 120 kg N/ha). A rational management of crop residues resulted in an addition of 65 tn of residues per ha to the soil with the corresponding increase of soil organic matter. Finally, irrigation water consumption per ha was reduced by 500 m³ during this decade, due to trickle irrigation equipment use”.

l. Gender issues intersecting governance issues

Although our interviews show that the participation of women as leaders of farms is limited (in 6 out of 39 SFs) men and women do not seem to have an unequal access to markets and land. In some cases, women are involved actively in the production process, while in others they supplement family income by working in on- and off-farm activities. Interestingly, the majority of SFBs in our sample (6 out of 8 SFBs) have a female leader, unlike many other areas in Greece.

m. Other actors and processes important for the regional food system

Except for production and flows concerning organic products, another issue which is not depicted in the above maps, is the dynamism of the whole agri-food system in Imathia as it is documented by the existence of a number of large agri-food enterprises, with high export potential. Besides local production, these enterprises, buy large quantities of fruits from other Greek regions, and then sort, package and export these products to many foreign markets.

n. Forms of collaboration and organization between small farms

No special forms of cooperation among SFs exist in the region. Co-ops and Producer Groups alike, include both SFs and large farms, without any special provision for each category. As already indicated, SFs participate in some cooperatives dealing with the production and processing of fruits (esp. peaches). The effective operation of these co-ops is crucial for SFs, not least because they mitigate the power imbalance within the food system, which also translates into satisfactory producer prices and secured farm incomes.

o. Forms of collaboration and organization between small farms and consumers

Only informal relations between SFs and consumers have been recorder in the RR. Those relations are widespread, including the provision of various agricultural products (e.g. almonds, pulses and fruits) from farmers to neighbours and friends, as already noted. In



some cases, consumers or neighbours and friends are invited by farmers to harvest the fruits or nuts by themselves, e.g. from one of the trees of a fruit or nut grove. Also, in Imathia appeared one of the first consumer initiatives for direct selling of producers to consumers (especially in potatoes) at the onset of the current crisis.

- p. Relationship between small and large farms, and between small and large businesses

There are no specific relations, neither between SFs and large farms, nor between small and larger businesses, except for the 'usual' transactions in the context of the entire value chain of each of the key-products, as has been already described in the previous sections.

In the context of producer groups, some forms of complementary relations between SFs and large farms exist, though. Large farms are the 'locomotive' of a producer group, providing the bulk of the products and thus securing a minimum size of group's volume of production; as a result, both SFs and large farms benefit from this co-existence. On the other hand, those large farmers virtually control the function of the group, marginalizing SFs. Undoubtedly, these forms of 'unbalanced' governance structures need to be further investigated, as they strongly affect the operation of SFs and the terms of their integration into the wider food system.

- q. Other governance issues

One of the themes highlighted in FGs has been the grave consequences of high taxation to the functioning of producer groups, as well as to the smooth functioning of the whole food system. In particular, high taxation creates favorable conditions for the enhancement of informal marketing channels, as transactions through 'formal' channels are heavily taxed and wholesalers delay payments to producers, i.e. farmers are paid after seven months of the initial transaction, a situation that has worsened after the imposition of capital controls in Greek economy in 2015. Consequently, farmers opt for informal transactions with unregistered traders, who can pay better prices (due to tax evasion), immediately, in cash. This was especially documented in the cases of fresh peaches and cherries.

Furthermore, from the work carried out in FGs a number of issues were clarified, concerning the structure and function of the value chains in each of the key-products. For example, it was stressed that in all key-products, the large wholesalers usually reach an agreement for price fixing, i.e. the price in which they buy the products from producers.

The unequal distribution of power translates into differentiated financial potential between various actors of the chain, which in turn leads to strengthened dependence of the least powerful actors.

Finally, from the preceding analysis it is obvious that various governance arrangements, especially collective action and the introduction of innovations such as integrated farming, have had a positive impact on the status of SFs' FNS, mainly indirectly. This means that, by



assisting SFs to attain an access to markets, a better price for their product, etc., they secure a satisfactory farm income for almost half of them, thus enabling the provision of all necessary food items through market. On the other hand, our 38 interviews with SFs show that, on average, almost one fifth of the total basket of products consumed in SFs' households is satisfied through their own production. More specifically, this percentage varies from very high (50%-70% for 4 SFs), to moderate (20%-40% for 9 SFs), low (10%-15% for 16 SFs), and below 10% for 9 SFs. This production concerns various fruits, vegetables potatoes, olive oil, chicken, eggs, etc.

Hence, FNS of a large part of SFs can be positively affected by a synergistic effect of both institutional arrangements and broad range own-producing activities.

Small Farms and rural livelihoods

a. Importance of household labour in SFs

SFs' contribution is very important in terms of human employment – they employ 62% of total farm labour in the RR – and acreage – they occupy 34% of total utilized agricultural area. They also raise 28% of total livestock, expressed in livestock units. In economic terms, their standard output is 49.3% of the total standard output of the regional agriculture, corresponding to 105.2 million €; in some crops, this contribution is much higher than the average: fresh fruits 59%, peaches 55%, cherries 58%, and nuts 59% (Source: elaborated data from Integrated Administrative and Control System for the year 2015).

The elaborated data of our interviews reveal that, on average, the total human labour employed in each farm, amounts to 2.01 AWUs. Almost half of all interviewed farms employ at least 2 AWUs, mostly those engaged in combinations of tree cultivations (e.g. peaches and cherries) or of tree cultivations with grapes for wine. Our sample farms rely mostly on their members to source the necessary labour (three quarters of the total labour needs, or 1.51 AWUs per farm). Consequently, one quarter of farms' labour needs (0.50 AWUs per farm) are covered by non-family labour, which is used by 36 out of 38 interviewed farms; this labour is offered mostly on an occasional basis, while only three farms use permanent hired labour. Also, negligible quantities of non-family non-paid labour are used by three farms.

b. Farm and non-farm income in the SF's households

Data from our interviews show that, on average, 41% of total household income comes from the sales of farm products in the markets, 46% derives from non-farm sources, while the remaining 13% is represented by subsidies (table 4). Pluriactivity of family members is widespread, as two-thirds of farm households (HHs) report off-farm income. Interestingly, in two sample farms, a part of the total farm income derives from non agricultural activities, i.e. photovoltaic installations.

Moreover, we have calculated the total income of each HH, consisting of income from farming and all other sources; then, we calculated the per capita equivalent household



income, by using the ‘modified OECD equivalence scales’ (Hagenaars et al. 1994; Eurostat 2017), assigning weights of 1.0, 0.5 and 0.3 to the household head, each of the remaining adults and each child in the household, respectively. By comparing the per capita equivalent income of a HH with the poverty line and the mean equivalent income in the regional economy for 2017, we find that 8 out of 38 HHs fall below the poverty line, 16 HHs have a middle income, and 14 HHs have a high income.

As we see, the three categories of HHs vary substantially, across a number of indicators (tables 4 and 5). This classification of HHs offers valuable insights, however, here, due to space limitations, we just present some of the elaborated data without any further comments.

Table 4: Income analysis by income level of HHs

	No	Farm income from Market (€)	Subsidies (€)	Off-Farm Income	Total Household Income (€)	Equivalent Adult Members (€)	Per Capita Equivalent Household Income (€)
Poor HHs	8	4,551	774	3,300	8,625	2.31	3,708
		53%	9%	38%	100%		
Middle Income HHs	16	8,273	4,209	5,098	17,580	2.25	8,316
		47%	24%	29%	100%		
High Income HHs	14	18,136	4,621	26,855	49,612	2.31	20,951
		37%	9%	54%	100%		
All HHs	38	11,123	3,637	12,735	27,496	2.29	12,001
		41%	13%	46%	100%		

Table 5: Demographic and structural characteristics by income level of HHs

	Age (1. 18-30/ 2. 30-40/ 3. 40-50/ 4. 50-60/ 5. >60 years old)	Educational level (1. No formal education/ 2. Up to primary only/ 3. Up to secondary only/ 4. Technical or vocational training only/ 5. University Degree/)	Total UAA (utilized agricultural area) of farm (ha)	Number of plots	Proportion of land owned (%)
Poor HHs	3.1	3.6	4.1	7.9	88
Middle Income HHs	3.7	2.9	3.7	5.6	81
High Income HHs	3.2	3.6	4.8	5.6	71
All HHs	3.4	3.3	4.1	6.1	79

c. Shocks and coping mechanisms of SF households



SFs in Imathia had experienced a serious shock in mid-1990s, after the drastic reduction in aid to peach producers, coupled with the imposition of technical barriers to trade from USA (after detecting pesticide residues) and the sharp decline in demand for canned peaches; these events, along with the decline of the textile sector, the other development pillar of the local economy, created a serious crisis in the whole region. Hence the urgent need, in order to maintain and expand export markets, to find a way to ensure that the final product would be complying with the restrictions imposed by clients.

Thus, the Integrated Farming (IF) standard AGRO2 was introduced in 2000 by the quasi-state organisation AGROCERT, with the dynamic involvement of some co-ops leaders and a number of young agronomists in the area. Since then, most SFs actively participate and apply this standard, with excellent results; in particular, producer groups (PGs) have managed to adapt to changing conditions and technical requirements in various markets, with the most recent case the changing specifications in the Russian market in 2014.

The realisation of the potential of the standard i.e. rationalisation of management practices and increased role of advice, both technical and managerial, led to a reorientation of the PGs' goals since they could also economise on costs, reduce environmental impacts of the production as well as improve quality of the products. Through this process, existing networks were transformed, while linkages were created among collectivities, networks and state agencies, providing the space for negotiation. For a more detailed exposition of this issue, see: Vlahos et al., 2017a and b.

The regional agri-food system has reacted and seems to have successfully absorbed the shocks of the crisis (see section 6b above). It has shown a high degree of adaptability, incorporating technological innovations through organizational arrangements. The networks in the region also responded to drastic changes, changing their role and creating new alliances. The elements of the social capital of the region, mainly the collective spirit and the associations of cooperatives, which in the past were enforced by the strengthening of the clientelistic base of the subsidy network, regained the role of attracting the farmers around them. The resilience of the agro-food system of Imathia was documented by the successful management of the next sudden drop in demand from the Russian market.

Finally, the ongoing crisis and the recent reforms in tax and insurance systems for farmers, are additional shocks for the regional SFs.

Role of Small Food Businesses

a. Main insights and patterns

Small food businesses, either in processing or in distributing sectors, play a vital role in the function of the whole food system of the RR, with a multitude of up-stream and down-stream inter-sectoral linkages, generating incomes and securing a significant number of jobs. Therefore, they are part of the agri-food sector, which is the most dynamic one in the RR. Agri-food sector in Imathia has consolidated a long time ago, having a number of dynamic



enterprises, both private and cooperative, which started as small businesses, e.g. the cooperative fruit company ‘Venus’ established in 1964, the wine co-op Vaeni (est. in 1983), etc.

b. Labour in SFB work

On average, total labour amounts to 4.41 AWUs per SFB, of which 76% is offered by family members, while the rest 24% by non-family labour. More specifically, three out of eight interviewed SFBs rely only to the labour of their members, while four SFBs use non-family labour only on an occasional basis, and one SFB uses both permanent and seasonal hired labour. In addition, four SFBs use also family non-paid labour to carry out their tasks.

c. SFB income

Seven out of eight SFBs combine their processing and/or distributing activities, with a primary production, i.e. they self-produce part of the raw material for their enterprise. Thus, the average farm income of these composite entities amounts to 28,714 euros, while the mean turnover from the entrepreneurial activities is 93,900 euros. It is worth mentioning that the owners of SFBs report that their businesses contribute on average by 66 percent in their total income.

d. Shocks and coping mechanisms of SFB households

All the shocks referred above in the section for SFs, relate also to the SFBs, which are involved in the respective value chains. However, SFBs have the additional problems of austerity policy measures, such as capital controls, lack of liquidity, lack of credit, etc. Extroversion and modernization have been the responses of most of the interviewed SFBs.

The Future

a. Main objectives and priorities of SF for the future

Very interesting findings emerge from a preliminary analysis of the data derived from the interviews with small farmers. Despite the current economic climate, 45% of the interviewed producers (17 out of 38) are considering expanding their holding by undertaking additional investments, renting new land and/or increase the number of their animals, including two farmers who plan to either expand the farm or keep it in the current status and another one who intends to “modernize the production and improve the cultivation” (Group I). Besides, 13 farmers or 34% of all SFs opt for a ‘defensive’ stance, i.e. to try to keep the holding in the present form without undertaking risks (Group II); of these, four farmers stated that they will try to “maintain the farm and its productivity”. In addition, 6 farmers are considering differentiating their production by: changing the peach orchards with other crops (2 SFs), supplementing their productive activities with a sales channel and distribution network (2 SFs), pursuing a licence to produce his own wine from his grapes (1 SF) or trying to produce



his own feed for the animals (1 SF) (Group III). Finally, two farmers will pass over the farm to their children (Group IV).

Therefore, more than three quarters of all interviewed small farmers either will expand their farms or maintain them in the current status. Some indicative differences among these groups are the following:

Table 6: Characteristics of Groups of Interviewed Small Farms

	Age (1. 18-30/ 2. 30-40/ 3. 40-50/ 4. 50-60/ 5. >60 years old)	Educational level (1. No formal education/ 2. Up to primary only/ 3. Up to secondary only/ 4. Technical or vocational training only/ 5. University Degree/)	Total size of the farm (Ha)	Total UAA (Utilized Agricultural Area) of the farm	Own Land (%)	Rente d Land (%)	Total annual Farm Income (€)	Farm Income as % of Total Household Income	Total household Income (€)
Group I	3.2	3.7	4.4	4.2	82	18	9618	58	21384
Group II	3.7	2.6	4.4	4.4	65	38	19908	69	32126
Group III	3.0	3.7	4.4	3.8	91	9	13767	65	21389
Group IV	4.0	3.5	2.5	2.5	100	0	9000	20	48667
All SFs	3.4	3.3	4.3	4.1	79	22	13761	61	26496

As we see, Group I consists of SFs whose holder is young, has the highest educational level, attains a low farm income, possesses a relatively low proportion of rented land, while their total household income is below the average (table 6); thus, a further expansion of these farms seems a rational option. On the other hand, SFs of Group II have the largest UAA, the highest share of rented land, the highest farm income and the second highest total household income; also, their holders have the lowest educational level and an age above the average. This profile justifies their main stance for the future, i.e. keeping the farm in its current status. Holders of the Group III are the youngest ones, with the highest educational level, a relatively high farm income but a relatively low total household income; various forms of diversification activities seem to be a reasonable choice for these SFs. Finally, the lowest farm size and farm income, along with the highest total household income, seem to justify the interest of Group IV's holders for succession.

b. Main objectives and priorities of SFB for the future

The SFBs in our sample fall into three categories: (i) four wineries, (ii) three enterprises that process fruits into jams and various sweets, and (iii) one butcher shop. Most of these SFBs are also involved in distribution and five of them in retailing. Seven out of eight interviewed SFBs apply a form of vertical integration, i.e. they source part of the raw material from their own primary production.



The most interesting finding about the priorities for the future is that all SFBs, except one which will try to keep the business in the current situation, are planning to expand their activities. This interest has been stated in various ways by the owners of SFBs:

- “Retaining buyers and then increasing, expanding the business to new products (olive oil)”
- “Building new infrastructure, buying machinery and land for more raw material production”
- “Effort to increase the production”
- “Building new infrastructure and buying mechanical equipment”
- “creation of new infrastructure and building facilities, certification of ISO, creation of new products”
- “creation of a production area and purchase of air-tight packaging machines, internet advertising”
- “creation of new products and finding new markets”

As regards the perceptions about the future of food businesses in the area, the results are mixed. Fruit processing enterprises are the most optimistic, provided a good marketing strategy on behalf of food businesses, while wineries are divided between those that are optimistic (in relation also to interlinkages with the tourism sector), those who are uncertain, and those that see gloomy prospects, especially due to the recent special tax for wineries in Greece.

The SFBs in our sample that have survived the current crisis are well organized and financially sound, since they have overcome the cash flow restrictions and the fall of domestic demand. Some of them are export oriented (e.g. some wineries) and have established a strong position in foreign markets because of the high quality of their products and the commercial skills of the entrepreneurs. Therefore, the estimates of the future of these SFBs are favourable, despite the burden of high taxation.

All business owners point out the high tax burden, as well as a multitude of bureaucratic problems when exporting their products. Moreover, the lack of liquidity and high borrowing interest rates undermine the bargaining power of all food businesses in the region. Nevertheless, the vast majority of entrepreneurs would like to have a support from the state in their efforts to enhance extroversion.

c. Risk perception by SF

Within the four groups of SFs [see above section 8a] there is an almost unanimous identification of weather conditions as the main source of risk, which is followed by ‘markets’ (i.e. unpredictability and frequent changes in market conditions) and the embargo of Russia to agri-food exports from EU countries, which has heavily affected exports of peaches,



cherries and other fruits from Imathia. Animal diseases have been referred as additional sources of risk by small farmers.

d. Risk perception by SFB

A series of diverse issues have been identified as the main external sources of risk for the businesses. Lack of raw material, which are inputs for processing enterprises, owing to adverse weather conditions, is the most frequent issue. A second source of risk is a series of issues contributing to an unfavourable economic environment, such as high taxation, lack of credit, and reduction of sales in the domestic market. Competition, uncertainty of legislation and delays in repayment of the sold products, are some additional issues identified by the owners of SFBs.

e. Food system forecast in 5, 10 and 20 years

Most of the participants in the FGs expressed their worries about the future of SFs, especially in the context of the continuing crisis and the consequences of restrictive policy measures, such as the new tax system. The only chance for their survival seems to be the intensification of collaborative, networking and quality-related activities, otherwise they will be further marginalized within the whole agri-food system of the region.

f. Other future related issues

A widespread concern was expressed in the FGs, concerning the consequences of the recently reformed tax system for farm incomes. This system, which has been applied since 2016, is expected to be particularly burdensome for both active people and retirees who earn a supplementary income from farming. Both these categories are the majority of small farmers, whose future is thus jeopardized. Nevertheless, according to a recent government announcement in September 2018, the farmers' insurance payments will be reduced.

Finally, another recent evolution of major importance concerns a decision of the Council of State, announced in September 2018, for the cancellation of the Special Consumption Tax in wine. It has to be mentioned that an appeal against this tax had been submitted since 2016 by the Greek Wine Association together with the National Interprofessional Organization of Vine and Wine. The imminent cancellation of this tax will be a favourable event for the wine sector in Imathia as in the whole country.



Annex: List of resources

a. List of key experts interviewed

Stakeholder Typology	Affiliation
Producers' cooperatives	President, VENUS Growers, Agricultural Cooperative
	Agronomist, Agricultural Cooperative
	President, VAENI NAOUSA, Agricultural Cooperative for wines
Retailers	Owner at business with meat and owner of farm
Other programs/initiatives	Consumer protection centre at Naousa
Agricultural administration/Ministry of Agriculture	Agronomist, Directorate of Agricultural Economy
	Agronomist, Directorate of Agricultural Economy
	Agronomist, Directorate of Agricultural Economy
	Veterinarian, Directorate of Agricultural Economy
NGOs	President of Executive Committee of WWF-Hellas
Slaughtering facilities	Owner in Business Import- Trade - Fattening – Slaughtering of Living animals

b. SF and SFB interviews and focus groups information

Stakeholder typology	N° of participants						How were they contacted?
	Interviews			Focus Groups			
	Men	Women	Total	Men	Women	Total	
Farmers	32	7	39	4	1		We contacted with all the participants by phone and to those invited to
Producers' cooperatives							
Slaughtering facilities				1			
Processors (small/large)	2	5		1	2		



Wholesalers							the FGs we <u>additionally</u> emailed the invitations. The regional Directorate of Agricultural Economy and Veterinary, the stakeholders, the cooperatives and the producer's groups as well as the interviewers themselves provided us the names of the small farmers.
Retailers		1		1			
Caterers							
Other small food business							
Exporters							
Importers							
Farm inputs suppliers							
Advisory services							
Agricultural administration/Ministry of Agriculture				4	5		
Consumers' groups/organizations							
Local administrators and policy makers							
Political leaders and PMs							
Other programs/initiatives							
Nutritionist							
NGOs							
Traditional and religious leaders (for Africa)							
Total		47		19			

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4.9. RR9 Larisa –Greece– Food System Regional Report



WP3

Larisa (RR 9) – Greece – Food System Regional Report

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Table of Contents: Food System Regional Report

1) Socio-economic and agricultural profile of the reference region.....	218
2) Key products and regional food balance sheet.....	221
3) Food system: Key nodes and flows and role of small farms and small food businesses.....	223
3.1. Key product 1: Sheep and goat milk	223
3.2. Key product 2: Apple	226
3.3. Key product 3: Pulses	228
3.4. Key product 4: Almond.....	230
4) Typology of small farms in the reference region.....	232
5) Governance	233
6) Small Farms and rural livelihoods	238
7) Role of Small Food Businesses.....	240
8) The Future	241
9) Annex: List of resources	244



Socio-economic and agricultural profile of the reference region

Larisa is the second largest NUTS3 Region in Greece. It covers about one-third of Thessaly NUTS2 Region, once considered Greece's granary, a vital agricultural area, particularly for the production of cereals, cotton, cattle, and sheep. It is located in the centre of Greece with a GDP per capita 83% of the national average. Between 2009 and 2014 GDP per capita has contracted by 24% in Greece. Although it seems that the crisis' impact on Larisa RR has been slightly lighter, with the respective reduction being 22%, a number of families in urban and peri-urban areas could be characterized as food insecure, as a result of the ongoing crisis, as was stressed in a detailed discussion with a group of citizens/consumers, in the capital city of Larissa (on 3rd April 2017).

Although the regional economy is dominated by services sectors, it also has an agricultural specialization, as it contributes to the total Gross Value Added (GVA) with 13.9% in 2014, in contrast with 3.7% for the whole country. In addition, Larisa has a remarkable industrial base, since industry represents 15.9% of the total GVA (13.4% in Greece). Larissa has a Mediterranean climate with hot summers and mild winters. Forty-five percent of the whole area of the region is flat, while 25% is semi-mountainous and 30% is mountainous, including the highest mountain in Greece, mount Olympus (2,917 m) which is situated in the northeastern part of the RR, and mount Ossa in the east, at the Aegean coast. In addition, the northern part is covered with forests, whereas the lower stretch of the river Pineios flows through the Valley of Tempe, between Olympus and Ossa.

There are 25,000 farms within the Larisa RR, of which 51% are classified as small, while the mean farm in Larisa is larger in terms of physical size (almost 8.0 ha) compared with the mean farm in the country (4.9 ha). Fodder, cereals, cotton, olive groves, fruits and nuts are the main crops of small farms in the region.

Small farms employ nearly 14% of the total labour force in RR's agriculture, or 7007 annual work units (AWUs); 11% of this labour force comes from non-family members, mainly immigrants from Bulgaria, Albania and Pakistan, in contrast to 22.1% in farms with UAA greater than 5 Ha.

Table 1: Basic data for the region

Indicators	Data per Region - Nuts 3
Land size (km ²)	5,369
Population (thousands of people)	283,727
Density (people/km ²)	53
GDP (thousand USD/inhabitant)	13,600
Total labour force in AWU	19,435
Total number of holdings	24,999
Total Agricultural area (ha)	214,390
Total Utilized Agricultural Area (ha)	201,555



Agricultural Area in Mountain Area	30,180
% of UAA in the RR	37.54
Average Farm size	8.06
Number of farms by UAA farm size: 0-5, 5-20, 20-50, >50ha	13,552; 8,839; 2,299; 309
Average size of farms < 5ha of UAA	2.01
Area of main crops (ha) (list the relevant crops below)	
Alfalfa	79,074
Durum wheat	42,384
Cotton	28,138
Fallow Land	13,231
Maize	8,922
Fruits	7,987
Olive Grooves for Olive oil production	5,644
Nuts	5,303
Outdoor Vegetables	3,500
Peas and Green Beans	3,113
Green Maize	2,955
Wine Vines	1,285
Pulses	2,221
Olive Grooves for Table Olives production	858
Sugar beets	856
Rye	754
Tobacco	629
Area of main crops (ha) in farms < 5ha of UAA (list the relevant crops below)	
Alfalfa	14,530
Durum Wheat	4,584
Fruits	3,294
Olive Grooves for Olive-oil Production	2,938
Fallow Land	2,811
Cotton	2,318
Nuts	1,992
Maize	838
Outdoor Vegetables	576
Peas and Green Beans	431
Wine Vines	404
Green Maize	377
Olive Grooves for Table Olives production	263
Tobacco	192
Rye	138
Pulses	215



Livestock (LSU) per type (list the relevant types below)	
Bovine	49,054
Sheep	70,218
Goats	21,446
Pork	17,452
Poultry	6,101
Livestock (LSU) per type in farms < 5ha of UAA (list the relevant types below)	
Bovine	39
Sheep	282
Goats	107
Pork	40
Poultry	33
Annual work units (AWU) by UAA farm size: 0-5, 5-20, 20-50, >50ha	
Total family labour per farm size: 0-5, 5-20, 20-50, >50ha	5,562.7; 10,940.1; 11,976.2 11,955.6

Larisa is one of the largest NUTS3 regions in Greece, with a huge agri-food potential. All available data document [attest] the wide-ranging process of agricultural modernization in the post-war period, with enlargement, intensification, specialization and full integration of farms/households into the markets. Thus, the average size of farms is 7.4 ha, in contrast to 4.8 for the whole country; 58% of agricultural land was irrigated in 1999 (3% in 1950), while in the last eighty years the average yield per hectare has increased by 6 times for wheat, by 7 times for cotton and by 20 times for corn.

In addition, the production process has been fully mechanized, with all kinds of agricultural machinery in use nowadays, while in 1929, 34717 horses, 19493 donkeys and 9777 mules participated in agricultural tasks. The total number of farms has decreased by 29% in the post-war period, due to farm exit mainly from mountain areas, while enlargement of farms has been pursued mainly by leasing the land, as 36% of UAA was leased in 1999, in contrast to 5% in 1950. Large infrastructure works have supported this process of transformation.

Consistent with this process of structural transformation, striking changes in the crop mix of the region have taken place in the post-war period. Over time, annual crops have occupied three-quarters of UAA, however, concrete crops have expanded, e.g. durum wheat at the expense of soft wheat, cotton (from 16 thousand ha in 1950, to 323 thousand ha in 1999), while a traditional crop – tobacco – has almost diminished. Meanwhile, Larisa has also specialized in the dairy sector, especially the sheep and goat milk production; 700 thousand sheep were reared in 2015 (450 thousand in 1950), along with more than 200 thousand goats (100 thousand in 1950).

The significant production of the primary sector supports manufacturing, as well as standardization and packaging activities of agricultural products. In particular, 1,083 small or



big food industries and 599 retailer businesses of agricultural products, which represent 30% of all businesses, exist in Larisa region. Since 2010 3,500 businesses have closed down due to the on-going economic crisis. During the same period, the processing businesses have diminished by 27%. One of the notable findings from our fieldwork in Larisa is that the current crisis occurred 4-5 years later than in the rest of the country, i.e. in 2015; according to key informants and focus groups participants, this is owing mainly to the existence of thousands of large farms in this region, receiving large amounts of subsidies, which are then channeled into the regional economy. Thus, although the region did not remain unaffected by the crisis, the significant CAP subsidies have contributed to the slowing-down of the unfolding of the crisis, as well as to the delay at the manifestation of its impacts.

Key products and regional food balance sheet

a. Key products produced and consumed in the region

Alfalfa, durum wheat and cotton account for nearly three quarters of all cultivated land in Larisa; also, Larisa ranks first in the production of sheep and goat milk (130 thousand tons per year) and second in the production of cow milk (75 thousand tons per year) in the country, thus supporting a vibrant dairy sector.

On the basis of our desk research and the interviews with stakeholders at the regional level, we have selected four basic key products. In the selection of these key products, apart from the criteria mentioned in the Analytical Framework, we have taken into consideration, firstly, the significance of small farms (so, pulses were chosen instead of cereals) and secondly, special characteristics which render some key products particularly important for this RR; thus, sheep and goat milk were chosen as the main components for the production of Feta cheese which is the most famous traditional product in Greece. In most of the cases, sheep and goat milk are lumped together, not only for some similarities in their production and processing, but also because they are mixed to produce some famous Greek cheeses, such as Feta, in a proportion of 70% and 30%, respectively.

In addition, apples were chosen as another traditional product and, finally, nuts (mainly almonds), since there has been a steady growth in cultivated area and production volume of nuts over the last years. An additional criterion has been the dynamism of a product, especially during the last years.

It has to be noted that in the case of livestock production, the criterion of a UAA < 5 ha is actually misleading, as it does not take into consideration the main feature of these farms, i.e. the value of livestock products.

A UAA less than 5 hectares could be part of a number of different combinations in the production system of a livestock farm, including either a low or a high number of animals, i.e. belonging to a farm which is not necessarily 'small'. Therefore, for sheep and goat milk, we have used a Standard Output of up to 8,000 euros, as the criterion for identifying a small farm. From the elaborated data of Integrated Administrative Control System (IACS) for 2015, it ensues that in this size class of standard output, fall all farms with up to 107 sheep



or up to 109 goats. Thus, approximately 110 sheep and goats is the threshold for SFs producing sheep and goat milk in Larisa region.

Therefore, the four selected key products are as follows:

Table 2: Key products selection

	Number of Small Farms/Number of All Farms [1]	Standard Output of Small Farms/Standard Output of All Farms [2]	Surplus (+) or deficit (-) in the Balance Sheet [3]
Sheep and goat milk	32.8%	20.0 %*	1,300 %
Apples	61.9 %	41.2 %	1,019 %
Nuts	53.3 %	37.6 %	4,925 %
Pulses	20.3 %	9.7 %	202 %

Source for Columns [1] and [2]: Integrated Administrative Control System, Elaborated Data

() Our own estimation*

b. Balance of production and consumption of key products in the region

From the 65 different products that have been recorded in our Balance Sheet, 25 have a deficit in total consumption. For these 25 products, either the contribution of small farms is insignificant, or their production volume is negligible, so we chose none of them.

As for the Balance Sheet, we use the data from the **Household Budget Survey, 2014, at NUTS2 level**, as EFSA provides no data for Greece, except for two specific surveys which are not suitable for our Project. More specifically, in this Survey, consumption per household is recorded, for a detailed list of food items. The origin of household consumption is distinguished into five categories:

1. Purchases
2. Own Production
3. Own entrepreneurial activities
4. Other Sources (e.g. exchanges among households)
5. From the employer

Also, for some specific items of particular interest to our project (e.g. sheep and goat milk), we have adjusted the above data, on the basis of information derived from our interviews with stakeholders.

c. Official statistics and key products in the region



The official data published by the National Statistical Authority [ELSTAT] show that the productivity of sheep and goats in milk production per animal has increased over the last 5 years by 26%, mainly due to the increase in productivity of nomadic and secondarily of sheep and goats in flocks (increase by 86% and 13% respectively) and despite a decrease by 28% of the productivity of the domestic goats.

Also, the official data from ELSTAT show that, in Larisa RR, the average yield of almonds per tree is 5 kg/tree, but according to our interviews and the FG, the average yield fluctuates between 5-15 kg/tree. In addition, ELSTAT data show a slight decrease in the average yield in apples per tree by almost 10% during the period 2011-2015 which could be attributed to the reduction of inputs (fertilizers and/or pesticides) due to the high production cost and the lack of financial liquidity.

Finally, an increase of 30% has been recorded in the yields of chickpeas during the 2012-2015 period in the official data, although the stakeholders noted that the problem with the chickpeas concerns the lack of certified Greek seeds, which leads producers to use non-certified seeds.

Food system: Key nodes and flows and role of small farms and small food businesses

3.1. Key product 1: Sheep and goat milk

- a. Nodes in the regional food system: production, processing, commercialization and retail

Nearly 4,500 farms are engaged in sheep and goat rearing in Larisa region, of which one-third have less than 110 heads (Elaborated data from IACS, 2015). An interesting spatial variation is observed within the RR, with SFs mostly found in plain areas, while in semi-mountainous and mountainous areas – especially in the North-western part – sheep and goat farms are larger. In addition, the sector presents another structural variation among animals bred in flocks, as well as in ‘nomadic’ and ‘domestic’ forms. Two-thirds of the total production come from sheep and goats in flocks, while nomadic account for almost one third, and only 1% comes from domestic sheep and goats.

Larisa is by far the leading NUTS3 region in sheep and goat milk production in Greece, which, according to official sources (the National Statistical Authority) has increased by 29% over the period 2011-2015; this is mainly due to the increase in the production of the nomadic sheep and goats and secondarily the sheep and goats in flocks (an increase of 146% and 5%, respectively) and despite the decrease in the production of the domestic ones (36% decrease).

The upward trend in the number of sheep and goats in the 2011-2014 period reversed in 2015 to 2011 levels, rendering Larisa the second NUTS3 region in the country, in terms of



number of this kind of livestock. Concerning the composition of the livestock in the same period, there is a large increase in the number of the nomadic sheep and goats (by 37%) as opposed to the decrease in the number of the domestic and sheep and goats in flocks, by 24% and 11%, respectively. The increase of nomadic sheep and goat farming is due, on the one hand, to the efforts of the farmers to reduce the feed cost and to the other to get the compensatory allowance granted to flocks declared in mountainous areas.

Forty cheese factories and artisanal dairies exist in the region of Larisa, of which 37 are certified to produce the PDO Feta cheese. A clear stratification is observed in the structure of these enterprises, into three distinct categories, according to the volume of milk they process: 11 cheese factories, with a processing capacity of more than 10,000 tons of sheep and goat milk per year, 15 medium-sized cheese factories and artisanal dairies, with a processing capacity between 1,000 tons and 10,000 tons, and the remaining 11 are small, which process less than 1,000 tons of sheep and goat milk per year.

After the conversion of milk into cheeses, the latter are distributed inside the RR (to local farmers markets and super markets), through a series of channels, including specialized dairy shops in the capital city of Larisa and other urban areas, which, in several cases are owned by cheese enterprises.

b. Flows connecting the different nodes in the regional food system

Milk derived from sheep and goats in Larisa, is used almost exclusively for the production of Feta cheese, the flagship of all Greek certified products. Feta is a PDO (Protected Designation of Origin) product, made from 70% sheep's milk and from 30% goat's milk; it is a type of brine-matured cheese, packaged in traditional wooden barrels, tin vessels, or wrapped in plastic. It has to be noted that the NUTS2 region of Thessaly, where Larisa is located, is the most dynamic in 'Feta' cheese production in Greece.

A small part of the production of milk (5.2%) is consumed within the RR after it has been transformed into cheese: 0.7% for self-consumption (0.5% from SF and 0.2% from large farms), 1% are the direct sales from farmers to consumers (who process this quantity on-farm), 2.0% are the purchases of consumers from cheese factories, and 1.5% are the purchases of consumers from supermarkets (which also import some negligible quantities).

c. Role of small farms and small food businesses within the food system

The majority of sheep and goat milk production (94.8%) is sold outside the region. The large part of this quantity (56.5%) is sold as cheese (mainly as Feta, and some other cheeses) from the 40 artisanal dairies and cheese factories that exist in the region. Most of these factories are also involved in the marketing and sales channel for cheese, with both wholesale and retail sales. This quantity of cheeses is directed into two different channels: 25% is exported mainly to Germany (which is by far the largest market for Feta exports; in value terms, the German market absorbed throughout the period 2007-2012, nearly one-third of all Greek Feta exports), as well to other European countries, Australia and Arab countries. The rest



31.5% of this quantity is sold to other Greek regions. It should be noted that the milk produced by SFs is not channelled or processed differently than that of larger farms.

In addition, 38.3% of the whole sheep and goat milk production of the region is sold in bulk to cheese makers in other Greek regions, especially the adjacent Trikala NUTS3 region.

d. Importance of household self-provisioning in small farms and small food businesses

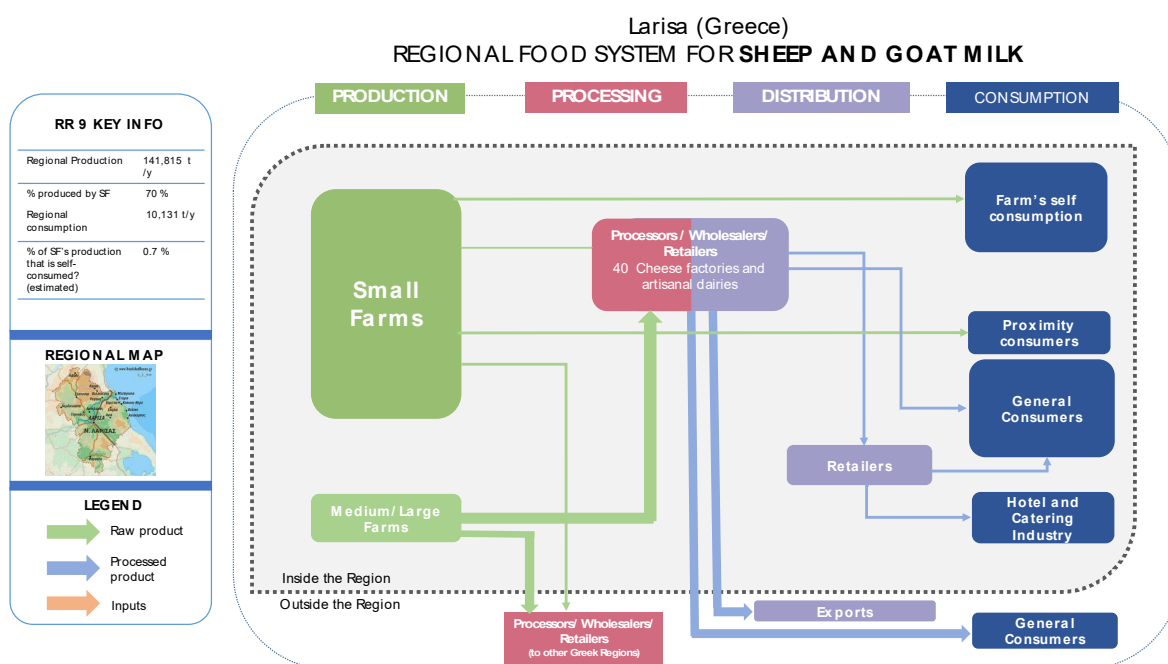
As already mentioned, self-consumption represents 0.7% of the whole production of the region, which is split into 0.5% for SFs and 0.2% for large farms. In absolute terms, the whole self-consumed quantity is estimated to 180 tons of Feta cheese or 720 tons of sheep and goat milk per year; in addition to this, small quantities of milk are self-consumed as fresh.

e. Other relevant information

In recent years, Feta cheese has had an increasing demand on foreign markets (EU, USA and Canada), due to the recognition of its specific quality, health benefits and integration in the Mediterranean diet. Production volumes of Feta have increased rapidly since 2005, i.e. after a final decision of the European Court ensuring the Feta cheese as a traditional PDO Greek product. A lengthy litigation had preceded for the validation of Greek identity of this product, as many countries systematically strove to usurp its name for their own benefit, misleading the consumers worldwide.

The sector presents some clear opportunities: Greece has, worldwide, the highest per capita cheese consumption, with almost 30 kilograms consumed annually. At the same time, Feta, along with other Greek cheeses and yogurt are the export leaders of the dairy sector, showing a consistent upward trend even during the current economic crisis. On the other hand, the sector faces a series of challenges. Although Feta is highly appreciated in foreign markets and regarded as a central element of the Mediterranean diet, stock-breeders and processors struggle to capture a greater share of the value created in the international value chain owing to a lack of a coherent strategy to promote and secure the specific attributes of this product. In addition, many efforts are required in numerous countries with the aim to protect feta cheese against unfair competition, as the European Regulation for the protection of this product is systematically violated, damaging the product itself as well as the reputation of Greece (Enterprise Greece, 2013). Even though Greece holds the exclusive feta PDO brand name, Greece's international share of feta type of cheeses is only 28%! (Mc Kinsey, 2011). Therefore, serious initiatives need to be taken, as scholarly research indicates that in the cases of products with geographic indications "reactions to counterfeits and imitations are more difficult to put in place due to collective action constraints and to limited financial resources to be devoted to the discovery of such situations" (Carbone, 2017).





3.2. Key product 2: Apple

- a. Nodes in the regional food system: production, processing, commercialization and retail

Larisa region ranks first in apple production in Greece, with 57,000 tons in 2015, which is 21% of the total volume produced across the country. Twelve different varieties of apples are produced mainly in semi-mountainous areas in the Central-East part of the region, around the municipality of Agia, one of the seven municipalities in Larisa RR, where apple tree cultivation has been expanding steadily since 1950.

Sixty-two percent of all farms engaged in apple production are small, producing 41.2% of the total quantity in the region. Official data (ELSTAT) record a peculiar decrease in the number of apple trees in 2013 (150,000 trees), along with an enormous increase in the next year (545,000 trees). However, local stakeholders and farmers did not confirm this abrupt change.

Besides farms, the whole system is quite concentrated, having as the main node 40 enterprises which collect the vast majority of the total production; of these, 25 are private and 15 are cooperative. Supermarkets within the region represent another minor node in the system.

- b. Flows connecting the different nodes in the regional food system



Through the main node of the system – the 40 private and cooperative enterprises – 92.7% of the total production is concentrated and stored. In the next phase, they sort, standardize, distribute and export the production. More specifically, 50% of the total production is exported to Balkan countries, Cyprus, African and Asian countries, while the rest 40% goes to other Greek regions, which, is divided into three categories: (i) wholesale enterprises which supply supermarket chains and middlemen in the main urban areas of the country, (ii) nation-wide supermarket chains, and (iii) big fruit companies, who then export apples and other fruits from Larisa, to other countries.

Moreover, 2% of the total production is sold from the above mentioned enterprises to super markets within the region, which, in addition, source 2.9% of the total production directly from farmers. Thus, in sum, 4.9% of the total production goes to general consumers within the region, through supermarket chains.

Another 4% of the total produce is sold directly from farmers to consumers in open-air markets and to a lesser degree at the farm gate.

Consequently, only a small part of total production (9.3%) is consumed within the RR: 4% as direct sales from farmers to consumers and 4.9% are the purchases of consumers from supermarkets, while the remaining 0.4% is self-consumption.

c. Role of small farms and small food businesses within the food system

Small farms are integrated into all the above mentioned nodes and flows of the system, producing 41.2% of the total produce of the region. In comparison to large farms, SFs are over-represented in some channels, such as open-air markets within the region (in some cases also in other Greek regions).

As far as food businesses are concerned, approximately one-third of all regional produce is concentrated and distributed through big fruit companies, while the remaining two-thirds from medium and small size enterprises. There are no differences in commercialization channels between small and large farms.

d. Importance of household self-provisioning in small farms and small food businesses

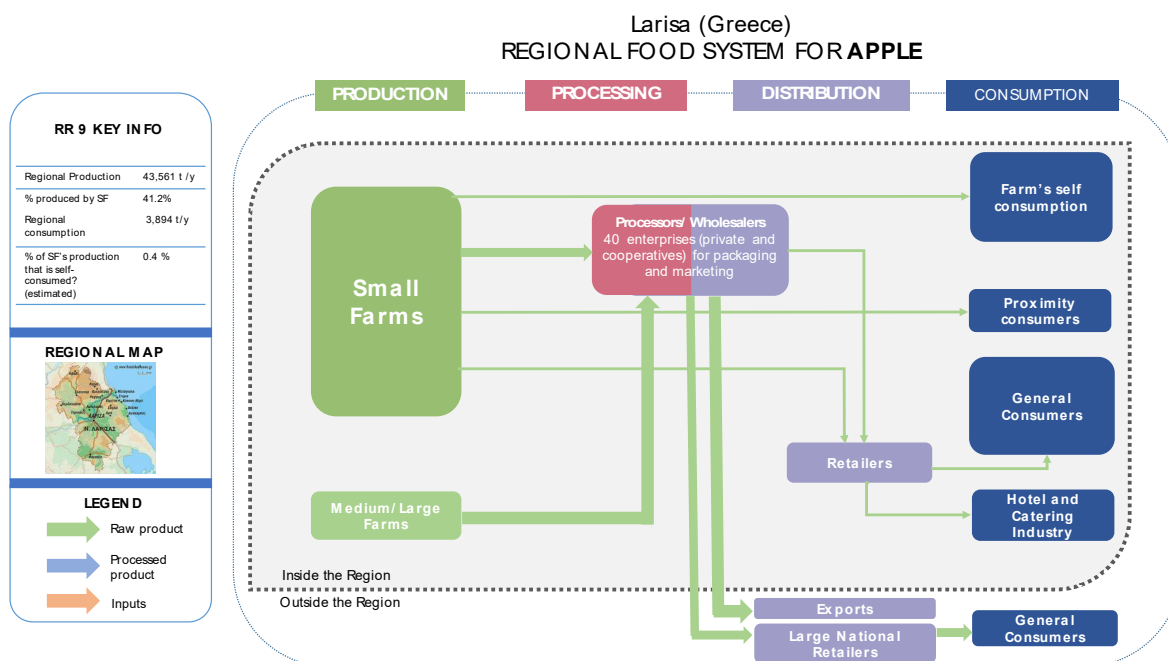
Self-consumption represents a negligible share of the total production of the region, i.e. 0.2% in SFs and 0.2% in non-SFs.

e. Other relevant information

From our field research ensues, that all apple producers in the region undertake a significant endeavor of apple trees renewal, by trying to replace old varieties with new ones every 10-15



years, in an effort to respond to changing consumer patterns. This process is evolving gradually, as every 4-5 years they replace a part of their apple groves.



3.3. Key product 3: Pulses

- a. Nodes in the regional food system: production, processing, commercialization and retail

Larisa region ranks first in the production of lentils and chickpeas, with 35% and 19% of the national production, respectively. In the period 2012-2015, the cultivated area with lentils and chickpeas has increased by 7%, with the latter expanding much more rapidly than the former (from a proportion 4:1 in 2012 to 1.3:1 in 2015). This confirms the interest of producers for pulses and justifies our choice of these products as one of the four RR key products.

The pulses cultivation is one of Larisa agriculture's success stories. Pulses are traditional crops which had been almost abandoned in the post-war era of agricultural modernization of the region, but during the last decade they are on the rise, being cultivated in an area of almost 2,500 ha. The commonly grown pulses are chickpeas, lentils and beans, which are cultivated mainly in plain areas of the southern part of the region.

Except for farms engaged in pulses cultivation, the basic node of the system are three small local enterprises which process, pack and market the production of the region. Super market chains are also involved in the retail of the products.



b. Flows connecting the different nodes in the regional food system

The vast majority of the total production of the region (86.1%) goes from farms to the 3 processing and marketing enterprises, 10% is sold from farms to super markets and grocery stores, while 3.2% is sold directly from farms to consumers within the region. The remaining 0.7% is self-consumed.

The three enterprises involved in the processing and marketing of pulses also import some quantities from other Greek regions, as well as from Canada and Brazil. Then, they sell to other Greek regions (50%), to super markets and grocery stores inside the region, whereas a quantity of about 6% of the total produce is exported to other countries.

Thus, a relatively significant part of total production (33.9%) is consumed within the RR: 30% from super markets and grocery shops, 3.2% is the direct sales from farmers and 0.7% is self-consumption.

c. Role of small farms and small food businesses within the food system

Twenty percent of all regional farms engaged in pulses cultivation are small, contributing with 12% in total produce of the region. Although large farms prevail, during the last few years, small farms are increasingly engaged in the cultivation of traditional varieties (local landraces) of pulses, with excellent results in terms of quality of products, satisfactory income, etc. Large farms, on the other hand, cultivate mostly imported varieties of pulses. The superiority of the local varieties in comparison to the imported ones, is affirmed by local residents, who increasingly re-appreciate their quality characteristics, such as taste and easy digestion.

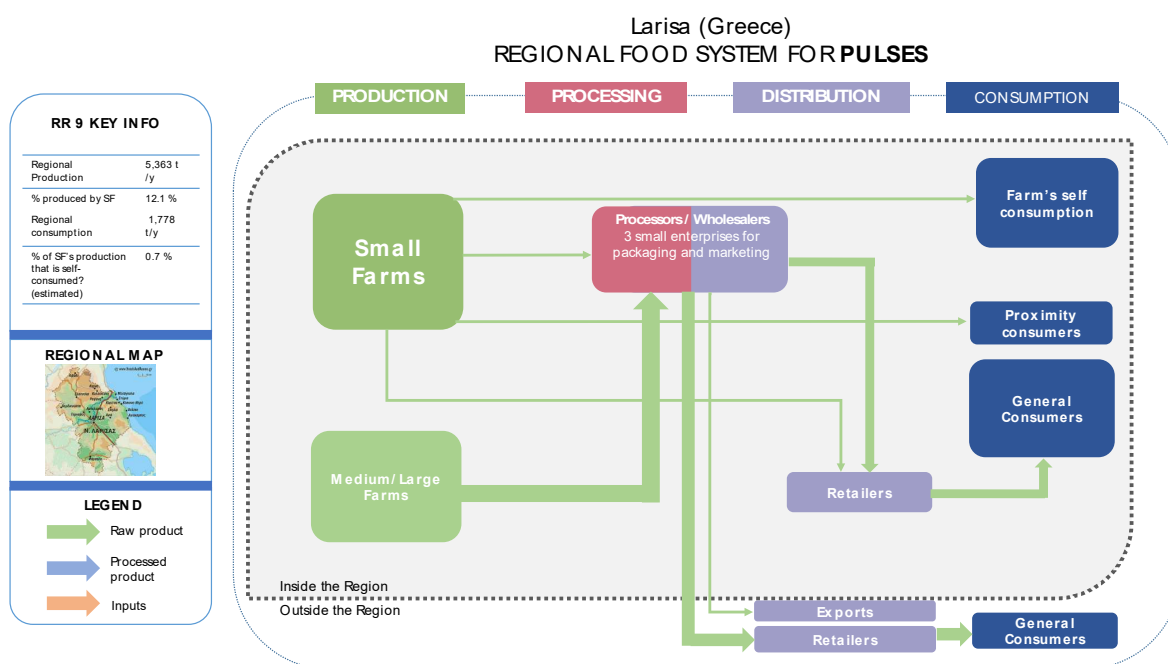
d. Importance of household self-provisioning in small farms and small food businesses

As already indicated, self-consumption represents 0.7% of the total production, which consists of 0.1% from SFs and 0.6% from non-SFs. It has to be noted that old-traditional varieties of pulses are 're-invented' and re-used by young farmers and new entrants in farming.

e. Other relevant information

Additional characteristics of pulses that render them attractive to young farmers is that they are totally mechanized and environmentally friendly cultivations. There's also a growing appreciation of these traditional varieties by local consumers, who find them much more digestible than the ones from foreign varieties.





3.4. Key product 4: Almond

- a. Nodes in the regional food system: production, processing, commercialization and retail

Almonds are another product in which Larisa region occupies the first place in the whole country, producing 30% of the total national production in 2015. The official data of the National Statistical Authority (ELSTAT) show a decrease by 140,000 trees in the number of almond trees during the period 2011-2014, while since 2015 a small increase has been recorded. Stakeholders and interviewed farmers confirmed this trend which continues at an increasing rate. The rising producer prices over six consecutive years (from 1.18 €/kg in 2010 to 2.70 €/kg in 2017) provides a strong incentive for farmers to plant almonds even in semi-mountain areas. Production of almonds in the region fluctuates and ranges around 10,000 tons/year, with rising trends after 2013.

The sub-system of nuts encompasses two main actors. On the one hand, approximately 3,300 farms which are engaged in almonds cultivation in the region. On the other, ten enterprises, which process the totality of production (cracking) and then carry out wholesale of the product. Super markets and specialty shops (selling nuts) are minor/negligible actors in the system.

It has to be noted that in Larisa there are 3 groups with 300 almond producers. Two of these groups with 130 producers each, are located in the centre of the RR. The 3rd is located in a semi-mountainous area in the north-west of the RR. This group has 40 farmers who have recently started to plant almond trees.



b. Flows connecting the different nodes in the regional food system

The bulk of the produce (85%) is sold to other Greek Regions, either to wholesalers (who then distribute it through their networks), or to specific industries, such as nationwide chocolate enterprises. In addition, 13% of the total volume is exported to France, Germany, Cyprus and other European countries.

A very small part of total production (2.1%) is consumed within the RR: 0.1% for self-consumption, while 1% are the direct sales from farmers (to consumers in open-air markets or to patisseries) and another 1% is purchased by consumers from super markets and shops specialized in nuts sales.

c. Role of small farms and small food businesses within the food system

Fifty-three percent of all farms engaged in almonds cultivation in the region are small, producing 38% of the total quantity. Nuts farmers are mostly located in semi-mountainous and plain areas.

The total production is processed (cracked) by 10 enterprises, eight of which are small and medium scale, each one not exceeding 300 tons of capacity. Only two enterprises are bigger, producing also products with their brand names.

d. Importance of household self-provisioning in SF and SFB

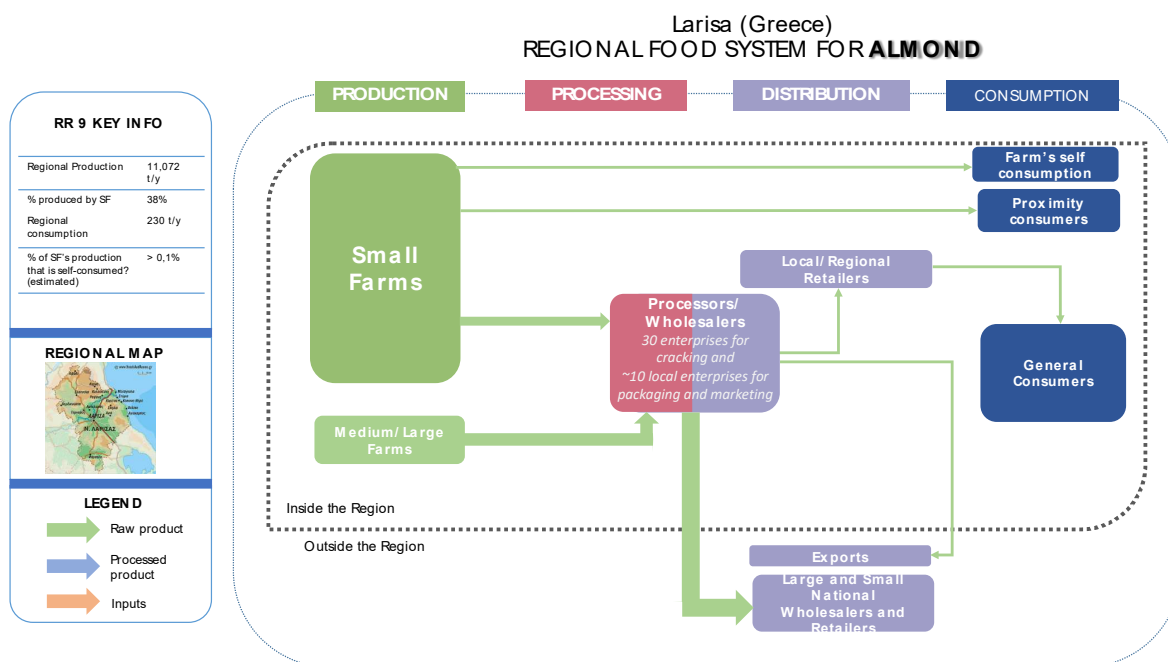
As already mentioned, self-consumption represents only 0.1% of the total produce of the region, which consists of 0.04% for SFs and 0.06% for non-SFs.

e. Other relevant information

Greece is the third largest producer of almonds in the EU-28, after Spain and Italy, and ninth producer at a global scale. As Larisa holds the first place in national production, this sector seems to be very promising for the upcoming years. This is evidenced not only from the rising producer prices, but also from the opinions of local merchants, who estimate that the volume of production will double in the next two years.

The expansion of almond cultivation within the region is also explained by the fact it increasingly becomes more profitable in comparison to other conventional and well established crops in the region, such as cotton or maize; the latter, face a rising cost of production (due to e.g. lack of water and growing expenses for irrigation), along with a reduction in subsidies.





Typology of small farms in the reference region

f. Small farm types in the region

We have allocated SFs in four types, according to the proposed small farm typology:

Degree of market integration		Degree of self-sufficiency	
		< 50%	> 50%
		Type 1	Type 2
Degree of market integration	< 50%	Type 1	Type 2
	> 50%	Type 3	Type 4

TYPE 1:

Type 1 represents approximately 10% of all SFs of the RR, consisting of residents of Athens, Thessaloniki or the city of Larisa, who maintain their family fields with olive trees or nuts trees in the rural areas of the region. They work on their farms for a few weeks a year, during the harvesting period, assigning other works to local workers (e.g. pruning). These people have farming as a secondary occupation or they are retirees, producing some agricultural products mostly for self-consumption. In addition, this production covers a low percentage of their total household consumption.

TYPE 2:

Type 2 consists of SFs with a holder aged more than 65 years, living in mountainous and semi-mountainous areas. These farmers cultivate olive-groves, apples and nuts, exclusively or mainly for self-consumption; additionally, they produce various vegetables in their home gardens. Thus, they have a very low degree of market integration along with a relatively high degree of self-sufficiency and a great variety of products. This Type represents nearly 5% of all SFs of the RR.



TYPE 3:

The majority of SFs (60%) falls into Type 3, with a high degree of market integration along with a low degree of self-sufficiency; they are the most professional small farmers with a high degree of specialization. One part of these farms (the one with apples) is located in Agia, a semi-mountainous area at the Eastern part of the region, while the fields with cereals, pulses, fruits and nuts are found in various plain areas of the RR.

TYPE 4:

Type 4 consists of another group of SFs (approximately 25% of all SFs) with high degrees of both market integration and self-sufficiency. These farms are diversified in terms of specialization, combining sheep and/or goats rearing, with fodder production for their animals (alfalfa, maize), as well vegetable production from home gardens, for self-consumption.

Governance

a. Main interactions of SF and SFB with governance structures in the region

One of the main interactions of SFs with governance structures is their engagement with the mechanisms of the Common Agricultural Policy (CAP), both the first Pillar (direct aids to farmers) and the second Pillar, especially investment aids and the 'Young Farmers' scheme. During the last call for this scheme, 802 applications have been approved in the whole region, while another 127 are waiting for a second round of approval.

It is worth mentioning that in Larisa, as in the whole country, all second Pillar schemes, including the above two, have been hit heavily from the on-going crisis of the Greek economy, e.g. from the non-ability of the Greek state to cover the national contribution to these co-financed programs, as well as the under-staffing of all public administrative services. Likewise, due to capital controls, the lack of available funds from the banking sector deprives farms from borrowing, in order to cover part of investment costs.

Another interaction of SFs has to do with the training of small farmers on the sustainable use of pesticides, and the procedure for granting them a certificate which will confirm the sufficient knowledge of sustainable use of pesticides. This training is carried out by public and private agencies which are adequately structured and organized for this purpose. The public bodies include the Organization ELGO-"DEMETER", Higher Education Institutions, and Benakio Phytopathological Institute. In addition, a series of private agencies are involved in this task, such as vocational training centers and lifelong learning bodies, licensed and certified by the Ministry of Education.

With regard to small food businesses, the support of investment projects through the National Investment Incentives Law or co-funded EU programs is the main interaction with governance structures. In our interviews, several entrepreneurs expressed a strong criticism



for the delays observed for the granting of aids after the approval, as well as for the overall financing conditions of the investment projects.

Also, a major problem for SFs in the region has been the cessation of fruit exports to the Russian market after 2014, as a result of the Russian embargo to EU food exports, which was a retaliation measure for EU sanctions against Russia.

It is worth mentioning that in this RR, as in many other parts of Greece, we have witnessed a reversal in attitude regarding the engagement of youth with agriculture, in contrast to long-lasting perception of primary productive activities as socially ‘unacceptable’ in the post-war period, and the unwillingness of farmers to urge their children to deal with agriculture. The case of young people who started cultivating pulses is not the only one in this respect.

Finally, the development of an ‘entrepreneurial’ spirit, especially from some dynamic groups of young livestock breeders in Larisa during the last years, is another substantial evidence, signifying an important change in established practices. The activation of these people within collective schemes, through new cooperatives or producer groups, is an additional indication of a new start on a ‘healthy’ basis.

b. Levels of governance and their relative importance for SFs and SFBs

The vast majority of small farmers are informed for new cultivation practices and new products by private agronomists, highlighting the lack of an effective public system of agricultural extension services.

Almost all farmers consider the role of cooperatives very important. Some of the most innovative and successful collective initiatives in the whole country have been developed in the region of Larisa, such as the dairy co-op ‘Thesgala’. Interestingly, one of these co-ops has been founded by a dynamic group of young stockbreeders in Elassona, in the northern part of the region amidst the crisis (in 2012), having established as a major player in the production of sheep and goat milk.

Likewise, significant initiatives of producer groups exist in the sectors of pulses and apples, including SFs.

Despite the difficulties within the ‘CETA’ agreement, great efforts are made to exploit the label of Feta cheese as a PDO product. This year, the Greek Inter-professional Organization of Feta was set up to enforce the product systems and specifications, as well as to protect the domestic goat-sheep sector by exploiting local sheep and goat production, to impose a regulatory framework to both internal and external markets, to protect authentic slices from various imitations, and play a key role in trade transatlantic debates when they are to deal with the risks of product misalignment and all forms of unfair competition.

In addition, this year, the major European-wide event ‘FETA 2018’ will be organized in Elassona. This organization involves milk producers, feta producers, equipment



manufacturers, packaging and distribution enterprises, tourism enterprises, operators and companies offering feta, Public Sector, Local Government, European Union, Embassies, Educational Institutions, aiming at product presentation, networking and developing partnerships of enterprises and operators involved in the chain production and distribution of feta, with the ultimate goal of creating national and international synergies.

Finally, some attempts have been done to certify the apples of Agia as a PGI product, with no success up until now. All the above initiatives actively involve SFs and SFBs, with a profound impact on their functioning and sustainability.

Finally, it has to be noted that in the whole endeavor of re-introducing some local traditional varieties of pulses into cultivation, the University of Thessaly is actively involved; in particular, some of its researchers, have provided the young farmers of pulses with valuable historical documentation on the critical role of Farsala area (the southern area of Larisa region) as the main place of supply of the whole Ottoman army up to the end of 19th century with superior quality pulses, such as chickpeas.

c. Constraints impairing full participation in the food system

A basic requirement for Greek farms to be eligible for support in the context of the 1st Pillar of CAP, is to receive direct aids of at least 250 euros; this holds for SFs in Larisa as in the whole country. Also, livestock breeders usually have to comply with a host of legal and bureaucratic procedures, which, in conjunction with the lack of a cadastral and a clear ownership status in rural areas (especially in forests), impedes their activities.

Furthermore, there are some implications arising from the asymmetry of power across various layers of the food system. For example, in some of the products of the RR the market structure is oligopsony, e.g. in Pulses and to a lesser degree in apples and almonds. This imbalance is partially mitigated by the effective operation of some producer groups, especially in the case of the almonds or by the direct sales from the farmers in the case of the pulses. On the other hand, SFs participate in export markets through established marketing channels of large exporting enterprises (private or cooperative) based in the RR. These exporting enterprises in turn, are very small, compared with the much larger international importers, who most of the times impose the terms of the transactions; this problem is perpetuated by the inexistence of a co-ordination among these exporting enterprises.

A factor which could act as a constraint for the participation of SFs in the food system, is their ability to adopt new crop or tree varieties, in order to overcome serious plant diseases and thus secure their position in the markets. This is the case especially of almonds, as, although the existing almond varieties have been very well acclimatized to the local area, new varieties should reach farmers in order to meet the consumer patterns. In this context, our interviewees and focus groups participants have stressed the lack of critical elements in the whole organizational and supporting infrastructure, such as certified nurseries, and effective collaboration with researchers (in both research institutions and universities).



Finally, it has to be noted that several processing enterprises have been modernized, e.g. cheese factories, based mainly on their own financial resources. That was easier to pursue before the advent of the crisis, as the provision of credit has reduced and the whole economic environment has aggravated during the last years. This technological and organizational modernization is not related to scale, i.e. both small and large farms and food businesses have already adopt it.

d. External policies, decisions and social norms affecting food systems

A mismatch between food production and sustainable use of natural resources, emanates from an excess use of chemical inputs by Larisas' farmers. In particular, the spectacular increase in chemical fertilizers use during the last decades, resulted in adverse consequences, such as groundwater pollution from nitrates. It has to be noted that one of the seven Greek 'Nitrate Vulnerable Zones' lies in the region of Larisa, in which a program for the reduction of nitrate pollution is implemented. According to the latest available data (Ministry of Rural Development and Food), up until March 2018, 4103 applications had been submitted, of which 760 were approved, for this project in Larisa.

e. Gender issues intersecting governance issues

Although our interviews show that the participation of women as leaders of farms and businesses is limited (in 2 out of 38 SFs and in 2 out of 11 SFBs), men and women do not seem to have an unequal access to markets and land. In some cases, women are involved actively in the production process, while in others they supplement family income by working in on- and off-farm activities. More information on this issue will be provided in the Regional Workshop Report.

f. Other actors and processes important for the regional food system

Despite the fact that Larissa holds the first place in the production of sheep and goat milk across the country and hosts several small and big dairy enterprises, a significant proportion of the local milk production goes to cheese companies in neighboring regions, especially Trikala.

As already mentioned, most of the exported almond production is exported in bulk into sacks or boxes of 10 or 20 kilograms, which highlights the opportunities for a vertical integration of the production process and/or the diversification of the final product, e.g. the use of a special almond variety for stuffed green olives.

g. Forms of collaboration and organization between small farms

No special forms of cooperation among SFs exist in the region. Co-ops and Producer Groups alike, include both SFs and large farms, without any special provision for each category. As already indicated, SFs participate in some cooperatives dealing with the



production of fruits (apples), and pulses. The effective operation of these co-ops is crucial for SFs, not least because they mitigate the power imbalance within the food system, which also translates into satisfactory producer prices and secured farm incomes.

h. Forms of collaboration and organization between small farms and consumers

Only informal relations between SFs and consumers have been recorder in the RR. Those relations are widespread, including the provision of various agricultural products (e.g. almonds, pulses and fruits) from farmers to neighbours and friends, as already noted. In some cases, consumers or neighbours and friends are invited by farmers to harvest the fruits or nuts by themselves, e.g. from one of the trees of a fruit or nut grove.

i. Relationship between small and large farms, and between small and large businesses

There are no specific relations, neither between SFs and large farms, nor between small and larger businesses, except for the 'usual' transactions in the context of the entire value chain of each of the key-products, as has been already described in the previous sections.

In the context of producer groups, some forms of complementary relations between SFs and large farms exist, though. Large farms are the 'locomotive' of a producer group, providing the bulk of the products and thus securing a minimum size of group's volume of production; as a result, both SFs and large farms benefit from this co-existence. On the other hand, those large farmers virtually control the function of the group, marginalizing SFs. Undoubtedly, these forms of 'unbalanced' governance structures need to be further investigated, as they strongly affect the operation of SFs and the terms of their integration into the wider food system.

j. Other governance issues

One of the themes highlighted in FGs has been the grave consequences of high taxation to the functioning of producer groups, as well as to the smooth functioning of the whole food system. In particular, high taxation creates favorable conditions for the enhancement of informal marketing channels, as transactions through 'formal' channels are heavily taxed and wholesalers delay payments to producers, i.e. farmers are paid after seven months of the initial transaction, a situation that has worsened after the imposition of capital controls in Greek economy in 2015. Consequently, farmers opt for informal transactions with unregistered traders, who can pay better prices (due to tax evasion), immediately, in cash. This was stressed especially in the case of apples, by some of the interviewed farmers and a focus group participant.

Furthermore, from the work carried out in FGs a number of issues were clarified, concerning the structure and function of the value chains in each of the key-products. For example, it was stressed that in all key-products, the large wholesalers usually reach an agreement for price fixing, i.e. the price in which they buy the products from producers.



The unequal distribution of power translates into differentiated financial potential between various actors of the chain, which in turn leads to strengthened dependence of the least powerful actors. For example, in olive-oil value chain, wholesalers are the strongest actors, providing financial facilities (down payments in cash) in olive-oil mills, which then can pay the farmers.

Small Farms and rural livelihoods

a. Importance of household labour in SFs

SFs represent 51% of all farms in the region, contributing substantially in human employment – they employ 36% of total farm labour in the RR, which corresponds to 7007 annual work units (AWUs). They also occupy 14% of total utilized agricultural area. In economic terms, their standard output is 28% of the total standard output of the regional agriculture, corresponding to 132 million euros; in some crops, this contribution of SFs is much higher than the average: 41.2% for apples and 37.6% for nuts (Source: elaborated data from Integrated Administrative and Control System for the year 2015).

The elaborated data of our interviews reveal that, on average, the total human labour employed in each farm, amounts to 1.75 AWUs. One-third of all interviewed farms employ more than 2 AWUs, mostly those engaged in livestock-rearing. Our sample farms rely mostly on their members to source the necessary labour (three quarters of the total labour needs, or 1.30 AWUs per farm). Consequently, one quarter of farms' labour needs (0.45 AWUs per farm) are covered by non-family labour, which is used by 32 out of 38 interviewed farms; this labour is offered mostly on an occasional basis (in 30 farms), while only two farms use permanent hired labour. Also, negligible quantities of non-family non-paid labour are used by two farms.

b. Farm and non-farm income in the SF's households

Data from our interviews show that, on average, 57% of total household income comes from the farm, while the remaining 43% derives from non-farm sources. Pluriactivity of family members is widespread, as 82% of farm households (HHs) report off-farm income. Interestingly, in all sample farms, the total farm income derives only from on-farm agricultural activities.

Moreover, we have calculated the total income of each HH, consisting of income from farming and all other sources; then, we calculated the per capita equivalent household income, by using the 'modified OECD equivalence scales' (Hagenaars et al. 1994; Eurostat 2017), assigning weights of 1.0, 0.5 and 0.3 to the household head, each of the remaining adults and each child in the household, respectively. By comparing the per capita equivalent income of a HH with the poverty line and the mean equivalent income in the regional economy for 2017, we find that 5 out of 38 HHs fall below the poverty line, 14 HHs have a middle income, and 19 HHs have a high income. As we see, the three categories of HHs vary substantially, across a number of indicators (tables 4 and 5). This classification of HHs



offers valuable insights, however, here, due to space limitations, we just present some of the elaborated data without any further comments.

Table 4: Income analysis by income level of HHs

	No	Total farm income (€)	Non-agricultural on-farm income (%)	Household income originated in the farm (%)	Total Household Income (€)	Equivalent Adult Members (€)	Per Capita Equivalent Household Income (€)
Poor HHs	5	4,760	0	65.5	7,263	2.2	3,326
Middle Income HHs	14	10,261	0	68.2	15,040	2.1	7,258
High Income HHs	19	21,184	0	53.5	39,601	2.0	20,542
All HHs	38	14,999	0	57.0	26,297	2.1	13,383

Table 5: Demographic and structural characteristics by income level of HHs

	Age (1. 18-30/ 2. 30-40/ 3. 40-50/ 4. 50-60/ 5. >60 years old)	Educational level (1. No formal education/ 2. Up to primary only/ 3. Up to secondary only/ 4. Technical or vocational training only/ 5. University Degree/)	Total UAA (utilized agricultural area) of farm unit (ha)	Number of plots	Proportion of land owned (%)
Poor HHs	3.2	3.8	8.5	10.8	76
Middle Income HHs	3.4	2.9	3.2	7.1	90
High Income HHs	2.9	3.8	7.0	4.9	96
All HHs	3.1	3.5	5.8	6.5	91

c. Shocks and coping mechanisms of SF households

Frequent agricultural policy changes, along with long-standing structural characteristics of the regional agricultural sector, have led to a deterioration of terms of integration of SFs into the agri-food system. The ongoing crisis, commenced in 2010, and the reforms in tax and insurance systems for farmers, have been recent additional shocks for SFs of the region. In response to these changes and shocks, some cooperatives and producer groups have been established in the region, in which both SFs and non-SFs participate. Interestingly, this activity covers a broad spectrum of sectors, such as dairy (Co-op THESGALA for cow milk, Co-op GALA HELLAS for sheep and goat milk), cereals (Co-op THESGI), apples (Co-op of AGIA), and pulses (Co-op of Pulses in Farsala). The effective operation of these collective entities has already proven beneficial for all participants, while it has overcome long-standing shortcomings of the co-ops in Greece.



Role of Small Food Businesses

d. Main insights and patterns

Small food businesses, either in processing or in distributing sectors, play a vital role in the function of the whole food system of the RR, with a multitude of up-stream and down-stream inter-sectoral linkages, generating incomes and securing a significant number of jobs. Therefore, they are part of the agri-food sector, which is the most dynamic one in the RR.

In the apple sector, except wholesalers, there are three enterprises, which are quite dynamic, that process the primary product. One of these companies was only recently founded, producing apple vinegar, while the other two, process apples into jam.

As already mentioned, 11 out of 40 cheese factories and artisanal dairies in the region are small, i.e. they process less than 1,000 tons of sheep and goat milk per year, while 15 of them are medium-sized, with a processing capacity between 1,000 tons and 10,000 tons per year. Small dairies have a local reach (either through local distribution networks or farmers' markets), while in some cases they benefit from the tourist demand in certain areas of the region. Also, some small-sized or somewhat larger dairies sell their product at retail shops in the major cities of the RR, mainly in Larissa capital city. It has to be noted that, most of livestock SFs, produce cheese for their own needs, as well as for the needs of their extended family members, while selling small quantities through informal channels.

As far as the almond sector is concerned, small firms offer crusher services, in cases where the farmer does not sell the seeds of the nuts. Businesses are local and most of them belong to almond farmers.

Finally, in the pulses sector, many producers dispose their product in bulk to their own consumer network; however, the high quality of the product could secure much better prices in foreign markets, as some exploratory efforts made by the local cooperative have shown. However, the volume of production is still small and cannot guarantee the supply of these markets.

e. Labour in SFB work

On average, total labour amounts to 4.65 AWUs per SFB, of which 38% is offered by family members, while the rest 62% by non-family labour. Four SFBs in our sample use only permanent non-family labour, two SFBs use non-family labour only on an occasional basis, while two SFBs use both forms of hired labour.

f. SFB income

Ten out of eleven SFBs combine their processing and/or distributing activities, with a primary production, i.e. they self-produce part of the raw material for their enterprise. Thus,



the average farm income of these composite entities amounts to 28,550 euros, while the mean turnover from the entrepreneurial activities is 469,318 euros. It is worth mentioning that the owners of SFBs report that their businesses contribute on average by 72 percent in their total income.

g. Shocks and coping mechanisms of SFB households

All the shocks referred above in the section for SFs, relate also to the SFBs, which are involved in the respective value chains. However, SFBs have the additional problems of austerity policy measures, such as capital controls, lack of liquidity, lack of credit, etc. Extroversion and modernization have been the responses of most of the interviewed SFBs.

The Future

d. Main objectives and priorities of SF for the future

Very interesting findings emerge from a preliminary analysis of the data derived from the interviews with small farmers. Despite the current economic climate, 42% of the interviewed producers (16 out of 38) are considering expanding their holding by buying or renting new land and/or increase the number of their animals, including 1 farmer who plans to modernize its farm through new investments in mechanical equipment (Group I). Besides, 12 farmers opt for a ‘defensive’ stance, i.e. to try to keep the holding in the present form without undertaking risks (Group II). In addition, 4 farmers are considering differentiating their production by cultivating new crops or new varieties (or new animals), or adopting organic methods of production (Group III), while 2 farmers will pursue an improvement of the quality and a certification of the production (Group IV). Only 1 farmer plans to contract the size of his farm, and another one to close it down (Group V).

Therefore, three quarters of all interviewed small farmers either will expand their farms or maintain them in the current form. Some indicative differences among these groups are the following: Groups III and IV consist of small farms with the youngest holders and the highest educational level, as well as the highest total household income. Group V has the lowest total household income, as well a low share of farm income to the total household income. Off-farm income has a high contribution in both Groups IV and V.

e. Main objectives and priorities of SFB for the future

The SFBs in our sample fall into three categories: (i) cheese and dairy enterprises, (ii) wholesale of fruits and nuts, and (iii) processing of fruits into jams, juices and vinegar. Most of these SFBs are also involved in distribution and some of them in retailing. Ten out of eleven interviewed SFBs apply a form of vertical integration, i.e. they source part of the raw material from their own primary production.

With regard to priorities of the SFBs, our field research shows that there is a differentiation in the objectives and priorities for the future between the enterprises, depending on the



activities they undertake. More specifically, cheese and dairy enterprises plan to apply a vertical integration, to genetically improve the flock, and to keep the farm in the current situation. Wholesalers of fruits and nuts have reported diverse objectives, such as extroversion (especially with exports to Arab countries); diversification to new activities (e.g. extraction of almond oil from almond seeds, and of fuel from by-products); contract farming with farmers-suppliers; guidance to farmers to produce in accordance with consumer habits and requirements; and finalization of GLOBAL certification. Moreover, the enterprises which process fruits, will pursue the creation of an outlet for retail trade in Athens, in cooperation with other partners.

Most of the interviewed owners of SFBs are optimistic about the future; six of them argued that “the future seems to be optimistic for all food businesses” (in one case due to the high quality of the local products), while three more enterprises contended that the future prospects of food businesses are good, if certain conditions are met, such as certificated products, infrastructure, stability and low taxation.

The SFBs in our sample that have survived the current crisis are well organized and financially sound, since they have overcome the cash flow restrictions and the fall of domestic demand. They are export oriented (mainly those engaged with apples and dairy, and to a lesser degree with almonds) and have established a strong position in foreign markets because of the high quality of their products and the commercial skills of the entrepreneurs. Therefore, the estimates of the future of these SFBs are favourable, despite the high taxation burdening them, which might result in the closure of those which are currently marginally viable.

All business owners point out the high tax burden, as well as a multitude of bureaucratic problems when exporting their products. Moreover, the lack of liquidity and high borrowing interest rates undermine the bargaining power of all food businesses in the region. Nevertheless, the vast majority of entrepreneurs would like to have a support from the state in their efforts to enhance extroversion.

f. Risk perception by SF

Within the five groups of SFs [see above section 8a] there is an almost unanimous identification of weather conditions as the main source of risk, which is followed by animal diseases. Delays in repayment from traders to farmers, variability of producer prices for milk and lack of financial liquidity have been referred as additional sources of risk by small farmers.

g. Risk perception by SFB

A series of diverse issues have been identified as the main external sources of risk for the businesses. High taxation ranks first (in five SFBs), contributing to an unfavourable economic environment, followed by lack of credit and the unpredictable conditions in the markets. Competition, delays in repayment from wholesalers and the increase of cost of



production due to labour expenses, which are higher than those in neighbouring countries, such as Bulgaria, are some additional sources of risk, identified by SFBs.

h. Food system forecast in 5, 10 and 20 years

Most of the participants in the FGs expressed their worries about the future of SFs, especially in the context of the continuing crisis and the consequences of restrictive policy measures, such as the new tax system. The only chance for their survival seems to be the intensification of collaborative, networking and quality-related activities, otherwise they will be further marginalized within the whole agri-food system of the region.

i. Other future related issues

A widespread concern was expressed in the FGs, concerning the consequences of the recently reformed tax system for farm incomes. This system, which has been applied since 2016, is expected to be particularly burdensome for both active people and retirees who earn a supplementary income from farming. Both these categories are the majority of small farmers, whose future is thus jeopardized.

As our analysis has shown, there is wide scope for further development of the value chains of Feta cheese, since the global demand for this product is on a strong upward trend and significant potential is still untapped. There is also an urgent need for upgrading of this value chain as a whole, as well as for an improvement of the terms under which many actors (especially small breeders and small food businesses) are integrated into the chain.

In this respect, as was stressed in previous sections, the dairy sector of Larisa is part of the broader dairy sector of the NUTS2 region of Thessalia, Central Greece, one of the most dynamic in the whole country. It is worth mentioning that, despite the crisis, during the 2009-2017 period, the value of Greek exports of Feta cheese have doubled, while this of Greek yoghurt has tripled. Despite a series of problems, the remarkable collective activities, initiated recently in Larisa, along with a progressive specialization of the region in quality products (such as Feta cheese), have already yielded tangible results, enabling both SFs and SFBs to be integrated into the regional food system under more favourable terms.



Annex: List of resources

b. List of key experts interviewed

Stakeholder Typology	Affiliation
Producers' cooperatives	Director, Expert on business administration, Agricultural Cooperative for sheep and goat milk at Elassona
	President at the Agricultural Cooperative of the Region of Larisa (Agia)
	Communication Director, Thesgi, Agricultural Cooperation of Thessaly
	Professor at University of Thessaly, Expert on Planning of the rural areas
Retailers	Owner at business with agricultural products.
Wholesalers	Owner at Business with agricultural products
Other programs/initiatives	President at Larissa Prefecture Development Company S.A. (A.E.N.O.L. S.A.)
	Active citizens
Chamber of Larisa	President in Chamber of Larisa
Agricultural administration/Ministry of Agriculture	Veterinarian, Directorate of Agricultural Economy
	Agronomist, Directorate of Agricultural Economy
NGOs	President of Executive Committee of WWF-Hellas

c. SF and SFB interviews and focus groups information

Stakeholder typology	N° of participants						How were they contacted?
	Interviews			Focus Groups			
	Men	Women	Total	Men	Women	Total	
Farmers	36	2	38	7		7	We contacted with all the participants by phone and to those invited to the FGs we <u>additionally</u> emailed the invitations. The regional Directorate of Agricultural Economy and
Producers' cooperatives				2		2	
Slaughtering facilities							
Processors (small/large)	5	1	6	1		1	
Wholesalers	4	1	5	2		2	
Retailers							
Caterers							
Other small food business							
Exporters				1		1	



Importers							Veterinary, the stakeholders, the cooperatives and the producer's groups as well as the interviewers themselves provided us the names of the small farmers.
Farm inputs suppliers				1		1	
Advisory services				2		2	
Agricultural administration/Ministry of Agriculture				3		3	
Consumers' groups/organizations							
Local administrators and policy makers							
Political leaders and PMs				1		1	
Other programs/initiatives					1	1	
Nutritionist							
NGOs							
Traditional and religious leaders (for Africa)							
Total	49			21			

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4.10. RR10 Ileia –Greece– Food System Regional Report



WP3

Ileia (RR 10) – Greece – Food System Regional Report

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Table of Contents: Food System Regional Report

1) Socio-economic and agricultural profile of the reference region.....	248
2) Key products and regional food balance sheet.....	250
3) Food system: Key nodes and flows and role of small farms and small food businesses.....	252
3.1. Key product 1: Olive oil.....	252
3.2. Key product 2: Orange.....	255
3.3. Key product 3: Pickled vegetables.....	257
3.4. Key product 4: Corinthian Currant.....	259
4) Typology of small farms in the reference region.....	261
5) Governance	263
6) Small Farms and rural livelihoods	267
7) Role of Small Food Businesses.....	269
8) The Future	270
9) Annex: List of resources	273



Socio-economic and agricultural profile of the reference region

Ileia is a NUTS3 region located in South-Western Greece, with a GDP per capita 66% of the national average, with a dominant services sector. The region has a clear agricultural specialization in comparison with the rest of the country, as agriculture contributes with 18% to the total Gross Value Added (GVA) in 2014, in contrast with 3.7% for the whole country. Ileia has a narrow industrial base, with industry representing only 8.3% of the total GVA (13.4% in Greece). Also, employment in agriculture is three times higher than the national average.

More than three-quarters of farms (77%) are classified as small (i.e. with a utilized agricultural area less than 5 ha), while the mean farm in Ileia has a comparable physical size, but a smaller economic size compared with the mean farm in the country. Olive Grooves for olive-oil production, alfalfa, citrus fruits and Corinthian currants are the main crops of small farms in the region.

Small farms employ 35% of the total labour force in RR's agriculture; 15.6% of SFs' labour force comes from non-family members, mainly immigrants from Bulgaria, Albania and Pakistan, in contrast to 22.1% in farms with UAA greater than 5 Ha. Additionally, SFs produce about two thirds of the total value of olive oil, more than half the value of oranges and about half the value of raisins.

Between 2009 and 2014 GDP per capita has contracted by 24% in Greece, nevertheless as appears the crisis' impact on Ileia has been slightly milder, with the respective reduction being 21%. Also, between 2008 and 2013 the value of exports (mainly agri-food products) of Ileia had risen by 23%, revealing a relative dynamism of its productive system.

Table 1: Basic data for the region

Indicators	Data per Region - Nuts 3
Land size (km2)	2,583
Population (thousands of people)	157,174
Density (people/km2)	60.8
GDP (thousand USD/inhabitant)	12.41
Total labour force in AWU	26,053
Total number of holdings	26,573
Total Agricultural area (ha)	120,100
Total Utilized Agricultural Area (ha)	90,100
Agricultural Area in Mountain Area	32,330
% of UAA in the RR	34.88%
Average Farm size	4.95
Number of farms by UAA farm size: 0-5, 5-20, 20-50, >50ha	20,434; 4,757; 1,221; 161
Average size of farms < 5ha of UAA	1.78
Area of main crops (ha) (list the relevant crops below)	



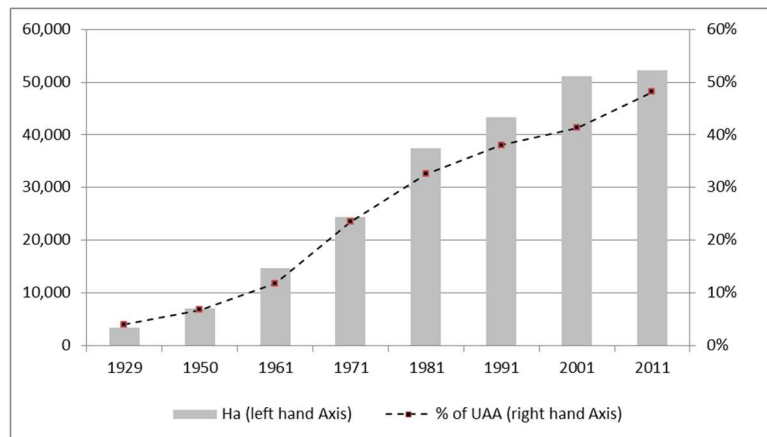
Olive Grooves for Olive-Oil production	38,008.86
Alfalfa	25,811.07
Fallow Land	6,275.28
Green Maize (for grazing)	4,570.51
Outdoor Vegetables	3,353.98
Maize	3,350.29
Citrus Fruits	2,688.44
Currant	2,550.56
Vegetables in Greenhouses	2,094.71
Potatoes	1,792.31
Cotton	542.28
Wine Vines	373.34
Nuts	177.9
Olive Grooves for Table Olives production	88.74
Area of main crops (ha) in farms < 5ha of UAA (list the relevant crops below)	
Olive Grooves for Olive-Oil production	23,968.97
Alfalfa	4,363.63
Fallow Land	1,862.92
Citrus Fruits	1,494.95
Currant	1,215.16
Maize	758.43
Outdoor Vegetables	645.87
Green Maize (for grazing)	616.83
Vegetables in Greenhouses	395.27
Wine Vines	150.74
Potatoes	86.92
Cotton	56.49
Nuts	51.79
Olive Grooves for Table Olives production	23.93
Livestock (LSU) per type (list the relevant types below)	
Bovine	7,042.6
Sheep	28,431.0
Goats	5,312.4
Pork	1,264.4
Poultry	3,980.2
Livestock (LSU) per type in farms < 5ha of UAA (list the relevant types below)	
Bovine	146.4
Sheep	752.1
Goats	137.0
Pork	109.9



Poultry	3,780.0
Annual work units (AWU) by UAA farm size: 0-5, 5-20, 20-50, >50ha	9,162.7; 9,219.3; 5,708.9; 1,929.0
Total family labour per farm size: 0-5, 5-20, 20-50, >50ha	7,736.7; 7,632.3; 4,154.3; 1,350.3

The main vehicle for the transformation of Ileia's peasant agri-food system to a modern, market-oriented one has been the production and trade of Corinthian currants since 19th century (Spyropoulos 2016). Ileias' agri-food system has undergone a major change during 1960s, after the construction of large-scale public infrastructure projects, which enabled the expansion of irrigation (fig. 1), as well as the intensive use of chemical inputs and the substantial mechanization of farming; the number of tractors has more than doubled from 1971 until 2011.

Figure 1: Irrigated land in Ileia (Ha)



However, the system still retains its small-scale character, as small farms represented 88% of all farms in 1929 (ELSTAT 1934), while they still represent 77% in 2013 (ELSTAT 2017). Thus, after late 1960s the system has become much more market oriented, with a multitude of new intensive cultivations, such as irrigated outdoor vegetables, vegetables in glasshouses, processed tomatoes and many others. Nowadays, olive groves for olive-oil production, alfalfa, citrus fruits and Corinthian currants are the main crops of SFs in Ileia. Small farms employ 35% of the total labour force in Ileias' agriculture; 16% of this labour force comes from non-family members, mainly immigrants from Bulgaria, Albania and Pakistan, in contrast to 22% in farms with UAA greater than 5 Ha.

Key products and regional food balance sheet

a. Key products produced and consumed in the region

Apart from the criteria mentioned in the Analytical Framework of SALSA, in the selection of the key-products we have tried to take into serious consideration:

1. Crops with a significant presence of SFs, so pickled vegetables were chosen (instead of potatoes, watermelons, strawberries or tomatoes), i.e. the vegetables that are



produced by small farms (mostly green peppers) and then processed by food businesses into a ‘pickled’ form.

2. The existence of an extended pool of SFBs related to small farms;
3. Special characteristics which render some key-products particularly important for this RR (Olive-oil, a traditional product with the highest rate of self-consumption, and Corinthian Currant, another traditional product, which has been the ‘engine’ of the regional economy since 19th century).

Of particular importance to the selection of key-products has been the use of elaborated data of the Integrated Administrative Control System (IACS) for this RR. Thus, the four key-products are as follows:

Table 1: The four key-products in Ileia region

	Number of Small Farms/Number of All Farms for each key-product	Standard Output of Small Farms/Standard Output of All Farms for each key-product
Olive-Oil	80%	63%
Oranges	75%	56%
Pickled Vegetables	47%	19%
Corinthian Currants	62%	48%

Source: IACS, Elaborated Data

From the 63 different products that have been recorded in our Balance Sheet, only 15 have a deficit in total consumption. For these 15 products, either the contribution of SFs was insignificant, or their production volume was negligible, so we selected none of them. As for the Balance Sheet, we used data from the Household Budget Survey, 2014, at NUTS2 level, since EFSA provided no data for Greece. More specifically, we have consumption per household, for a detailed list of food items, distinguished into five categories: (1) ‘Purchases’, (2) ‘Own Production’, (3) ‘Own entrepreneurial activities’, (4) ‘Other Sources’ (e.g. exchanges among households), and (5) ‘From the employer’.

Also, for some specific products of particular interest for our project (e.g. olive-oil) we have adjusted the above data, on the basis of information derived from our interviews with stakeholders. Given the criteria set by our project for the selection of the key-products, the importance of these staples is reflected in our sample farms. Additionally, there are some other important key-products in the RR (e.g. watermelons, potatoes and strawberries) in which, nevertheless, the presence of SFs is minimal; those key-products were also mentioned during the FGs, but after the presentation of all data that had been elaborated by the AUA team, the participants validated the selection of the above mentioned four basic key-products.



- b. Balance of production and consumption of key products in the region

Table 2: Balance Sheet for the key-products in Ileia region

	Surplus (+) or deficit (-) in the Balance Sheet
Olive-Oil	+1110%
Oranges	+1331%
Pickled Vegetables	+524%
Corinthian Currants	+6235%

Source: Our Balance Sheet

- c. Official statistics and key products in the region

We have tried to validate the official data with estimates from experts, as well as data from our interviews.

Thus, in contrast to an average yield of olive oil amounting to 0.79 tons/ha which is recorded for the four last years in the official statistics, we have found that olive trees' yields vary significantly between farmers (on average, 2.0 tons/ha in the southern part of the region, in contrast to 0.7-0.8 tons/ha in the northern part, over the last 4 years). This may occur due to the density of planting - 150 trees/ha for old olive groves, in contrast to 250-300 trees/ha for recently installed -, the yield of non-irrigated and irrigated olive groves (rain fed olive groves produce lower quantities of olives, but with a higher content in olive-oil) and finally the cultivating practices.

The average yield per ha in oranges, recorded in secondary sources (National Statistical Authority) is 50% lower, compared to expert estimates and data from our interviews. Likely, this is owing to the inclusion of farms with very young trees, as well as areas with minimal cultivation care, either due to high production costs or due to indifference of the owners.

In Corinthian currants, the secondary data show a yield (5.1 tons/ha for 2014), which is up to 60% higher than that for the previous 4 years (3 tons/ha). According to experts, only the yields of the new vineyards can reach 5 tones/ha, significantly higher than those of the old vineyards. Finally, for peppers, expert estimates coincide with those in the sample (30.5 tones/ha), while there is a slight deviation from secondary sources (22.7 tones/ha).

Food system: Key nodes and flows and role of small farms and small food businesses

3.1. Key product 1: Olive oil

- a. Nodes in the regional food system: production, processing, commercialization and retail



Olive-oil is one of the most characteristic products of Ileia, whose production traces back to antiquity. Olive groves are found in all mountainous, semi-mountainous and a few plain areas, representing 41% of the utilized agricultural area of the region.

The vast majority of farms (23164 farms, or 87% of all farms) in the RR cultivate olive trees for olive oil production. Besides farms, the main actors involved are 119 olive-oil mills (of which, 6 belong to farmers' cooperatives and 113 are private), 8 packaging enterprises and 5-6 large wholesalers. In quantitative terms, wholesalers are the major actors, as they trade two thirds of all quantities of olive-oil. The totality of olives' production is processed within the RR. In the processing of olives for the extraction of olive-oil, 119 enterprises are involved, disposing an olive-oil mill, while 84 of them are also involved in the olive-oil marketing (both wholesale and retail sales). Ten percent of all mills are large, i.e. processing more than 1,000 tons per year.

b. Flows connecting the different nodes in the regional food system

The majority of the produce (63.5%) is exported to other countries, 20.5% to other Greek regions and the remaining 16% is consumed within the RR. More than three quarters of all exports are in bulk form: 57.5% mostly to Italy (and other European countries), and 20.5% to other Greek regions. Only 6% of the total production is packaged and exported with a brand name, mainly to the USA, China, Japan and Kazakhstan. The quantity which is consumed within the RR (16.5%) is divided into: 7.0% for self-consumption, 2.0% for gifts from farmers to extended family members, relatives and friends, 2.5% for direct sales from farmers to consumers, 2.0% for purchases of consumers from oil-mills, 1.5% for purchases of consumers from super markets (which also import some negligible quantities), and 1.5% for consumption of tourists in the restaurants and hotels.

The most important external shock is the fluctuation of olive oil's price, which is mostly affected by the production volumes of the two leading countries in the sector, i.e. Spain and Italy. When the production of these two countries is not too high, producer prices in Greece (including Ileia region) are quite satisfactory, as in the last 2-3 years. Otherwise, the whole system of Ileia region is severely affected by a fall in prices, depressing incomes of all actors involved, especially the most vulnerable ones, i.e. farmers.

c. Role of small farms and small food businesses within the food system

Ninety-one percent (91%) of all SFs cultivate olive trees for olive oil production, producing 63% of the total quantity of olive oil in the RR. SFs are actively involved in many different markets and flows; in particular, they sell directly to consumers within the region and in other Greek regions, they also sell significant quantities to wholesalers, to packaging enterprises and to processors, while they give some quantities to their family members and friends. All these flows are quantified and depicted in the following Key-product 1 map (Figure 1). It has to be noted that the extraction of oil from olives takes place only to olive mills, i.e. there is no on-farm processing of olives; olive mills keep 10%-11% of the extracted oil production



as their reward, while the rest of the oil quantity is taken by farmers, who then use it for self-consumption and disposal to all the above channels.

Non-market exchanges are widespread, concerning mainly olive-oil, which is given to extended family members and relatives, usually living to other regions. The share of total production which is sold directly from farmers to their own network of customers, to open-air markets and extended family members and friends, is much larger for SFs than for large farms. Also, only a few SFs package their production since the quantity is limited, however, some groups of farmers (encompassing small and large olive-oil farms) have been formed and have created their own packaged product.

Moreover, our interviews with SFs show that half of interviewees who produce olive-oil, have established their own consumer network, while a quarter of them sell their production exclusively to their own consumer network.

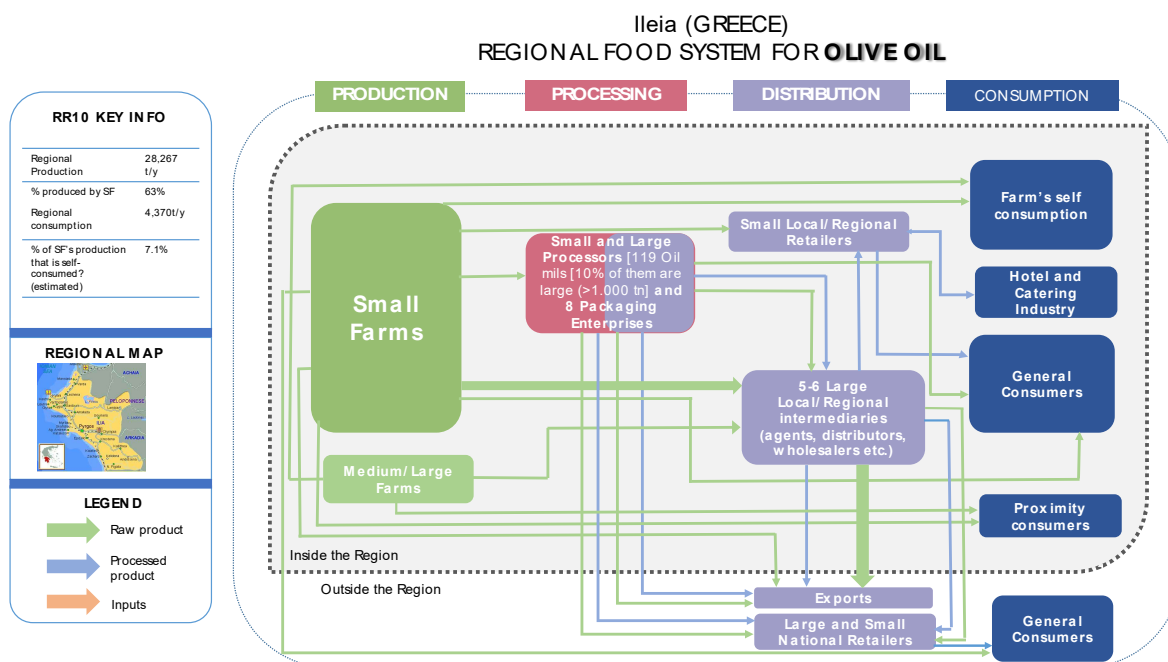
d. Importance of household self-provisioning in small farms and small food businesses

Olive oil is a basic component of Greek diet since antiquity, while Greece has the highest olive oil consumption per capita in the world. Self-consumption rates are usually high for all farms involved in the production of this product. From all available data, besides interviews, we have estimated that 7.1% of the whole olive oil production of all SFs in Ileia is self-consumed. However, our interviews with SFs show that 28 out of 42 farms produce olive oil, either as a 1st, 2nd or 3rd product; on average, these farms self-consume 20% of their olive oil production.

e. Other relevant information

In Ileia there's one product with protected geographical indication (PGI), the 'Olympia' olive-oil, named after the birth-place of Olympic Games, the ancient Olympia, which covers nearly half of the total olive-groves area in the RR. In this quality product, 59 oil mills are involved, along with 11 standardizing units and 3 marketing enterprises. However, negligible quantities of this PGI olive-oil reach the final consumer as a certified product, due to a lack of a strategy for securing the identity of this product, as well as insignificant quantities produced from 'kollyreiki' cultivar, which is one of the two constituting elements of the product. Apart from some technical characteristics of this olive landrace (e.g. a sensitive fruit which is vulnerable to insects and has to be harvested very carefully by hand), it has also faced a fierce antagonism by other crops in the area, such as Koroneiki olive variety, or Corinthian currants, which, for a series of years have been more profitable, thus leading to Kollyreiki uprooting.





3.2. Key product 2: Orange

- a. Nodes in the regional food system: production, processing, commercialization and retail

Citrus fruits are an important category of Ileias' agricultural products, consisting mainly of oranges, to a lesser extent of mandarins and even less of lemons. In the cultivation of citrus fruits, 2505 farms are involved, of which three-quarters are small; the Standard Output of these SFs corresponds to 56% of the total Standard Output of all citrus farms. These figures derive from detailed IACS data, including all farm sizes, which have been elaborated by members of our team and are considered as reliable.

The dominant players in the whole food sub-system of oranges are 26 packaging enterprises who act also as wholesalers (one of them is a co-op). Three producer groups and one coop, play also a significant role in the concentration of production and the negotiation of prices with the wholesalers.

- b. Flows connecting the different nodes in the regional food system

Ninety percent of orange production is exported, of which 54% to other countries, 25% to other Greek regions for juicing, and 12.9% to consumers in other Greek regions. Only 8% of the total orange produce is consumed within the RR: 1.6% is self-consumption (0.9% and 0.6% from small and large farms, respectively), 1.7% is offered as a gift from farmers to relatives and neighbours, 2.0% is sold in open-air markets, while 2.8% is distributed through super markets, restaurants and hotels.



The whole sub-system of oranges in Ileia has been adversely affected by shocks such as: (i) the outbreak of a disease during the last three years ('Dialeurodes Citri'), and (ii) the retaliation measures of Russia since 2014, against agri-food imports from EU countries.

c. Role of small farms and small food businesses within the food system

The dominant packaging enterprises who act also as wholesalers, trade 91% of the total produce. Small farmers sell 46% of their produce to the producer group/cooperative they belong to and another 47% to the packaging enterprises-wholesalers; very small quantities are sold by SFs in open-air markets within the RR (2.8%), or given as a gift to family members and friends (1.7%), while 0.9% is sold to super-markets, hotels and restaurants within the RR. Self-consumption represents 1.6% of SFs' total production.

d. Importance of household self-provisioning in small farms and small food businesses

As noted above, from all available data, besides interviews, we have estimated that 1.6% of the whole orange production of all SFs in Ileia is self-consumed. Moreover, our interviews with SFs show that 20 out of 42 farms produce oranges, either as a 1st, 2nd or 3rd product; on average, these farms self-consume a negligible share of their orange production, which does not exceed 1%.

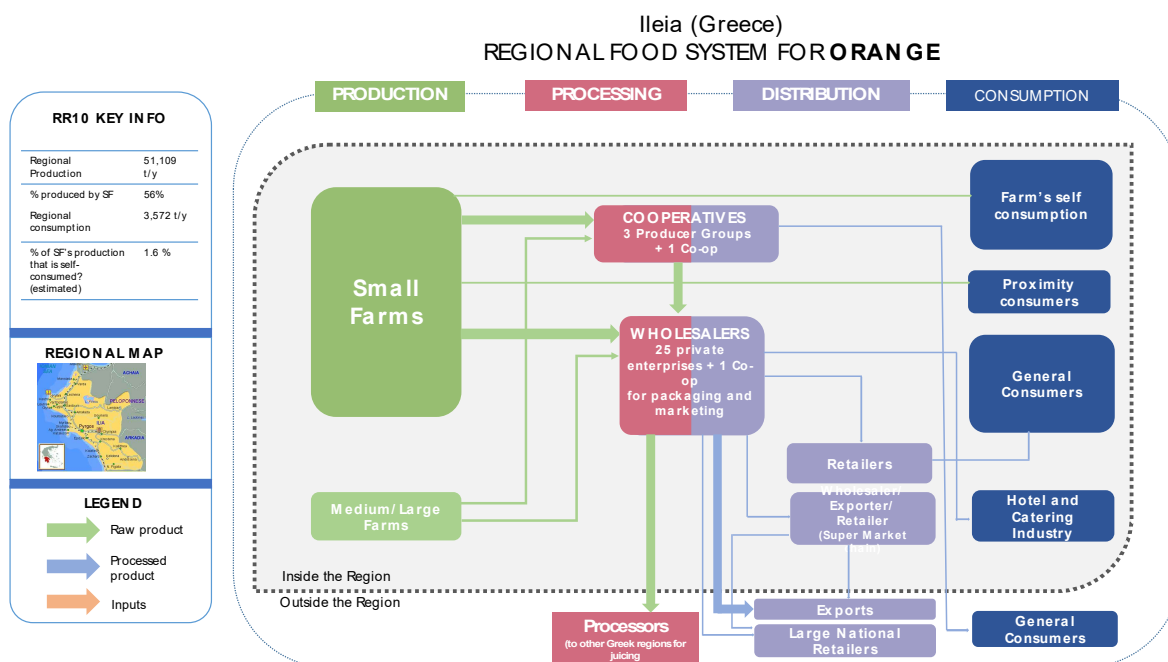
e. Other relevant information

All second quality oranges are directed for juicing to the Greek regions of Lakonia and Argolida. The latter category has risen during the last years to 25% of the total production due to an insect outbreak ('Dialeurodes Citri') that affects the appearance of the fruits. This concerns mostly orange grooves in the central areas of the RR, and it is due to the excess use of pesticides that reduced the population of beneficial insects.

Another interesting aspect of this sub-system concerns the distribution of 3% of the total orange production from producer groups to special consumer groups, who are food insecure. This project is subsidised by the EU and mediated by local municipalities; oranges are directed mostly to consumers in other regions of the country (2.9%), compared to those in the RR (0.1%).

Finally, in both oranges and olive-oil, another informal network exists, which is not portrayed in the food maps: between wholesalers and farmers, a group of intermediaries (experienced Albanian workers) plays the vital role of recruiting farm workers, who form groups for the harvesting of fruits. These people started as seasonal farm workers from early 1990s then undertook lots of sharecropping activities, and today they are the owners of a moderate number of farms.





3.3. Key product 3: Pickled vegetables

- a. Nodes in the regional food system: production, processing, commercialization and retail

Some of the outdoor vegetables which are cultivated in Ileia are supplied to processing enterprises for the production of pickles. These are mainly small green peppers, along with some quantities of small cucumbers, eggplants, and carrots. Small green peppers are a special local variety which is not used for fresh consumption, but only for transformation to pickles; they are cultivated by both small and large farms, either as a sole crop, or as a main crop in combination with other vegetables (e.g. green beans, zucchini, watermelons), or with olive groves and Corinthian currants.

Approximately 600 SFs in the region are engaged in the production of these vegetables for pickles. The key node in this sub-system consists of six enterprises (4 large and 2 small ones), which are the dominant players in the region; they act as processors and wholesalers for the totality of the produce. The largest enterprises, except for pickles, are also involved in the packaging and trade of table olives and olive-oil.

The whole system of fresh vegetables for pickles has been established since early 1960's, encompassing small and large farms, along with the related processing enterprises, in the north part of the region. Both formal and informal relationships based on long-term mutual trust have been developed among these actors, so it is not difficult for a SF to become a supplier for a processing enterprise. Overall, there is no shortage of raw material for the processors, however, there is an uncertainty emanating from the use of non-certified seeds in the cultivation of peppers for pickles, which has led to a high product heterogeneity as well as to yield reductions.



b. Flows connecting the different nodes in the regional food system

Ninety percent (90%) of the total production is exported to other countries (80%) and to a lesser degree sold to other Hellenic regions (10%). Sixty percent of the produce is traded in bulk, while the remaining 40% is exported as a packaged product. The remaining 10% is bought by consumers within the RR, more concretely, 5.0% from super markets and grocery shops, 4.95% is consumed in restaurants and hotels, while self-consumption corresponds only to 0.05% of total production (0.03% by SFs and 0.02% by non-SFs).

c. Role of small farms and small food businesses within the food system

Almost half of all farms that cultivate vegetables for pickles are small, which nevertheless contribute with 19% to the total produce of the RR. Small farms are fully integrated into this sub-system, providing the necessary input to the regional processing enterprises.

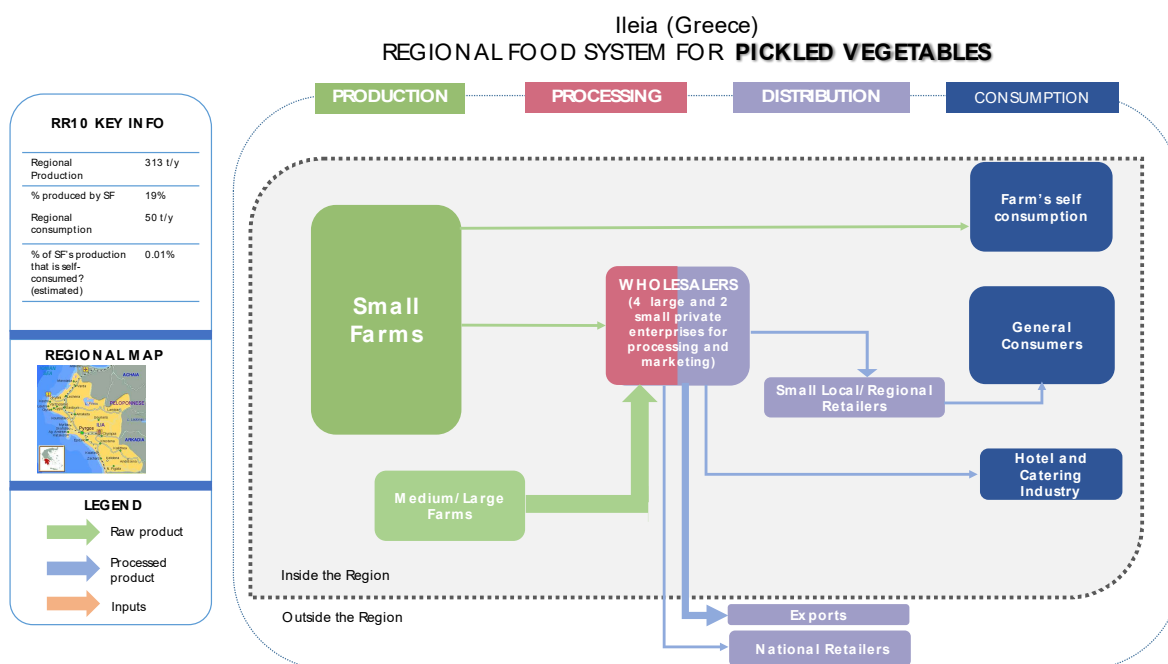
d. Importance of household self-provisioning in small farms and small food businesses

Self-consumption is negligible compared to the total quantity produced in the region.

e. Other relevant information

Vegetable cultivation for pickles is an intensive one, carried out on a contractual relationship (both formal and informal) with the processing units. Compared to the other three key-products, this sub-system is quite ‘concentrated’, as the dominant 6 enterprises process the totality of the produce; the same enterprises trade their processed products as wholesalers, in both domestic and foreign markets, hence they apply a form of vertical integration. In the context of the abovementioned long-term relationships, technical advice is provided to SFs by agronomists hired by some of the processing enterprises. A serious challenge for the whole system has been the fulfilment of concrete demands of major importers, such as the production of pickles according to ‘kosher’ or ‘halal’ standards, to which the processors of Ileia have successfully responded. There remains, of course, the problem of the heightened variability in the quality of the raw product (green peppers) as already indicated, which makes difficult the adherence of farmers to specific demands of the processing enterprises.





3.4. Key product 4: Corinthian Currant

- a. Nodes in the regional food system: production, processing, commercialization and retail

Corinthian Currant (CC) has been the 'trademark' of the region for a long time during the 19th century and early 20th century. Thus, CC has been the main commercial product of the region, acting as a vehicle for the transformation of the regional peasant economy to a market economy.

Today, it is cultivated in 2551 Ha, by 2231 farms. In most of the cases, CC is part of mixed farming systems, combined with olive groves and citrus fruits in semi-mountainous and mountainous areas. Data from the Greek Statistical Authority show that between 2013 and 2014 the total area cultivated with CC in the RR decreased by one third, but this information has to be validated and confirmed.

The key node in the sub-system of CC are two processing, packing and marketing enterprises of currants.

- b. Flows connecting the different nodes in the regional food system

Except for negligible quantities, the production of the region is exported to foreign markets (50% mainly to: England, Germany, the Netherlands, Pakistan and India), as well as sold to other Greek regions (49%). A significant part of the latter percentage (45%) is directed to the adjacent regions of Achaia and Messinia in bulk, where it is mixed with the local production, packed and exported to foreign markets.



More than half of production is packed from the two processing, packing and marketing enterprises of currants, with exclusive export orientation. Self-consumption represents just 0.1% of the whole produce, while 0.1% is sold directly from the farmers, either in open-air markets or to a small network of clients; another 0.9% is bought by Ileian consumers from supermarkets.

c. Role of small farms and small food businesses within the food system

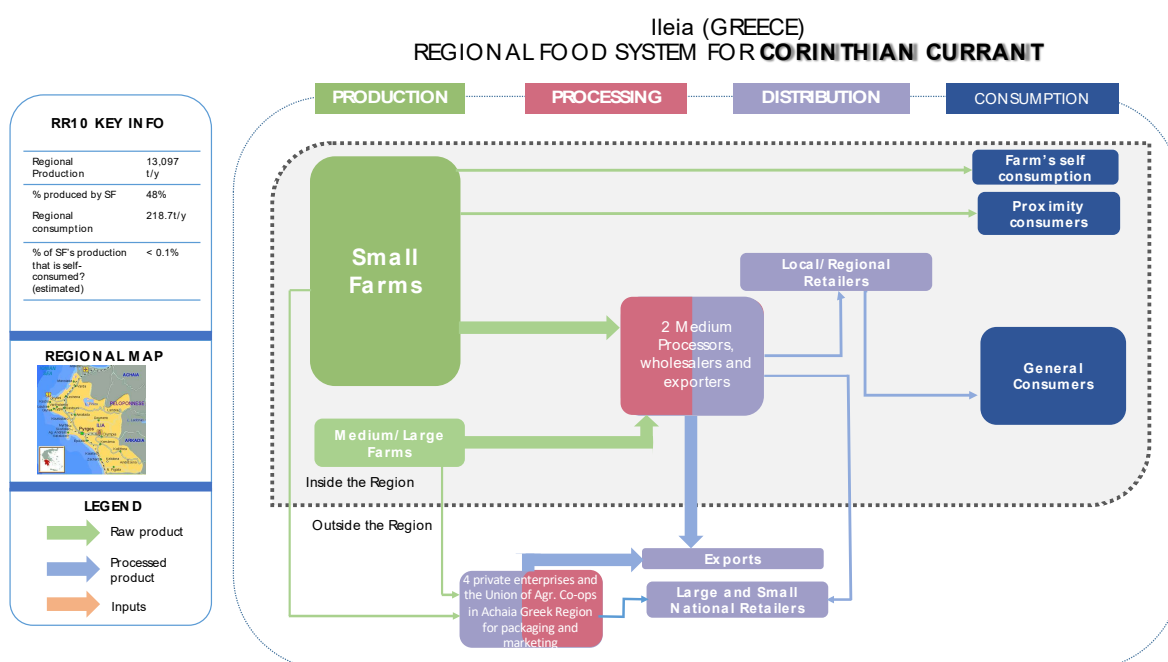
As a 'trademark' of agriculture in this region, Corinthian Currants cultivation and treatment is deeply rooted in the local culture. Nowadays, 2231 farms are involved in the production of CC in Ileia region; of these, 62% are small. SFs produce approximately half of the total quantity. Each farm dries its grapes in special places ('alonia') within the fields, under the sunlight.

d. Importance of household self-provisioning in SF and SFB

As noted above, self-consumption represents just 0.1% of the whole produce.

e. Other relevant information

Recently, a growing body of scientific literature documents the high nutritional value of CC, considering it as a 'super food', due to its high content in anti-oxidant elements. Therefore, under some prerequisites, CC could be an attractive alternative for small farms in the RR.



Typology of small farms in the reference region

a. Small farm types in the region

By using the typology proposed in the conceptual framework of SALSA, we classify all small farms of the region, according to two criteria, i.e. the degree of household self-sufficiency (the percentage total household consumption which is own-produced) and the degree of market integration of the farm (marketed production on total production). Thus, the following typology emerges:

TYPE 1 [low self-sufficiency and low market integration]:

Type 1 represents approximately 25% of all SFs of the RR, consisting of residents of urban areas (both within the RR and Athens), with family olive-groves in Ileia. These people have farming as a secondary occupation, and they produce olive-oil exclusively or mainly for self-consumption, hence they have a very low degree of market integration. Also, this produce covers a low percentage of the total household consumption. Most of these farms are located in mountainous and semi-mountainous areas.

TYPE 2 [high self-sufficiency and low market integration]:

Type 2 consists of SFs with a retired holder, who cultivate olive-groves and vines exclusively or mainly for self-consumption; additionally, they produce various vegetables in their home gardens. Thus, they have a very low degree of market integration along with a relatively high degree of self-sufficiency. This Type represents nearly 5% of all SFs of the RR. As in the previous Type, most of these farms are located in mountainous and semi-mountainous areas.

TYPE 3 [low self-sufficiency and high market integration]:

The majority of SFs (60%) falls into Type 3, with a high degree of market integration along with a low degree of self-sufficiency. They have mostly the following combinations of crops:

- Olive groves, outdoor vegetables, citrus fruits.
- Olive groves, Corinthian Currants, citrus fruits, vegetable gardens.
- Olive groves, greenhouse vegetables.

One part of these farms (the one with olive-groves and Corinthian currants) is located in mountainous and semi-mountainous areas, while the fields with outdoor and greenhouse vegetables, as well as with citrus fruits are found in plain areas of the RR.

TYPE 4 [high self-sufficiency and high market integration]:

Type 4 consists of approximately 10% of all SFs with high degrees of both market integration and self-sufficiency. These farms are quite diversified in terms of specialization, combining sheep and/or goats rearing, with fodder production for their animals (alfalfa, maize); livestock products are mainly sold to the markets, while a part of them is self-consumed. In addition, these farms produce olive oil and vegetables from home gardens, for self-consumption. Most of these farms are in mountainous and semi-mountainous areas, except their fields with alfalfa and maize, which are in plain areas.



The proposed typology seems to be quite useful. This typology concerns all SFs in the region, and has been validated with stakeholders, as well as participants in the Focus Groups and the Regional Workshop. In the following table, we contrast the allocation of SFs to the above Types, for both the totality of SFs of the region, and those of our interviewees.

Table 3: Allocation of SFs to different Farm Types

Type	Estimation for all SFs of the region	Interviewed SFs (N=42)
1	25%	5%
2	5%	5%
3	60%	78%
4	10%	12%
All Farms	100%	100%

We have to stress that the whole process of searching for SFs for interviews, led us to a sample of SFs which were more ‘professional’ than the ‘average’ farms, depicted at official statistical sources. This so, because: (i) our main informants for finding potential interviewees (agronomists, cooperatives’ staff, and agricultural administration staff) deal with small farmers who are more ‘professional’ than many of their peers, and (ii) many owners of SFs rely mostly on off-farm sources of income and live in other areas, including cities outside the RR.

Additional or alternative criteria for SFs classification could be: (i) the professional status of the farmer regarding agriculture, (ii) the place of residence of the farmer (inside or outside the RR), (iii) on-farm product diversification (various crops and/or crop/livestock orientation). Non-systematic recording of home gardens in our questionnaires is an omission.

b. Role of small farm types in the regional food and nutrition security

Two groups of SFs stand out with respect their contribution to FNS, from the analysis of our interviews. Firstly, those which, apart from one or more commercial crops, cultivate a home garden and raise a few domestic animals (e.g. chicken, sheep, pig), thus covering more than 50% of all household food needs from own-production. These are 7 out of 42 SFs.

The second group consists of those SFs, which are highly specialized and attain a farm income higher than the respective average household income of the region, thus covering all their food needs from the market; these amount to approximately 20% of all interviewees.

Finally, in our sample, 28 out of 42 SFs cultivate olive groves; in these households, the supply of olive oil, as well as of fruits and vegetables from own-production is a very important factor for a safe and nutritious food, as it is a fully controlled production process. In addition, a small or extended network of relatives and friends is the recipient of this production.



Governance

a. Main interactions of SF and SFB with governance structures in the region

One of the main interactions of SFs with governance structures is their engagement with the mechanisms of the Common Agricultural Policy (CAP), both the first Pillar (direct aids to farmers) and the second Pillar, especially investment aids and the ‘Young Farmers’ scheme; in 3 out of 42 SFs in our interviews, the farm holder had already joined the ‘Young Farmers’ scheme. As for the whole RR, during the last call for this scheme, 738 applications have been submitted, from which approximately 450 have been approved.

It is worth mentioning that in Ileia, as in the whole country, all second Pillar schemes, including the above two, have been hit heavily from the on-going crisis of the Greek economy, e.g. from the non-ability of the Greek state to cover the national contribution to these co-financed programs, as well as the under-staffing of all public administrative services. Likewise, due to capital controls, the lack of available funds from the banking sector deprives farms from borrowing, in order to cover part of investment costs.

Another interaction of SFs has to do with the training of small farmers on the sustainable use of pesticides, and the procedure for granting them a certificate which will confirm the sufficient knowledge of sustainable use of pesticides.

With regard to small food businesses, the support of investment projects through the National Investment Incentives Law or co-funded EU programs is the main interaction with governance structures. In our interviews, several entrepreneurs expressed a strong criticism for the delays observed for the granting of aids after the approval, as well as for the overall financing conditions of the investment projects. In addition, the majority of entrepreneurs are keen to accept state regulations requiring environmentally sound waste management (mainly in olive mills) because, in addition to protecting their environment, they believe that these practices will translate into economic benefits for their businesses.

Finally, a major problem for SFs in the region has been the cessation of fruit exports to the Russian market after 2014, as a result of the Russian embargo to EU food exports, which was a retaliation measure for EU sanctions against Russia.

b. Levels of governance and their relative importance for SFs and SFBs

The vast majority of small farmers are informed for new cultivation practices and new products by private agronomists, highlighting the lack of an effective public system of agricultural extension services.

Although almost all farmers consider the role of cooperatives very important, only in the northern part of the RR - where the most innovative farmers are located - vibrant collaborative forms exist, such as cooperatives and farmers’ groups. These cooperatives are engaged with the production of fruits, vegetables and Corinthian currants. It has to be



mentioned that the Union of Cooperatives that could manage the production of the only olive-oil in the region with a protected geographical Indication (with reference to the historical name of Ancient Olympia) faces serious problems in its operation. Moreover, although there have been some efforts for co-ordination of olive-oil mill owners, they have not succeeded.

c. Constraints impairing full participation in the food system

A basic requirement for Greek farms to be eligible for support in the context of the 1st Pillar of CAP, is to receive direct aids of at least 250 euros; this holds for SFs in Ileia as in the whole country. Also, livestock breeders usually have to comply with a host of legal and bureaucratic procedures, which, in conjunction with the lack of a cadastral and a clear ownership status in rural areas (especially in forests), impedes their activities.

Also, there are some implications arising from the asymmetry of power across various layers of the food system. For example, in some of the products of the RR the market structure is oligopsony, e.g. Corinthian Currants and pickled peppers. This imbalance is partially mitigated by the effective operation of some cooperatives/producer groups, especially in the case of the Corinthian currants and fruits. On the other hand, SFs participate in export markets through established marketing channels of large exporting enterprises based in the RR. These exporting enterprises in turn, are very small, compared with the much larger (and fewer) Italian importers, who most of the times impose the terms of the transactions; this problem is perpetuated by the inexistence of a co-ordination among these exporting enterprises.

Finally, it has to be noted that several processing enterprises have been modernized, so as to meet particular requirements of their customers, e.g. pickled peppers according to 'kosher' rules for exports to the USA, and Corinthian currants according to 'halal' rules for exports to Muslim countries. Interestingly, this technological and organizational modernization is not related to scale, i.e. both small and large farms and food businesses have already adopted it.

d. External policies, decisions and social norms affecting food systems

Two cases highlight the mismatch between food production and sustainable use of natural resources, resulting from an excess use of chemical inputs on behalf of Ileias' farmers. Firstly, the spectacular increase in chemical fertilizers use during the last decades, resulted in adverse consequences, such as groundwater pollution from nitrates.

It has to be noted that one of the seven Greek 'Nitrate Vulnerable Zones' lies in Ileia, in which a program for the reduction of nitrate pollution is implemented. However, during the whole 2012-2017 period, only 12 farmers from the northern part of the region have joined this program (who cultivate potatoes and tomatoes), stressing its negligible impact.

Likewise, overuse of insecticides on behalf of many citrus farms decimated beneficial insects, causing an outbreak of 'Dialeurodes Citri' disease during the last 3 years; this caused a



worsening of the appearance of oranges and subsequently a rapid fall in their price, thus jeopardizing the long-term sustainability of these farms. These undesirable outcomes and especially the insect outbreak have come about because both farmers and public authorities did not respond timely and effectively to the problem, nor they had an effective cooperation with the public institute which undertakes research on the issue. An additional cause for the eruption of this disease is some actions of private agronomists, who provided farmers with an inappropriate plant protection medium.

e. Gender issues intersecting governance issues

Although our interviews show that the participation of women as leaders of farms and businesses is limited (in 6 out of 42 SFs and in 2 out of 11 SFBs), men and women do not seem to have an unequal access to markets and land. In some cases, women are involved actively in the production process, while in others they supplement family income by working in on- and off-farm activities. More information on this issue are provided in the Regional Workshop Report.

f. Other actors and processes important for the regional food system

Production and flows concerning organic products (olive-oil and oranges) are not depicted in the above maps; in the other two key-products, organic production is negligible or inexistent. In the case of organic olive oil, the quantities produced in the region are very small compared to conventional production (100 tons and 28,000 tons, respectively). However, after the processing of organic olives, farmers store the olive oil, they pack it to packaging enterprises and distribute it to their network of customers, in both domestic and foreign markets, only as a packaged product with their own brand name. No wholesalers or other intermediaries are involved in this chain, so organic farmers can capture a larger share of the added value compared to their conventional counterparts. Similarly, organic orange producers export most of their produce to the Netherlands and Germany through their co-ops.

g. Forms of collaboration and organization between small farms

No special forms of cooperation among SFs exist in the region. Co-ops and Producer Groups alike, include both SFs and large farms, without any special provision for each category. As already indicated, SFs participate in some cooperatives dealing with the production of fruits, vegetables and Corinthian currants. The effective operation of these co-ops is crucial for SFs, not least because they mitigate the power imbalance within the food system, which also translates into satisfactory producer prices and secured farm incomes.

h. Forms of collaboration and organization between small farms and consumers

Only informal relations between SFs and consumers have been recorder in the RR. Those relations are widespread, including the provision of various agricultural products (e.g. olive-oil, oranges and fruits) from farmers to neighbours and friends, as already noted. In some



cases, consumers are invited by farmers to harvest the fruits by themselves, e.g. from one of the trees of an orange grove.

- i. Relationship between small and large farms, and between small and large businesses

There are no specific relations, neither between SFs and large farms, nor between small and larger businesses, except for the ‘usual’ transactions in the context of the entire value chain of each of the key-products, as has been already described in the previous sections.

In the context of producer groups, some forms of complementary relations between SFs and large farms exist, though. Large farms are the ‘locomotive’ of a producer group, providing the bulk of the products and thus securing a minimum size of group’s volume of production; as a result, both SFs and large farms benefit from this co-existence. On the other hand, those large farmers virtually control the function of the group, marginalizing SFs. Undoubtedly, these forms of ‘unbalanced’ governance structures need to be further investigated, as they strongly affect the operation of SFs and the terms of their integration into the wider food system.

- j. Other governance issues

One of the themes highlighted in FGs has been the grave consequences of high taxation to the functioning of producer groups, as well as to the smooth functioning of the whole food system. In particular, high taxation creates favorable conditions for the enhancement of informal marketing channels, as transactions through ‘formal’ channels are heavily taxed and wholesalers delay payments to producers, i.e. farmers are paid after seven months of the initial transaction, a situation that has worsened after the imposition of capital controls in Greek economy in 2015. Consequently, farmers opt for informal transactions with unregistered traders, who can pay better prices (due to tax evasion), immediately, in cash.

Furthermore, from the work carried out in FGs a number of issues were clarified, concerning the structure and function of the value chains in each of the key-products. For example, it was stressed that in all key-products, the large wholesalers usually reach an agreement for price fixing, i.e. the price in which they buy the products from producers.

The unequal distribution of power translates into differentiated financial potential between various actors of the chain, which in turn leads to strengthened dependence of the least powerful actors. For example, in olive-oil value chain, wholesalers are the strongest actors, providing financial facilities (down payments in cash) in olive-oil mills, which then can pay the farmers.



Small Farms and rural livelihoods

a. Importance of household labour in SFs

SFs' contribution is very important in terms of human employment – they employ 35.2% of total farm labor in the RR – and acreage – they occupy 28% of total utilized agricultural area. They also raise 10.7% of total livestock. In economic terms, their standard output is 29% of the total standard output of the regional agriculture; in some crops, this contribution is much higher than the average: olive-oil 63%, oranges 56%, currants 48% and wine 40% (Source: elaborated data from Integrated Administrative and Control System for the year 2015).

The elaborated data of our interviews reveal that, on average, the total human labour employed in each farm, amounts to 740 days per year (table 4). Our sample farms rely mostly on their members to source the necessary labour (524 days per year or 70.8% of the total labour); other family members, besides the holder, contribute substantially to these needs, with 314 days per year. In addition, 29% of the total needs is derived by hired labour, which is offered by seasonal workers for 216 days per year; those seasonal workers are mostly employed in the harvesting of farm products.

Table 4: Annual On-farm Labour (days per farm)

Holder	210	28.4%
Other Family Members	314	42.4%
Family Labour	524	70.8%
Hired Labour	216	29.2%
Total Labour	740	100.0%

As was expected, this allocation of human labour varies among the interviewees: two thirds of the farms employ a second member of the household apart from the holder, seasonally, for 105 days/year. One-third of farms employ at least 3 household members and four farms employ more than 4 household members.

It is worth mentioning that almost all farms (40 out of 42) have hired labour, while more than 28% of farms employ at least 4 seasonal workers over a period of more than 1 month. Finally, many farms have reported a large number of workers for a short period, relating to the harvest period.

b. Farm and non-farm income in the SF's households

Data from our interviews show that, on average, 58% of total household income comes from the farm, while the remaining 42% derives from non-farm sources. Pluriactivity of family members is widespread, as over 80% of farm households (HHs) report off-farm income. With the exception of three farms, all other farms receive subsidies, which, on average, contribute to the farm income by 27%. In one-fifth of these farms, subsidies comprise at least half the farm income. In addition, only 15% of the farms have a non-agricultural on-farm income, which is less than 35% of the total farm income.



Moreover, we have calculated the total income of each HH, consisting of income from farming and all other sources; then, we calculated the per capita equivalent household income, by using the ‘modified OECD equivalence scales’ (Hagenaars et al. 1994; Eurostat 2017), assigning weights of 1.0, 0.5 and 0.3 to the household head, each of the remaining adults and each child in the household, respectively. By comparing the per capita equivalent income of a HH with the poverty line and the mean equivalent income in the regional economy for 2017, we find that 9 out of 42 HHs fall below the poverty line, 13 HHs have a middle income, and 20 HHs have a high income. As we see, the three categories of HHs vary substantially, across a number of indicators (tables 5 and 6). This classification of HHs offers valuable insights, however, here, due to space limitations, we just present some of the elaborated data without any further comments.

Table 5: Income analysis by income level of HHs

	No	Total farm income (€)	Non-agricultural on-farm income (%)	Household income originated in the farm (%)	Total Household Income (€)	Equivalent Adult Members (€)	Per Capita Equivalent Household Income (€)
Poor HHs	9	5233.3	0.6	77.2	6881.9	2.5	2708
Middle Income HHs	13	6630.8	4.2	61.2	11536.5	1.9	6454
High Income HHs	20	13260.0	2.9	48.0	29101.7	2.1	13752
All HHs	42	9488.1	2.8	58.3	18903.5	2.1	9126

Table 6: Demographic and structural characteristics by income level of HHs

	Age (years)	Educational level	Total UAA (utilized agricultural area) of farm unit (ha)	Number of non-contiguous plots	Proportion of land owned (%)	Irrigated area (% of UAA)
Poor HHs	61.9	2.2	3.5	6.8	82.2	59.4
Middle Income HHs	49.4	3.2	3.3	3.9	73.5	52.7
High Income HHs	47.9	3.3	4.0	4.6	78.5	69.0
All HHs	51.3	3.0	3.7	4.9	77.7	61.9

c. Shocks and coping mechanisms of SF households

A substantial fall in demanded quantities and producer prices has been a major shock for SFs producing Corinthian currants, up until 2010. As a result, several plantations were uprooted and a number of small farmers stopped farming. However, during the last years,



the market of the product has stabilized. The formation of a well-functioning producer group for this product has been one of the responses of farmers.

A relative degeneration of seeds used in the cultivation of peppers for pickles, has led to yield reductions, which, in combination with a rise in production costs, has squeezed SFs' incomes during the last years. Small farmers, along with processing enterprises, seek for a solution to this major problem, searching for standardized seeds.

The insect outbreak and the loss of the Russian market have already been mentioned for oranges, while, for olive oil, despite the favourable producer prices during the last years, there's always the risk of marginalization of the production of the region, in the context of an unequal integration of this sub-system to international markets.

The ongoing crisis and the reforms in tax and insurance systems for farmers, are additional shocks for the regional SFs.

Role of Small Food Businesses

a. Main insights and patterns

Small food businesses, either in processing or in distributing sectors, play a vital role in the function of the whole food system of the RR, with a multitude of up-stream and down-stream inter-sectoral linkages, generating incomes and securing a significant number of jobs. Therefore, they are part of the agri-food sector, which is the most dynamic one in the RR.

Different types of SFBs can be distinguished, based on technological modernization. More specifically, in the olive oil extraction, at least 36% of olive-oil mills in the region have been modernized, i.e. they use the 'two-way' or 'two-phase' system of oil extraction, with much lower water and energy consumption, as well as lower quantity of contaminating by-products, in comparison with the older 'three-way' or 'three-phase' system. Also, some young entrepreneurs, make great efforts to improve the quality of the olive-oil produced, either by modern processing methods or by promoting new varieties and cultivation methods. Of particular interest are the efforts to increase the phenol content of the olive oil.

b. Labour in SFB work

On average, total family labour exceeds 500 days per year in the interviewed SFBs. Ten out of eleven SFBs employ at least one member of the household, besides the business owner, and 3 out of 11 employ at least 4 household members.

In addition, the total non-family labour exceeds 470 days per year. Ten out of eleven SFBs employ at least 4 non-family employees, while in many of these enterprises, during the harvesting and processing period, the number of seasonal employees is considerably rising.



c. SFB income

In our interviews, seven out of eleven SFBs provided concrete data on their income. Of these, two small olive oil mills have reported an income of less than € 20,000 per year, while the income of the remaining five companies exceeds € 100,000.

d. Shocks and coping mechanisms of SFB households

All the shocks referred above in the section for SFs, relate also to the SFBs, which are involved in the respective value chains. However, SFBs have the additional problems of austerity policy measures, such as capital controls, lack of liquidity, lack of credit, etc. Extroversion and modernization have been the responses of most of the interviewed SFBs.

The Future

a. Main objectives and priorities of SF for the future

As in the whole country, the current economic climate forces the majority of interviewed producers to a 'defensive' stance, i.e. to try to keep the holding in the present form without undertaking risks. Besides, there are a few small farmers who are considering expanding their holding by buying or renting new land. The uncertainty which prevails in the economic environment is more of a concern for producers of pickled peppers and Corinthian currants and less so for the producers of oranges. In fact, there are some farmers who are considering abandoning the Corinthian currants cultivation. On the other hand, olive-oil producers are optimistic, mainly because of the high producer prices over the last 3 years. The vast majority of interviewed farmers wish to pass over the farm to their children, while only one of them plans to sell it. Farmers' long-term objectives include the processing of their primary production, the purchase of new land and the diversification of their production by adding new crops.

High producer prices in recent years have created optimism among small farmers producing olive-oil, but they have also imposed a sense of complacency. Olive mill owners seem to be more insightful and point to the need to modernize production and marketing, considering that high producer prices is a conjectural phenomenon that could be reversed in the future. For the rest of the key-products, farmers appear to be either sceptical or frustrated by their income, while food business owners - who are especially extrovert - are very optimistic about the future.

Also, very interesting findings emerge from a preliminary analysis of the data derived from the interviews with small farmers. It is clear that on the basis of the short-term plans of farmers, four groups of farms can be distinguished: (I) those that plan to undertake new investments in the farm, (II) those that will pursue an expansion of the acreage of the farm, (III) those that seek for stability, and (IV) those whose holders make no plans for the future. All these groups amount to 33 farms, i.e. they represent more than three quarters of all sample farms. Apart from these, other short-term plans, expressed by the interviewees are:



‘to keep my farm in a good condition’, ‘[to pursue] a good economic performance’, ‘to improve the quality of my product’, ‘succession of the farm by my son’, ‘to retire’, ‘to change the crop with strawberry’, and ‘to decrease the time that I spend on my farm’.

Some indicative differences among these groups are the following: Group I consists of farms with the youngest holders (42 years), the highest educational level, and the highest total household income (derived almost equally from on- and off-farm sources). As we move from group I to group IV, the mean age of the holder increases, the educational level is slightly lower, the contribution of farm income to total household income increases, and holders’ dedication to farming slightly decreases.

b. Main objectives and priorities of SFB for the future

With regard to priorities of the SFBs, our field research shows that there is a differentiation in the objectives between the enterprises depending on the product which produce. More specifically, all olive-oil and one Corinthian Currants SFBs are more optimistic for the future, aim to expand their business, increase their output as well as make new investments. All the other enterprises have a priority to maintain their production and market position.

The SFBs in our sample that have survived the current crisis are well organized and financially sound, since they overcome the cash flow restrictions and the fall of domestic demand. They are export oriented and have established a strong position in foreign markets because of the high quality of the primary products and the commercial skills of the entrepreneurs. Therefore, the estimates of the future of these SFBs are favorable, despite the high taxation burdening them, which might result in the closure of those which are currently marginally viable.

All business owners point out the high tax burden, as well as a multitude of bureaucratic problems when exporting their products. Moreover, the lack of liquidity and high borrowing interest rates undermine the bargaining power of all food businesses in the region. Nevertheless, the vast majority of entrepreneurs would like to have a support from the state in their efforts to enhance extroversion.

c. Risk perception by SF

Within the four groups of SFs [see above section 12.1] there is a common perception of risk about prevailing weather conditions and natural disasters, followed by financial risks and emergence of new crop diseases.

d. Risk perception by SFB

The interviews with SFBs showed that the main external sources of risk for the businesses were the natural hazards which affected the supply of raw material (for three quarters of SFBs) and the lack of cash flow which was the main weakness for half of them, that was aggravated by the obligation to pay back their loans.



e. Food system forecast in 5, 10 and 20 years

Most of the participants in the FGs expressed their worries about the future of SFs, especially in the context of the continuing crisis and the consequences of restrictive policy measures, such as the new tax system. If SFs won't intensify their collaborative, networking and quality-related activities, they will be further marginalized within the whole agri-food system of the region.

f. Other future related issues

There's a need for opening new export markets for the agricultural products of the region, especially in Northern European countries. As FGs participants stressed, access to these markets is not so much a matter of compliance to standards, but rather a problem of exporting e.g. oranges to these countries, when the other Mediterranean countries do not, in concrete time slots during the year. This, of course, requires new investments on behalf of SFs for the installation of new varieties, as well as the creation of all the logistical and other infrastructures, and the establishment of new marketing channels.

Finally, a widespread concern was expressed in the FGs, concerning the consequences of the recently reformed tax system for farm incomes. This system, which has been applied since 2016, is expected to be particularly burdensome for both active people and retirees who earn a supplementary income from farming. Both these categories are the majority of small farmers, whose future is thus jeopardized.



Annex: List of resources

a. List of key experts interviewed

Stakeholder typology	Affiliation
Producers' cooperatives	Agronomist, Agricultural Citrus fruits Cooperative of Tragano in Ilia
Processors	Manager - Pantazis fruits S.A
	Olive Mill
Other small food business	Mercouri Estate
	Association of Ileia's Organic Farmers
	Quality Olive Oil
Chamber of Ileia	General Director
Farm inputs suppliers	Agronomist- Farm inputs supplier
Agricultural administration/Ministry of Agriculture	Directorate of Agricultural Economy
	Directorate of Agricultural Economy
	Directorate of Agricultural Economy
Political leaders and PMs	Regional Governor at Agricultural Development
NGOs	President of Executive Committee of WWF-Hellas

b. SF and SFB interviews and focus groups information

Stakeholder typology	N° of participants						How were they contacted?
	Interviews			Focus Groups			
	Men	Women	Total	Men	Women	Total	
Farmers	36	6	42	10	1	11	We contacted with all the participants by phone and to those invited to the FGs we <u>additionally</u> emailed the invitations. The regional Directorate of Agricultural Economy and Veterinary, the
Producers' cooperatives				5	1	6	
Slaughtering facilities							
Processors (small/large)	4	1	5	2	3	5	
Wholesalers	5	1	6				
Retailers							
Caterers							
Other small food business							
Exporters							
Importers							



Farm inputs suppliers				1		1	stakeholders, the cooperatives and the producer's groups as well as the interviewers themselves provided us the names of the small farmers.
Advisory services							
Agricultural administration/Ministry of Agriculture				2	3	5	
Consumers' groups/organizations							
Local administrators and policy makers				1		1	
Political leaders and PMs							
Other programs/initiatives				3		3	
Nutritionist							
NGOs							
Traditional and religious leaders (for Africa)							
Total	53			32			

c. Other important issues

SFs are an integral part of farm structures, integrated into various farming systems and diverse forms of food production and distribution. They are dispersed throughout the region, and provide with vital inputs lots of processing and trading food businesses, thus contributing to the maintenance of the productive structure of the local economy, to the sustenance of the social fabric, as well as of the bonds of urban populations with their places of origin.

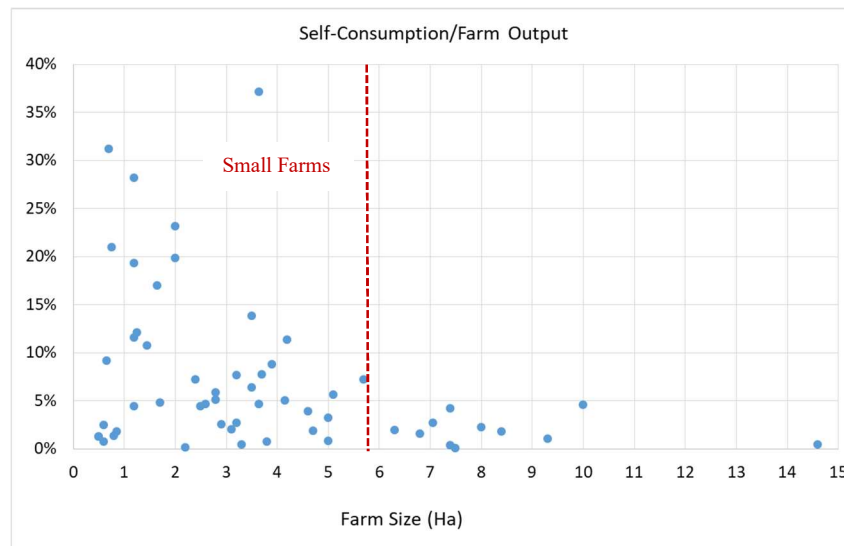
As we have seen, SFs have developed a series of informal networks as well as direct marketing from SFs, open-air markets, and exchanges within kinship and neighborhood. Moreover, SFs contribute significantly to self-consumption of their households. Apart from the data already mentioned in the previous sections of this report, we can see in the Figure 5 some more data derived from a sample of commercial farms producing oranges, mandarins and olive-oil in Ileia, from a field research conducted in 2016 (part of the material from this research has been included in Karanikolas et al., 2017). Forty three (43) out of 56 farms in the sample are small. In these SFs, the value of products intended for self-consumption as a percentage of farm output, can reach up to 37%.

The same data set reveal that 7 out of 43 SFs fall below the poverty line, which could indicate possible food insecurity problems in these farms/households.

Finally, members of rural households with small farms not only produce ancestral traditional products, such as olive-oil and currants, but also they actively participate in traditional cultural and ritual events taking place in the RR.

Figure 5: Self-consumption rates in a sample of farms, Ileia region





Source: Karanikolas et al., 2017

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4.11. RR11 Lucca –Italy– Food System Regional Report



WP3

Lucca (RR 11) –Italy– Food System Regional Report

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Table of Contents: Food System Regional Report

1) Socio-economic and agricultural profile of the reference region.....	278
2) Key products and regional food balance sheet.....	280
3) Food system: Key nodes and flows and role of small farms and small food businesses.....	283
3.1. Key product 1: Vegetables.....	284
3.2. Key product 2: Fruit.....	288
3.3. Key product 3: Olive oil	291
3.4. Key product 4: Wine grapes.....	293
4) Typology of small farms in the reference region.....	296
5) Governance	298
6) Small Farms and rural livelihoods	303
7) Role of Small Food Businesses.....	304
8) The Future	305
9) Annex: List of resources	309



Socio-economic and agricultural profile of the reference region

The province of Lucca spans three fairly distinguished sub-areas: Versilia, Piana of Lucca and Valle del Serchio.

Fig. 1: Lucca province – location



The **Versilia** is included within the Tuscan coast. A short range of hills and foothills fits between mountains and plains. Dynamics of crop abandonment and re-colonisation of shrubs and trees are evident in the lowland and partly on the hills. The coastal plain is densely urbanized, the rural areas are residual and mostly shaped by vegetable gardens, small olive groves and orchards. The land shows a strong presence of small production units and an anchored orientation of farms to intensive land use.

The **Piana di Lucca** is a "hinge area", characterized by a vast landscape of flat land. Over the last sixty years, the urban pressure has created a marginalization and fragmentation of agricultural land resulting in abandonment of agricultural practices. The favourable pedo-climatic conditions enable highly profitable cropping systems. Small-medium sized companies with a good degree of specialization are particularly interested in the production of vegetables and flower crops, wine and oil production. The average extensions of rural areas are very small (less than 4 ha).

The **Valle del Serchio** area is characterized by a mountain landscape. The southern end of the territory is characterized by an intensive land use; the upper land is characterized by sheep farming (meadows and pastures) and by forest resources related activities.

Table 1: Basic data for the region

Indicators	Data per Region - Nuts 3
Land size (km2)	1,773
Population (thousands of people)	391,228
Density (people/km2)	222.2
GDP (thousand USD/inhabitant)	29,200
Total labour force in AWU	7,460
Total number of holdings	6,543
Total Agricultural area (ha)	47,200.98
Total Utilized Agricultural Area (ha)	24,343.77
Agricultural Area in Mountain Area	11,273.83
% of UAA in the RR	20.75
Average Farm size	3.72
Number of farms by UAA farm size: 0-5, 5-20,20-50, >50ha	5,623; 629; 136; 59
Average size of farms < 5ha of UAA	1.34
Area of main crops (ha) (list the relevant crops below) (fruit, olives, cereals, vine, vegetables, potatoes)	11,532.6
Area of main crops (ha) in farms < 5ha of UAA (list the relevant crops below) (fruit, olives, cereals, vine, vegetables, potatoes)	4,465.35
Livestock (LSU) per type (list the relevant types below)	Bovine: 4,863 Equine: 805 Ovine: 8,584 Caprine: 2,670 Pigs: 1,822 Poultry: 51,618 Rabbits: 2,763
Livestock (LSU) per type in farms < 5ha of UAA (list the relevant types below)	Bovine: 1,202 Equine: 514 Ovine: 3,230 Caprine: 1,651 Pigs: 647 Poultry: 5,691 Rabbits: 1,916
Annual work units (AWU) by UAA farm size:0-5, 5-20, 20-50, >50ha	747,272 (0-5) 177,552 (5-20) 25,489 (20-50) 12,350 (>50)
Total family labour per farm size: 0-5, 5-20,20-50,>50ha	8,638 (0-5) 2,574 (5-20) 520 (20-50) 126 (>50)

From interviews and focus groups it emerged, in general, that the farmers' perception of risks for their farming activity can vary according to the area and the types of production. Building on previous events, natural and financial vulnerabilities are perceived as the main sources of risks. In fact a number of events have been identified and can be synthesized as pest attacks, destruction of crops by wild animals, harmful weather events, economic crises



and market variability. Most of farmers are worried about climate issues and wild animals: those living in mountainous territories are more exposed to crop damages caused by wildlife such as boars, roes, porcupines; the presence of wolves is a problem that particularly affects animal breeders. Shifts in markets and changes in consumption patterns, the relevance and impact of globalized markets, risky investments are factors that seriously concern both SF and SFB. Technological risks are perceived to a lesser extent than natural ones. Furthermore, building on the ageing of the rural population and turning to old farmers who rely on agriculture as a main activity, they usually have a traditional approach to agriculture, very conservative and resilient in order to preserve, but scarcely innovate their farm. The main concern for them is given by generational transfer as there is a high risk of land abandonment.

Differently from the overall perception observed in the RR, in the Focus Group 2 on Fruit & Vegetables (held in Lucca), the major risk that seems to be perceived by farmers is related to shifts in the market and financial vulnerabilities. Building on past experience, it is very difficult for farmers to compete with the large distribution and it is difficult to maintain sustainable prices both for consumers and for producers. In these terms, in fact, some farmers ask for the existence of “someone or something” able to arrange the local productions, for making supply meet demand. What farmers would like to overcome is the impossibility to predict which of their goods will be sold and to plan production and orders accordingly. A logistic platform or a predetermined system could function as an entity able to give indications and directions according to food local needs. This would also allow reducing phenomena of waste food and food losses.

Similarly, fruit and vegetables farmers in Versilia (Focus group 4) perceive the risk of a stronger competition from cheaper and more intensive production coming from the south of the Latium region.

Key products and regional food balance sheet

a. Key products produced and consumed in the region

The key products selected for Lucca reference Region are olive oil, fruits, wine and vegetables. These produces were selected because they represent the most important productions for smaller farms (according to the criteria set, i.e., importance for consumption in the RR, for production in the RR, or for cultural reasons). More specifically:

- Vegetables: we have selected vegetables as a key staple food because in the Piana of Lucca there are many small horticultural farms. The yields registered from the interviews are 20000 kg/ha (versus 25000 kg/ha from RICA, which considers a wider range of vegetables). Vegetables represent key foods for an adequate nutrient intake as well as for the typical local diet. They are highly consumed in the RR which can not guarantee a sufficient production for its internal demand. Main vegetable products in the RR are potatoes, tomatoes, carrots, leeks, lettuce, and other roots and leafy vegetables.



- Fruit: another key staple selected is fruit, because it has a limited production compared to the requirements and it is very important on the consumption side, also in relation to health and nutrition. In the sample of farmers, mainly apples, peaches, pears, plums are produced in the Morianese area (central part of Lucca province) and in a minority of cases small fruits (i.e., berries) are also produced in the mountain areas. For larger fruits the average yield is 8300 kg/ha, weighted average across small and large fruits (versus a weighted average of 10 000 kg/ha available from RICA data). Fruits in this RR are mainly produced for fresh consumption, but small farms also process fresh fruits to produce juices (apples, etc.).
- Olive oil: olive production has been chosen as a key staple, because in the RR this culture is very important under the qualitative profile and in connection with the hilly territory. The yields from farmers interviews show on average 342 kg of olive oil per ha (with an average yield of olives into oil of 16%), which is slightly higher than the yields data available on official regional reports, referred specifically to Lucca province which indicate a production of 2,1 ton/ha of olives in 2010. See link http://www.regione.toscana.it/documents/10180/71036/Rappagric_2011%2020201/6e0c5ebc-27fd-4c0e-aec4-6f9d3fbb7b2e).
- Wine grapes: the corresponding food item selected is wine, which represents a very profitable product mostly marketed outside the Reference Region. In relation to the yields, the interviews indicated that the average yield, across 10 vineyard farms is 5850 kg per ha, versus 6100 kg per ha (RICA network, official data for the agricultural sector).

We are aware that in Lucca province other crops are also important, such as cereals and especially maize (*Zea mays* L.), which is the most widespread and representative cereal production in the Piana of Lucca. However, this staple is not as important as the others for smaller farms. The same consideration holds for livestock which is generally done by larger farms.

Farmers' interviews confirm the selection of the key products, as most representative of smaller farm's dimensions. This is confirmed by the fact that smaller farms in the sample limit their production to one of the staples, whereas as size increases also other products become included (e.g. courtyard animals, cereals etc.).

b. Balance of production and consumption of key products in the region

From our analysis it clearly emerged that the Lucca RR is in deficit conditions with regards to all the key products studied, especially for fruit (-75%) and vegetable fats (-63%) that are intensively imported from the external. The internal production of wine grapes and vegetables better provide the internal consumption needs but still showing production levels that are lower than the internal demand: balances are negative and are - 32% and -30% respectively.



Category	[B]	[C]	[D]	[E]
	Approximate amount produced in region (ton/year)	Approximate amount consumed in region (ton/year)	Balance (consumed - produced) <i>[B-C]</i>	% surplus-deficit on total consumption <i>[D/C]</i>
Cereals (of which:)	20609,994	36210,491	-15600,497	-43%
<i>Soft wheat</i>	1170,48			
<i>Durum wheat</i>	795,762			
<i>Barley</i>	354,09			
<i>Maize</i>	17312,1			
Oil plants	1823,806	4959,494	-3135,688	-63%
<i>Rape</i>	3,85			
<i>Sunflower</i>	861,816			
<i>Olive</i>	958,14			
...				
Vegetables	10426,149	14871,806	-4445,657	-30%
<i>green house veg</i>	3933,216			
<i>open field veg</i>	4199,85			
<i>Potatoes</i>	2293,083			
Fruits	12356,435	50184,159	-37827,724	-75%
<i>apples, pears, cherries, apricots, peaches</i>				
<i>Fruit 2</i>				
<i>Fruit 3</i>				
...				
Wine grapes	6454,044	9547,132	-3093,088	-32%
Animal products	2681,44697	42575,485	39894,03803	-94%
<i>Milk</i>	362,0			
<i>Bovine</i>	1369,1			
<i>Pork</i>	234,9			
<i>Equine</i>	190,7			
<i>Ovine-Caprine</i>	113,5			
<i>Poultry</i>	411,3			

c. Official statistics and key products in the region

Databases of the Italian National Institute for Statistics-ISTAT (production), INRAN-EFSA (consumption) and RICA (yields) allowed us to adequately assess the production of key products in the region.



Food system: Key nodes and flows and role of small farms and small food businesses

The RR is characterized by the prevalence of small, mixed cropping farms with very fragmented landholdings. The Piana of Lucca shows a relevant concentration of medium-large size cereal farms. As mentioned, maize production is rather important for this area and is exported out of the RR, supplied to the feed industries which provide it to breeders, including locals. The presence of few co-operatives is indicated as a limitation to support all the small farms of the territory. The most important cooperative is “Unitaria”, which mainly operates on the plains in the southern area of the province: about 50 small farms daily deliver to the cooperative vegetables and cereals, which are marketed wholesale; the direct sale premise, physically located in the cooperative, sells roughly 15/20 % of the total products that are conferred to L’Unitaria.

Livestock activities are fragmented and residual, mainly located in the plain. Fruit production, which is deficient in the region, takes place in the flat territory "Morianese" between the river Serchio and the hilly area. The hilly area is specialized in olive growing and viticulture, the production of the latter being primarily sold out of the reference region. In the mountain area agro-forestry activities prevail, biomass production being one of the most relevant. Garfagnana is well-known for its niche products: honey, spelt, chestnut flour. In this area, we find also specialized goat and sheep farms, exclusively dedicated to the production of cheeses and destined to the local market. In Garfagnana many farmers are part of a producers’ cooperative named Garfagnana Coop. The producers who join Garfagnana Coop cultivate and commercialize spelt, produced with organic methods and processed products such as fruit jams, from the plant's associates or harvested in the forests, grown spontaneous, with the addition of cane sugar. Concerning breeding, most of bovine is imported from France, particularly calves. This RR is rich in legumes, however the few varieties and the modest quantities treated do not allow the growth of this market.

In general, it can be said that farmers mostly distinguish themselves for a strong individualism, preferring to sell their own production without joining any groups.

The Coldiretti initiative, Campagna Amica, supports farmers in the three main areas of direct sales, tourism, and eco-sustainability. It organizes and promotes direct sale stands, supports the promotion of selected agritourism structures through the Terranostra brand, the Coldiretti association that supports country tourism.

Another type of direct sale is given by Solidarity purchasing groups, which develop mostly in urban and peri-urban areas. According to several farmers, the relationship with SPG is rather contrasted, (some farmers sometimes do not trust such a market channel).

A lack of connection between farmers and local restaurants was mentioned in relation to fruits, vegetables and meat (especially in the Garfagnana Area). This was one of the instances that was mentioned during a focus group in Garfagnana, where a new born “Community for food”, involving public and private stakeholders, covering different interests in the food



system, was launched (end of July 2017). This Community for Food aims at connecting different initiatives existing on territory in order to find and develop synergies among them (it will develop in the next months).

Another relevant actor in Garfagnana is the Regional Bank of Germoplasma, one among the ones established in Tuscany, seeking to safeguard, through the ex situ conservation, regional autochthonous varieties. Conceived as a system of banks of the germplasm (seed banks, collection fields, etc.), the Bank carries out all operations aimed at safeguarding the genetic material in it, from any form of contamination, alteration and destruction.

In relation to small food businesses, these play a different role according to the areas of reference and staple product. Wine producers tend to process their product to preserve value added within the farm; also fruit and vegetable processing plays a key role in this sense, but a lack of infrastructure and logistics was mentioned as a limitation for smaller farms. Beyond the four staples selected, processing of ovine milk into cheese, or pork meat into sausages and other types of cured meat is very relevant in the Garfagnana hills and mountains.

Those farmers who do not have internal processing structures (e.g., because of administrative burden and hygienic requirements) may rely on external agents, with whom there is always a strong trust relationship. Farmers who have a direct sale shop sometimes sell products coming from local, close by farms, giving visibility to local products beyond their own.

3.1. Key product 1: Vegetables

- a. Nodes in the regional food system: production, processing, commercialization and retail

The production of vegetables in the RR is mainly developed in the plainer areas, and is conducted by small mixed cropping farms. In the RR, there are very few large farms specializing in horticulture. In the mountain part of the RR (Garfagnana) there are also vegetable producers and they often complain about the lack of connection to urban markets, in Lucca (especially the younger ones). Therefore, these farms are more inclined to adopt different direct sale solutions (through agri-tourism, local markets, home delivery, on farm shops etc.). They also engage in direct processing of vegetables.

Overall, the vegetable production is largely consumed in the RR, or at most within Tuscany borders and the distribution takes place through cooperatives (L'Unitaria) and local supermarket chains. In some cases, large retailers make connections with local farmers for the direct supply of vegetables, which is made visible through the adoption of umbrella quality brands, such as “Ori di Toscana”, led by Conad (GDO). However, the territorial brand is not always enough to enhance consumers' awareness on localness of productions. In this regard an interesting role is played by school procurement, which takes place thanks to the intermediary Unitaria cooperative, could with education programs aimed at teaching children seasonality of products and also the recovery of ancient tastes (via traditional recipes).



Also the wholesalers are considered relevant actors in Garfagnana. In particular one wholesale business is judged extremely strong in the Garfagnana for collecting production from local farmers, selling their products in and outside the area, as well as for marketing external products as if they were local produces.

Farmers markets are not considered relevant at the local level of Garfagnana. They are deemed as fake and folkloristic rather than a real food procurement channel of local farmers for local consumers. SFB, including small processors of vegetables, are not actually considered as relevant actors in their selves. In fact small processing is a business activity embedded in primary production, thus small processors are actually primary producers.

Furthermore the restaurants emerged as key potential actors of the vegetables value chain in Versilia area. It was discussed that restaurateurs need rather to be supplied by wholesalers since they can easily meet the needs of restaurants.

b. Flows connecting the different nodes in the regional food system

After small farmers interviews, we can add that farmers who have a stable, long term relationship with the cooperative (L'Unitaria) and other intermediaries, receive quite a low remuneration and mainly stick to this relationship to market their products, without looking for alternative market channels. On the opposite, the farmers who mainly sell directly, tend to integrate multiple ways of selling their product directly (e.g. solidarity purchasing groups, farmers market, on farm direct sales).

There remain some questions marks on the map, with reference to relations that we think are plausible, or have been mentioned by interviewees: for example, small farmers selling to restaurants or smaller retailers. However, no clear indication on the quantities involved emerges from the interviews.

While the FG contributed to highlight the relevance of the wholesale activity – which brings tensions within the local value-chain – it also emerged that in several cases small local groceries are not supplied by wholesalers but rather from local producers. This flow is vulnerable since local primary producers are exposed, with their production, to environmental and climatic stress and can easily suffer from the market competition imposed by wholesalers who import cheaper products at lower prices from the external.

From the FG carried out in the sub-reference region of Garfagnana participants confirmed that the flows of fruit and vegetable produces from primary producers to local consumers (direct sales) and to local groceries were quantitatively the most relevant. However, participants observed that Farmers Markets were not enough relevant to be considered in the map. In fact, according to FG participants, Farmers Markets do not exist in this sub-region. However, they consider strongly important the role of local wholesalers that should be reassessed as more relevant. Also, participants observed that the role of local small food business is overestimated as small food business are actually embedded in small farms.



Furthermore, participants do not see any relevant difference between SF/SFB and larger farms in Garfagnana, as most of the farms are pretty small. They have mainly highlighted the tension between small fruit and vegetables producers and a wholesaler.

Also we have observed that small local retailers mainly purchase from wholesalers who market mainly non-local and cheaper produces. With regards to the distribution and retail dynamics it has been observed that the mainstream retailing system – according to FG participants – would represent the most important supply for vegetables in the local area.

While the general flow design was confirmed, we can sum up a number of findings from FG that contribute to amend the value-chain map proposed:

- The flow of vegetables from producers to farmers market is considered insignificant.
- The flow of vegetables from producers to wholesalers is far more important than what we supposed. It is considered the most important flow together with direct sales to consumers.
- The flow from primary producers to local cooperatives is far more important than how it was shaped.
- The flow from primary producers to restaurant and catering is much lower than hypothesised.
- The flow vegetables from cooperatives to other cooperatives do not occur in Garfagnana.

It also emerged that a local cooperative (L'Unitaria) as a relevant role in coordinating and organising the vegetable supply and price strategy, as well as for promoting and protecting local produces.

c. Role of small farms and small food businesses within the food system

With regards to vegetables, small processing is a business activity embedded in primary production, thus small processors are actually primary producers. Therefore SFB do not constitute a central step of the vegetables value-chain as the processing phase is embedded in the small farm activity. Local shops of vegetables are considered pretty active in the area and are mostly supplied by small farms. Only one big cooperative of chestnut producers can be identified as a food processor activity, but in the mean time it functions also as a wholesaler. Several SFs deliver their products to a big cooperative of the area (l'Unitaria).

Building on the preeminent role of wholesalers, all other market channels are not very important for SF. Direct sales of vegetables from local SF to consumers are considered not significant. An interesting point emerged with regards to local school catering. In fact, local school are involved in an organic meal scheme. However local school canteens cannot be supplied by local SFs since the main part of those producers are certified as organic producers. Local organic SFs are very few and involve small producers.



The vegetables FG held in Versilia – Camaiore – helped to confirm the preeminent role of wholesalers in this context. It also contributed to understand the difficulties of farmers to adapt to different market conditions. It emerged that tourism do not constitute a direct market channel for local producers. However, restaurants are deemed as key potential purchasers of local vegetables.

- d. Importance of household self-provisioning in small farms and small food businesses

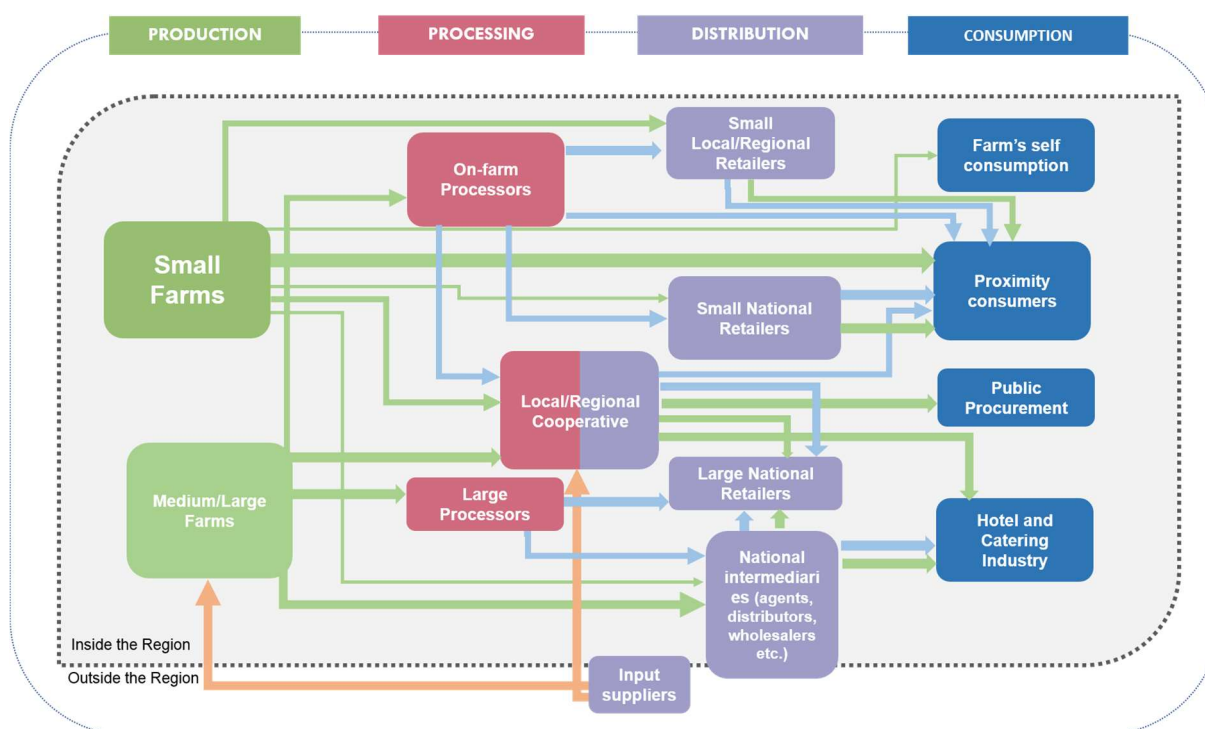
From the interviews, self- consumption in smaller farms has revealed to be rather important. According to farmers interviews, they consume, approximately 30% of their production. Also exchange of products among farmers takes place frequently. In three cases farmer affirmed that they bring their products to other farmers and get some product back. This does not hold for wine. Almost half of farms is self sufficient for more than 50% of their consumption.

- e. Other relevant information

The FG held in Garfagnana contributed partially to the understanding of the latter issue. It emerged that local restaurateurs and caterers are not used to purchase costly vegetables from local producers since they prefer to buy low cost vegetables from wholesalers or supermarkets. On the other hand, smaller retailers in Garfagnana are used to purchase vegetables from local producers.

The FG held in Lucca helped understand the relevance of the flow from SF to local restaurants. It also helped understand the strong power of wholesalers and big retailing systems as main suppliers of vegetables for the local consumers. At the hand of the workshop it was also mentioned the presence of local “fictitious producers” such as retirees and hobbyists who supply private consumers and small retailers, making harder the market competition for local SF.





3.2. Key product 2: Fruit

- Nodes in the regional food system: production, processing, commercialization and retail

The main logistic support (and also machinery) to fruit producers is provided by the cooperative SAPO, which doesn't take care of the commercialization of the product.

In relation to processing of fruits (e.g. into juices, jams, etc.) several farmers would be willing to increase their activity but complain about the obstacles (administrative, permissions) and the lack of structures to make this side activity feasible even for full time farmers (who would be willing to share common platform to decrease costs).

Furthermore, the FG allowed to better understand the crucial role of the main local agriculture cooperative (i.e. "L'Unitaria") for organising, coordinating, supporting, collecting, protecting and marketing the fruit production from local SF in Piana of Lucca.

Also the key node for fruit production in Versilia is represented by the traditional supply of primary producers to local wholesalers. FG participants confirmed that there are not producer cooperatives in Versilia. However, it emerged that some SFs from this area provide an important cooperative of the Lucca province ("L'Unitaria") with fruits.



b. Flows connecting the different nodes in the regional food system

The FG carried in Garfagnana helped to better understand the relationships between SF and non-small farms, as well as between SFB and non-small food business. It emerged that in Garfagnana there are not considerable differences for the size of farms. Most of farms are small. With regards to food business participants explained that almost all SFB in Garfagnana are embedded in SF activities. However, there is one big food processor which is the Cooperative of chestnut producers. While there are not important differences and tensions between SF/SFB and non-small farms/food business, however participants kept on highlighting tensions and problems with wholesalers who are supposed to market non-local produces as local one (e.g. chestnut flour, jam, honey, etc.)

It also emerged that smaller retailers in Garfagnana are used to purchase fruit from local producers. The FG helped also to clarify the relevance of wholesalers with regards to the supply of fruit in Garfagnana as well as the relative importance of “fictitious producers”, such as retirees and hobbyists who supply private consumers and small retailers.

As already observed for vegetables, the FG held in Lucca helped understand the importance of the flow of fruit from SF to local restaurants and caterers. The key power of wholesalers and big retailing system was highlighted as main suppliers of fruit for the local consumers. At the hand of the workshop it was also mentioned the presence of local “fictitious producers” such as retirees and hobbyists who supply private consumers and small retailers, making harder the market competition for local SF.

The participants to FG have mainly highlighted the tension between small fruit producers and a wholesaler.

While the general flow design was confirmed, we can sum up a number of findings from FG that contribute to amend the value-chain map proposed:

- The flow from primary producers to local cooperatives is far more important than how it was shaped.
- The flow of fruit from producers to wholesalers is far more important than what we supposed. It is considered the most important flow together with direct sales to consumers.
- The flow of fruit from producers to farmers market is considered important enough.

c. Role of small farms and small food businesses within the food system

SFB do not constitute a central step of the fruit value-chain as the processing phase is embedded in the small farm activity.

Only one big cooperative of chestnut producers can be identified as a food processor activity, but in the mean time it functions also as a wholesaler.



Small local retailers are not much supplied by small local producers. Several SFs deliver their products to a big cooperative of the area (l'Unitaria).

Direct sales of fruits from local SF to consumers are considered not significant. Also Local organic SFs are very few and involve small producers.

d. Importance of household self-provisioning in small farms and small food businesses

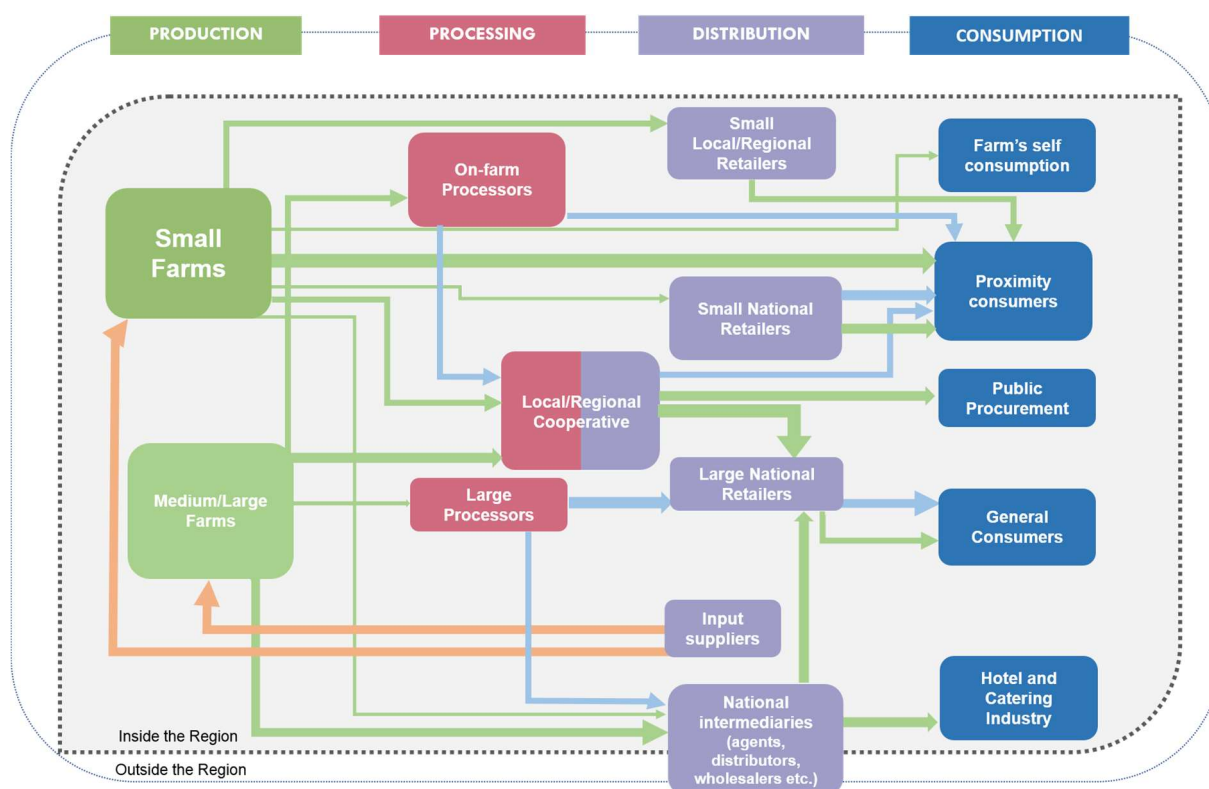
As for vegetables, from the interviews and the FG held in Lucca, self- consumption in smaller farms has revealed to be rather important. According to farmers interviews, they consume, approximately 30% of their production. Also exchange of products among farmers takes place frequently. In three cases farmer affirmed that they bring their products to other farmers and get some product back. This does not hold for wine. Almost half of farms is self sufficient for more than 50% of their consumption.

e. Other relevant information

The fruits production is concentrated in the Morianese area, between the river Serchio and the Garfagnana mountains; the fruit available is not sufficient to meet the needs of the RR, therefore it is imported from other areas of Tuscany and beyond. A citation from a small fruit producer sais: “One of the biggest problems is that fruit is coming from all over the world but out fruit productions are not valorized enough”.

In general, the production of fruits is limited as it requires long term investments and implicates a long time to become profitable, and this discourages younger farmers. Public incentives (Rural development programs) are not enough to allow for an expansion of the sector. Nonetheless, in Garfagnana there are some small farms specialized in small fruits production and processing (small laboratories of jams) which represent interesting and innovative cases.





3.3. Key product 3: Olive oil

- a. Nodes in the regional food system: production, processing, commercialization and retail

There are some oil mill structures outside the olive farms: the most important is Frantoio del Compitese which attracts more than 60% of local production of olives. The olive oil production is mainly sold either directly by small farms (after the product has been processed by local oil milling plants) either through on farm shops, agri-tourism services.

Olive oil mills are owned and managed by specialised farms that grow olive trees; it is rare for SF to own a mill. Therefore, the sales flows were designed and estimated from both oil mills and SF producing olives and outsourcing mill process.

From interviews and focus group it clearly emerged that tourists represent an extremely important part of consumers purchasing olive oil directly from producers – including agritourism – and was added in the map as separate actors from local consumers of the Lucca province. Moreover, it emerged that for olive oil agritourism act as multifunctional stakeholders, producing olives for olive oil, in some cases milling olives for example micro oil mills only for self-production), selling olive oil to their hosts and using it in their restaurant.



Also the participants in the FG have helped understanding that local mills do not share value chain dynamics with the large-scale olive oil sector (e.g. canning industry, wholesalers, bottlers, etc.). Also, we have not considered the production of olive-residue oil as not relevant for SF and SFB.

b. Flows connecting the different nodes in the regional food system

We have observed that the flow of olive oil from the mills back to the initial olive producers still represents the largest part of the processing outcome. With regards to olive oil sales from local oil mills, it emerged that those are mainly oriented directly towards consumers and restaurants. Lower sales levels are directed to supermarkets and local groceries. Sales to restaurants are not relevant for local SF and SFB as local restaurateurs are more oriented to purchase cheap oil coming from outside areas.

Other relevant marketing channels for extra virgin olive oil are given by solidarity purchasing groups, which informally develop and involve a number of local producers.

c. Role of small farms and small food businesses within the food system

Small farms have a crucial role for the local production of olive oil, especially for keeping a high quality level of the production and for valorising traditional olive cultivars. From the FG held in the Piana di Lucca, the tourism business network emerged as a key node within the local olive oil value chain. It represents a crucial opportunity for local SF and SFB since the external market is characterised by a strong purchasing power – as well as a relevant willingness to pay – of foreign consumers. It is an opportunity also in terms of taking advantage of the local agrobiodiversity through marketing actions. With this regard agritourisms, mainly represented by small farms, play a key role as producers, restaurateurs, creators of networks with external markets and sellers. On the other hand, local restaurateurs (different from agritourism caterers) do not represent relevant actors for local olive oil value chain since they prefer to purchase cheaper and low-quality olive oil. Nevertheless, their potential role – according to participants – would be of key importance if they were willing to purchase high quality and local olive oil.

d. Importance of household self-provisioning in small farms and small food businesses

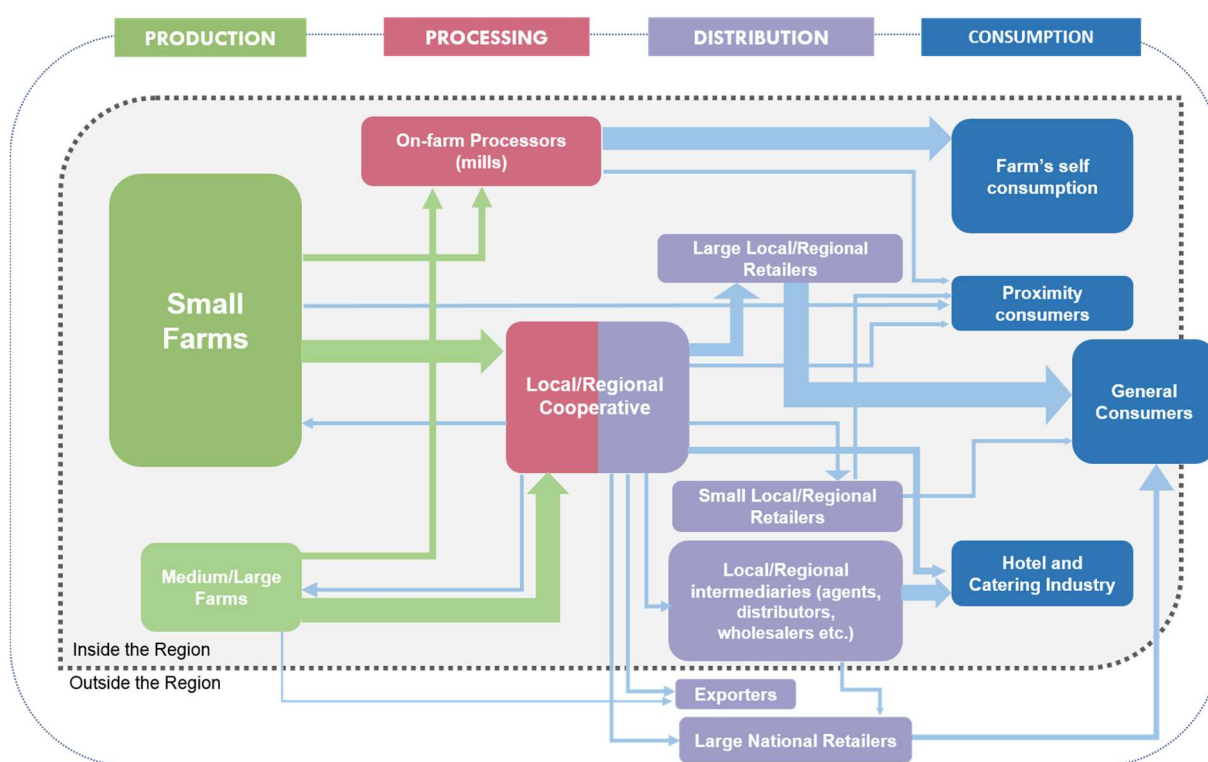
We have observed that beyond household self-consumption of olive oil, direct sales to consumers and sales to local groceries represent the main market channels for local olive producers. According to interviews and focus group, 70% of the olive oil produced by farmers in the Piana of Lucca is destined for self-consumption or utilised within the agritourisms (directly linked to the oil farm); only 30% is for sale. Even more so, farmhouses are forced to buy local branded oil by a regional normative; this mechanism clearly encourages the local economy.



It clearly emerged that tourists represent an extremely important part of consumers purchasing olive oil directly from producers – including agritourism – and should be added in the map as separate actors from local consumers of the Lucca province.

e. Other relevant information

The olive oil production is concentrated in the hilly areas and the producers are mainly the smaller farms. There are some oil mill structures outside the olive farms: the most important is Frantoio del Compitese which attracts more than 60% of local production of olives. The olive oil production is mainly sold either directly by small farms (after the product has been processed by local oil milling plants) either through on farm shops, agri-tourism services. Sometimes, hosting tourists contributes to establishing strong friendship relationships with clients, which leads to regular yearly direct sale abroad (i.e., in other regions or beyond Italy, especially Germany and other Northern EU countries). Other relevant marketing channels for extra virgin olive oil are given by solidarity purchasing groups, which informally develop and involve a number of local producers.



3.4. Key product 4: Wine grapes

a. Nodes in the regional food system: production, processing, commercialization and retail

For the wine map in the Lucca province, building on our findings, we could exclude any relationships between SF/small wine producers and most of the large-scale wine sector. SFs



mainly sell wine directly to consumers, to local groceries and wine shops, and to local restaurants. During the FG it emerged that SFs and small wine producers are not involved in the value chain with private wine industries and wine cooperatives. Also, SFs do not sell their wine to bottlers, but they only outsource bottling service and retrieve wine bottles with their own producer label. Sales to local shops are rather oriented towards specialised wine shops. Often local wine shops supply local restaurants with local wine. In some cases, sales agents can be an important sales channels (one producer participating in the FG has estimated that he sells 80% of his production through a sales agent. However, several SFs are not connected with sales agents).

b. Flows connecting the different nodes in the regional food system

Local restaurants represent one of the main sales channels of wine for SF (together with direct sales to consumers and wine shops), however participants in the FG (including restaurateurs, producers and small retailers) explained that restaurants purchase local wine also from small retailers.

Furthermore, we have observed that commercial exchanges with big retailers (supermarkets) are rare. Normally they are established by a contract of direct supply from the producers.

With regards to wine sales from SFs through e-commerce are still little and concern mainly agritourisms that often create stable connections with foreign customers and keep selling their produces to them through Internet orders.

c. Role of small farms and small food businesses within the food system

Small farms producing wine in the RR have a key importance, specifically for the valorisation of wine from traditional varieties. From the FG held in the Piana di Lucca it emerged that the local wine sector is well structured, with a number of key actors contributing to its development. In this case local restaurateurs play a key role as purchasers as well as vectors of information on local quality wines from SFs. Specialised wine shops are also important actors, especially for their connections with both SFs and local restaurants. As already observed for olive oil, agritourism – mainly represented by small farms - are relevant actors since they can act as local producers and sellers of their own wine (e.g. through catering, direct sales, e-commerce), as well as restaurateurs supplying other local wines. For some SFs the role of sales agents appeared to be of key importance for wine sales in restaurants outside the region.

d. Importance of household self-provisioning in SF and SFB

Producers interviewed or participating in the focus group, mainly satisfy their wine consumption through their own production. However, despite the relevant internal production of wine, some of them declared to purchase wine also in local shops or retailers (different rates, from 0,5% to 40% of their consumption). We can presume that this consumption pattern is based on curiosity and interest for different or new wines.

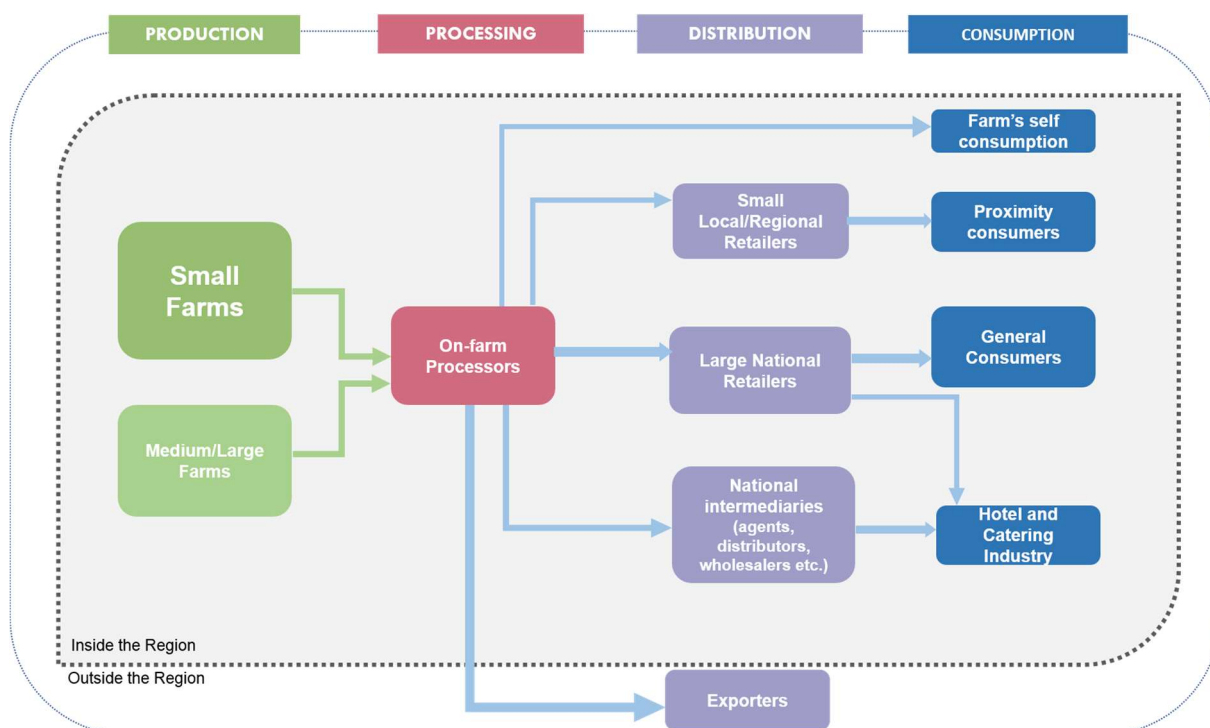


e. Other relevant information

Vineyards are mainly concentrated in the hilly territory and the producers are in prevalence small farms. The winemaking process runs mostly within the small farms in order to control and guarantee a high-quality level of the product. The wine production is mostly exported out of Tuscany Region.

For smaller farmers, wine production represents a remunerative product. Often those farmers who have another job, or other integration of income, turn to wine production as a hobby or as a secondary activity. All the producers that we have interviewed produce grapes and do the processing directly, closing the cycle with a direct sale strategy. The Montecarlo area holds a PDO designation (both for oil and wine): however, this certification doesn't seem to bring much benefit to some smaller wine producers who prefer to market their wine without certification. The main reasons mentioned are linked to the certification costs and inadequate return on investments.

The other aspect concerns exports: the contact with wine buyers that allow to sell abroad seems to be quite random or linked to contingencies. As for oil, wine is also widely sold in agri-tourisms directly to tourists, who eventually establish longer term relationships with farmers. Another relevant sales channel is linked to local restaurants and small retailers. Differently from oil, wine is not usually sold through farmers markets.



Typology of small farms in the reference region

a. Small farm types in the region

The preliminary typology of small farms in Lucca takes into consideration two main variables at the same time: the degree of market integration (% of farm production to be sold in the market) and the degree of self-sufficiency (the degree household consumption is satisfied with own production).

	Type 1	Type 2	Type 3	Type 4
Approximate importance in RR (as % of all farms)	35	15	45	5
Degree of specialization (number of crops produced)	1	>3	1	>3
Main crops produced (enter more than one if necessary)	olive; vineyard	vegetables; animal products	vegetables; olive; vineyard	vegetables; animal products
Family structure (describe)	no relevant	typical elderly couple (male with extended family)	no relevant	young farmer with little family
Gender issues (xxxx)	relevant	relevant	no relevant	relevant

TYPE 1 (Agriculture as a residual activity in the household) (S.S. < 50%, M.I. < 50%): it is characterized by low self-sufficiency and low market integration. These farms usually do not process their products, they depend on intermediaries for the product they sell, they have a low productivity, they are specialized into one or a few products and their production is mostly self-consumed.

TYPE 2 (“autarchic”). These farms are self-sufficient but not much market integrated (S.S. > 50%, M.I. < 50%). Very diversified farms, oriented to satisfy the household consumption; horticulture usually sided by animal breeding (poultry, courtyard animals).

TYPE 3 (“Commercial”) (S.S. < 50%, M.I. > 50%): These small farms have low self-sufficiency but are very market integrated. Highly specialized and market oriented, they process products and integrate multiple marketing channels.

TYPE 4 (“Virtuous”) (S.S. > 50%, M.I. > 50%). These farmers are very self-sufficient and market integrated. Very diversified and oriented to quality production. They self-consume their product, but hold enough value-added quantities to success on the market.

Interviews have suggested further elaboration of this typology. We can consider two other important variables to characterize our farmers that brings to four types more:

- Farming activity which plays a primary or secondary role in household income
- Age of the farmer, who can be young or old.



Young farmers who rely on agriculture: they live a challenging situation, in terms of the household food security which may be backed up by family if farming is not sufficient. Often these households may turn to their products for self-consumption. Usually young farmers inherited the property.

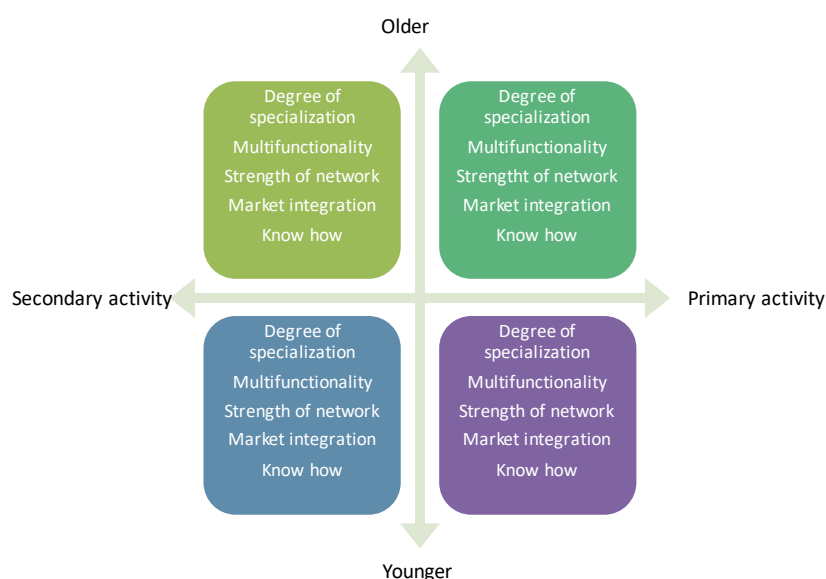
Young farmers may concurrently have other activities, therefore farming represents a hobby or less than 50% of working time. Some of these farmers can directly run the farming activity while others require external support. This model resists because it is highly remunerative (e.g. agri-tourism, small processing).

Old farmers who rely on agriculture as a main activity, they usually have a traditional approach to agriculture, very conservative and scarcely innovative. There is a high risk of land abandonment because of difficult generation transfer.

Old farmers who find in farming a secondary but important activity. This has different characteristics depending on the territorial location (mountains and remote areas vs. urban and peri-urban farmers).

b. Role of small farm types in the regional food and nutrition security

All farmers interviewed did not complain any difficulties in terms of food and nutrition security intended as availability, physical and economic access to food, while a very minority has indicated a lack of diversity in the diet occasionally. However, some farmers, especially those that rely on farming as a main activity, may have a difficulty in making end meet, from an economic sustainability point of view.



Governance

a. Main interactions of SF and SFB with governance structures in the region

The Common Agricultural Policy subsidies strongly affect the trends of local agricultural production. In recent years, local management has also been centralized at the regional level and local actors feel that strategies are defined and imposed from above, without enough considering the particular conditions of the territories and the specificities needed for management. If on the one hand the centralisation at a regional level of policies and decisions for agriculture is deemed counterproductive since it would not take into account local specificities of the rural areas, on the other hand it emerged that this centralisation could lighten the political and decisional burden for local authorities and, therefore, leaving to local stakeholders and municipalities only the role of operational agents who are able to properly put in practice regional policies at a local level, thus respecting the specificities of the territory.

Both for oil and wine traditional productions in the province of Lucca there are a number of specific PDOs and PGIs.

b. Levels of governance and their relative importance for SFs and SFBs

The main relationships that farmers have with governance structures are technical (training and extension), administrative and tax accounting support (e.g., Coldiretti, CIA, Confagricoltura). More than half of the sample of farmers receives public financial support (structural investments on rural development fund, contribution for fallow land, support for custody farmers of ancient varieties, contribution for fuel costs).

From this primary relationship, other types of relationships descend, at higher levels (e.g. national) and lower levels (e.g. municipals) also in relation to commercialization. For example, access to direct sale farmers markets (such as Campagna Amica) or informal relations with solidarity purchasing groups (depending on the type of farm) may develop starting from the relationship with the farmer organization of reference (each characterized by a specific political orientation and history).

Other market relationships are represented by the agreements promoted by CONAD through the Consortium “Ori di Toscana” that makes direct connection with Tuscany farmers (including Lucca) and gives them visibility in the supermarket stores. Other interesting and innovative relationships, concerning several actors of the food system, are the ones currently developing in Garfagnana, in relation to the newly established “Food Community”. This Community (managed by a Union of loval Municipalities, financed under the Rural Development Program and involving the University of Pisa) aims to improve the food system through local productions, with particular attention to the conservation of agro-food biodiversity and ecosystems, supporting short supply chains, bringing the various actors together on a common view of food security, food ethics and food sovereignty.



c. Constraints impairing full participation in the food system

Farmers complain that the administrative burden is very similar for everyone regardless to size. This puts a much heavier weight on the smallest which struggle or end up giving up many opportunities (e.g., hosting visits on farm from schools, develop “pick your own” sales due to insurance reasons, etc.). Processing is constrained by limitations, which are justified in principle, but extremely complex to comply with. This turns into fines, obligations, etc., which discourage to take initiatives.

Agri-tourism seems to be a profitable option that allows economic sustainability of smaller farming.

Scale is also an obstacle to accessing new and larger markets, such as retailers (except for ad hoc initiatives, such as the mentioned one from Conad) and public procurement (school meals). There are direct sale relationships (Carrefour, or Conad) with larger retailers on territory, but these are exceptions or specific projects.

Contracts are rather complicated to handle for smaller farmers, also because of a mental resistance of smaller farmers to become “constrained” by a contractual agreement.

Furthermore, in order to obtain monetary contributions for installing barriers against wildlife animals it is necessary to own a certain number of hectares, such as 2,5 ha of olive plants, that is quite impossible for small farms to find in mountainous areas of the RR.

d. External policies, decisions and social norms affecting food systems

We can make several examples of contrasts between food system’s food security and sustainability and other objectives.

- Conversion from agriculture to energy production and incentives for renewable energies: agriculture is not profitable, therefore as soon as incentives for solar panels were introduced, there have been shifts that have reduced utilized agricultural area.
- Hunting: It represents an obstacle because it clashes with agri-tourisms needs (noise, danger etc.). On the other side, hunting addresses the control on certain species of wild animals, which represent a threat to agriculture. The relationship between the two is controversial.
- Forest management: a bad management of forest (e.g. for re-naturalization purposes), left almost abandoned, creates an environment vulnerable to hydrogeological risks and that makes areas less attractive for neighbouring farmers.
- Urban planning: interest by building companies generates an expectation on change of destination of land areas and, therefore, agriculture abandonment.
- We have recognized a diffuse lack of trust by farmers towards producer organizations and other institutions in supporting farmers needs.



- In one focus group (Garfagnana), an interesting point emerged from the discussion about high prices for local products. Proposing high prices for local products can be a doubled-edged sword, difficult for consumers, both advantageous and disadvantageous for farmers. High food prices can easily affect the local accessibility to healthy and nutritious food, with a consequent impact, for example, on the nutritional quality and on the possibility to vary the diet.
- Difficulties to guarantee continuity and a stable food demand through the solidarity purchasing groups (GAS). GAS allow consumers to buy high quality food directly from local farmers, but for farmers it is not always convenient because of the small amounts of products that consumers need and, moreover, at low-price.

e. Gender issues intersecting governance issues

There are no relevant gender differences and issues observed between men and women in relation to farm management or land access.

f. Other actors and processes important for the regional food system

From FG discussions, it was confirmed and highlighted the relevance of three actors in particular:

- Cooperatives and GAS as ‘coordination’ actors able to manage flows of products and to offer the guarantee of a minimum remuneration for producers.
- Wholesalers perceived as a relevant disturbance and a commercial problem to the extent that they can handle so many products proposing low prices, but in other case they are perceived as a secure market channel that guarantees sales for producers.
- The collective catering represents another important channel for farmers, even if it shows some obstacles linked to the need to ensure a large number of products for school meals.

A relevant element frequently discussed among the participants was about the necessity for the farmers to rely on a figure able to work as a ‘super partes’ entity amongst the various actors of the agri-food system.

With regards to olive oil, at the centre of the olive oil supply chain there are, obviously, the small farm and the oil mill. According to the farmers and to our previous inquiries, most of the processed product is returned to the producer, which then proceeds to sell individually. Just a small part of the final product coming out of the mill does not return to the farms but is seen directly from the mill itself.

As revealed from the interviews previously carried out, olive oil is more advantageously sold to tourists rather than to local consumers: in principle, foreigners are willing to spend more for an Italian quality olive oil.



g. Forms of collaboration and organization between small farms

During the fruit and vegetables FG held in Garfagnana “fictitious farmers” were mentioned among the actors of fruit and vegetables production. Fictions farmers are those farmers who grow fruits and vegetables as a hobby. These informal and not registered farms deliver true local products of Garfagnana to retailers or restaurants, but they are not allowed to sell to shoppers, except to other privates. Nonetheless, there are some non-declared collaborations between small farms and food shops and other retailers: these products are sold to the final consumer under the counter.

Differently, in the Lucca FG the only forms of collaboration emerged from the focus group between small farms are the realization of some farmers’ markets, as self-organised and self-managed initiative. In the Versilia area, in general, there is a lack of cooperation among farmers producing vegetables.

Relating to wine and olive oil production, there are no relevant forms of collaboration between small farms that have been revealed. However, the only existing reality in these terms is the social oil mill: a group of olive growers operating with the common purpose of collectively managing the phase of olives milling, a very important and delicate phase to preserve and enhance the quality of the oil. We can say the same about the social winery: a cooperative to which members confer the products of their own vineyards for the production and processing of wine and for selling to wholesalers or other retailers.

h. Forms of collaboration and organization between small farms and consumers

No relevant forms of collaboration have emerged during the focus group. Solidarity purchasing groups do not represent an interesting channel market or reality for producers. Some restaurants prefer to buy from some local farmers just thanks to a trust or acquaintance relationship among them.

In relation to fruit and vegetables, from the FG held in Garfagnana it emerged that consumers are interested in eating locally and buying directly from local farmers, however purchasing local products often entails higher prices and this makes the product more “inaccessible”. Maybe some forms of solidarity relationship directly linked to the territory and the tradition can emerge among consumers towards local production and small farmers: consumers can choose to buy local products just once, giving their own contribution and support to biodiversity and local economy project. However, in the area of Lucca GAS (Solidarity Purchasing Groups) is the most significant collaboration observed - between small farms and consumers – that makes possible an organization of production and sales, advantageous for both farmers and consumers.

For olive oil and wine the relationships with solidarity purchasing groups are few and rare; however, there are informal relationships that privilege the relationships of knowledge and friendship between local consumers and local producers. The production of oil is widespread



in the region of Lucca, especially in the hilly area: many citizens own small plots of land cultivated with olive trees which allows them to produce a quantity of oil that exceeds the self-consumption and to sell it to acquaintances. The same reality is valid for wine productions.

- i. Relationship between small and large farms, and between small and large businesses

In the Garfagnana and in the Versilia areas focus groups (fruit and vegetables) didn't reveal any relevant collaboration between small and larger farms. Farmers in Garfagnana complain about the necessity to distinguish between small farms and large ones and consequently distinguishing the administrative burden according to the size of farms. In Versilia a new interesting idea is being developed from the collaboration between a local farmer, that besides vegetables produces also figs, and a local ice-cream shop with the intent to produce a fig ice-cream. On the other hand, in the Lucca area, relations between small and larger businesses concern mostly collaboration with restaurants and agritourism which may represent a good market channel and a visibility board for local farmers.

For wine and olive oil production relations between small farms and larger farms, as well as between small farms and larger businesses didn't emerge from the focus group: the farmers themselves do not recognize the existence of such forms of relations.

- j. Other governance issues

Focus groups confirmed critical issues mostly about the lack of political support and valorisation of local territory. The mapping exercise was very useful for the validation of the maps, key nodes and flows.

In detail:

- it allowed to discard the arrow between farmers and farmer's markets (perceived, in some cases, as a folkloristic element rather than a food procurement channel for local consumers)
- it confirmed and zoomed in the relevance of cooperatives
- it gave more visibility to the disturbance played by wholesalers / collectors.
- it confirmed the lack of collaboration of restaurants in promoting and selling local products
- it observed a general discontent of farmers with regard to politics and their feeling not to be protected by institutions, however, an attitude of attendance and passivity by farmers towards the system became clearer and explicit.

In general participants debated over the usefulness and the advantage of using the web (social networks as Facebook, WhatsApp) to promote their business and create market channels, dealing directly with consumers versus the aversion of some peasants (not just the elders)



towards technology and the refusal to conceive social networks as the only possibility of promoting and increasing sales in a rural contexts.

A relevant issue arisen from the focus group in the Lucca area was about the need for consumers to do the grocery shopping every day of the week. Some virtuous examples have been mentioned in these terms: e.g. in some territories, thanks to the support of institutions and municipal entities, the problem has been solved through the realization of collective shops or platforms (logistic and physical structures) that are collectively managed as retail outlets. In this case farmers could sell their own productions without the necessity to be physically present at the market.

From the focus group held in the Versilia area the most essential point on which participants have continuously focused several debates and discussions is the need of a figure able to work as ‘super partes’ intermediary within the agri-food system. Producers would like supermarkets could provide a ‘corner’ for selling local products delivered by local smaller farmers.

Small Farms and rural livelihoods

a. Importance of household labour in SFs

Household labour in the Lucca RR is crucial since it represents ca. 90% of the total work required (c. 550 days/year per small farm). The remainder 10% ca. is represented by hired work. Legal hired work in agriculture is expensive for small farms and forms of temporary contracts on a hourly or daily basis are extremely hard to manage by an administrative point of view, or not possible anymore (for example “vouchers”). It is also important to consider that almost 60% of farmers is directly engaged in the on-farm processing of their produces.

b. Farm and non-farm income in the SF's households

The higher the household income, the higher the percentage of income originated in the farm. We have observed that for farm households with an income higher than 10000 €, the income originated in the farm is 77%, while for farms with income comprised between 5000 € and 10000 € or farms with less than 5000 € per year the income originated in the farm is 23% and 15% respectively. The remainder outcome is generally originated in other business of professional activities. Subsidies count for very little since in our RR they represent about 2% of the farm income.

c. Shocks and coping mechanisms of SF households

Risks, both for SFs and SFBs, are mainly linked to natural vulnerabilities and criticalities of the territory. In addition, we can say that farmers are not very confident and unconvinced about the political support and that they are somehow concerned about the rising foreign market competition. How farmers perceive risks for their farming activity vary according to the area and the cultures produced. Natural and financial vulnerabilities are perceived as the



main sources of risks. Most of farmers are worried about climate issues and wild animals: those living in mountainous territories are more exposed to crop damages caused by wildlife such as boars, roes, porcupines; the presence of wolves is a problem that particularly affects animal breeders. Shifts in markets and changes in consumption patterns, the relevance and impact of globalized markets, risky investments are factors that seriously concern both SF and SFB. Technological risks are perceived to a lesser extent than natural ones.

Role of Small Food Businesses

a. Main insights and patterns

In relation to small food businesses, they play a different role according to the areas of reference and staple product. Wine producers tend to process their product to preserve value added within the farm; also fruit and vegetable processing plays a key role in this sense, but a lack of infrastructure and logistics was mentioned as a limitation for smaller farms. Beyond the four staples selected, processing of ovine milk into cheese, or pork meat into sausages and other types of cured meat is very relevant in the Garfagnana hills and mountains.

From all FGs in the Lucca province it emerged that small local restaurants have a key potential role as purchasers of local produces from local SFs, as well as for transmitting knowledge about high quality local and typical products.

Similarly agro-tourisms can have a crucial role, as producers, hosts, and restaurateurs and as vectors of knowledge about the local products. Agro-tourisms represent in fact a crucial change of the last 15 years with regards to small food business, originating actually from small farms. In fact, agro-tourism play the role of small food business since they increase to internally process the agricultural products such as oil, wine, canned products, marmelades, etc, (more and more through microprocessing technologies). Their activity of small food business is extremely important with regards to restauration. Furthermore, agrotourism are also small local shops where it is possible for local consumers and tourists to purchase farm products and for the producers it represents a direct sale channel.

The development of these diversification and multifunctional activities was also encouraged and supported by regional policies. However, compelling to standards and sanitary regulations is an issue for small food business that did not represent an obstacle for the fast emergence of agro-tourism in the territory.

b. Labour in SFB work

On average interviewed SFB are able to cover 76% of the total labor with household labour.

c. SFB income

In comparison with SF, SFB incomes are on average higher (20000 €) as well as for the total turnover (50000 €). The rate of revenue integration with external business or working activities is lower than for SF. However the rate of revenue generated by the specific SFB



activity is on average 40% of the total revenue since such business activity is generally associated with a primary production activity or recreational/hospitality business.

d. Shocks and coping mechanisms of SFB households

Risks, both for SFs and SFBs, are mainly linked to natural vulnerabilities and criticalities of the territory. With regards to SFB in particular agrotourisms, they have fostered the local and traditional productions and food transformations in order to cope with negative climatic conditions through processing canned products that allows to have product availability all over the year and to create and capture value added.

The Future

a. Main objectives and priorities of SF for the future

Objectives and priorities of SF for the future vary according to the age of farmers. Thinking about it, some older farmers don't have relevant projects or programmes, they are hopeful for a healthy future.

Younger farmers usually hope to increase production and improve their skills. Many of them complain of living pay check to pay check: they keep working and investing money in order to reach a business consolidation and make their activities more profitable, giving their children a future. The majority of farmers plan to expand their fields and farms, starting new activities such as tourism rooms' services or enlarging their market channels abroad. There is a growing interest and diffusion in social farming, including didactic and open-air activities aimed at involving schools, adolescents, elderly and disadvantaged people. Some farmers, mostly wine and oil producers, plan to extend their quality productions, looking for new varieties, aging wines, new market frontiers, and the recovery of local and traditional varieties. Some farmers take into consideration the possibility of exploiting forest areas for energy purposes, planning the implementation of renewable energy-based systems.

Participants in the Garfagnana focus group highlighted the preeminent role of SF for the landscape management, at now and in the future. The importance of such role is becoming evident since the abandonment of the cultivated land is leaving space to wild woods. The role of vegetable SF in the Piana di Lucca consists mainly of the capacity of supplying local consumers with fresh products. In the Versilia area it emerged that SF would like that local consumers and institutions acknowledge their role of local producers of fresh vegetables. From the oil and wine FG it emerged the important role that the consumption of high quality and local olive oil can have on the health. Some olive oil producers reported that from chemicals analysis on their olive oils it resulted that such typical oils bear important healthy components (e.g. polyphenols, etc.). Still about olive oil, local producers are considered key in order to maintain the local agrobiodiversity.

Overall, small food businesses which they could valorise their own activities selling local products directly to consumers, with the opportunity to create a direct chain which links the



product to the producer and the producer to the final consumer. Differently, in the Lucca area, producers of fruit and vegetables speak about growing up and expanding fields through investments and technological innovations. They are generally hopeful for an increasing interest and awareness by consumers about the importance of local food consumption. Many farmers want to be able to process their own production because it can make the final product more desirable for the consumers. In this way the consumer could be encouraged to spend a little more money to eat something that has been directly processed avoiding aging processes during the transport phase. In order to do this, more flexible hygienic standards are needed on the one hand, while food education initiatives mostly for schools should be organized and implemented within school curricula. In addition, vegetables producers who participated in the Camaiore FG basically aim at having stable, or improved, revenue from their agricultural activity as they were used to in the past. It emerged that there would be rather a need for cooperation between primary producers and coordination of supply with local restaurants and wholesalers. Producers aim to be acknowledged by the local municipality and the local consumers for their local and quality production.

b. Main objectives and priorities of SFB for the future

Oil and wine producers who participated in the Lucca FG aim at further strengthening the sales flow of their quality products towards national and international high-quality markets. In particular it emerged that improving biodiversity specificity for producing oil and wine, as well as further enhancing agritourism activities - will be key factors for being competitive in high price and international markets. On the other hand, especially for olive oil, it emerged that consumer education will be fundamental to improve the willingness to pay of local consumers for quality products as well as for keep high quality consumption patterns at a local level.

c. Risk perception by SF and SFB

The upshot of the focus group in the Garfagnana area confirmed the issues that we had previously identified through the interviews. Risks, both for SFs and SFBs, are mainly linked to natural vulnerabilities and criticalities of the territory. In addition, we can say that farmers are not very confident and unconvinced about the political support and that they are somehow concerned about the rising foreign market competition. A quite latent not explicitly expressed concern emerged from the debates and it is related to the growing potential of technology and its annexes. Farmers claimed about a clear lack of information within the local community and some of them look at information technology and social networks as a bad change to be left out. Differently, in the Lucca area the major risk that seems to be perceived by farmers is related to shifts in the market and financial vulnerabilities. It is very difficult to compete with the large distribution and it is difficult to maintain sustainable prices both for consumers and for producers. In these terms, in fact, some farmers ask for the existence of “someone or something” able to arrange the local productions, for making supply meet demand. What farmers would like to overcome is the impossibility to predict which of their goods will be sold and to plan production and orders accordingly. A logistic platform or a predetermined system could function as an entity able



to give indications and directions according to food local needs. This would also allow reducing phenomena of waste food and food losses. Furthermore, vegetables SFs in Versilia perceive the risk of a stronger competition from cheaper and more intensive production coming from the south of the Latium region.

The difference on the risk perception for the SF representative participating in the FG is mainly between olive oil and wine producers. Olive oil producers perceive the risks of external and cheaper markets as well as counterfeiting. They also recognise that local consumers are not aware of the actual quality and of the production costs that local oil producers have to bear. Thus, local consumers would rather buy cheaper and low-quality olive oil instead of purchasing more expensive but local olive oil.

d. Food system forecast in 5, 10 and 20 years

In future perspectives, the map of the fruit and vegetables in Garfagnana could be characterised by new and more exchanges relationships both among farmers and between farmers and small food businesses.

While it can be easier hypothesize a greater cooperation and support by restaurants in promoting local products in the medium term (10 years ca.), it seems difficult to predict something about the possibility to increase collaborations between small farmers and large retailers even in the long term, although some of the attending farmers already managed to start small business relations with local supermarkets.

Many solutions for improving coordination have been identified in the medium and long terms (10-20 years), such as an online coordination platform for local vegetables or asking for guidance and technical support for production and marketing from agronomists. In Lucca we observed that maybe a more relevant role could be played by cooperatives, to the extent that they could manage major flows of products, also functioning as logistic platforms for collective catering.

Some changes in the map could arise, in the medium and long terms (10-20 years), from the increasing awareness among consumers about consuming locally and from a growing interest in promoting local products by restaurants and other small food businesses.

For the future of the olive oil and wine SFs there are positive perspectives. Small producers and stakeholders agree that the future, in the medium and long terms (10-20 years), will be characterised by an improved exploitation of the market opportunities towards rich foreign markets for high quality products with improved agrobiodiversity value (e.g. biodynamic and natural wines, monoculture organic olive oil).

Agritourisms have the opportunity to further develop in the short term (5 years) and contribute to the market increase for olive oil and wine.



e. Other future related issues

Farmers are generally hopeful for an increasing interest and awareness by consumers about the importance of local food consumption.

In addition, we can say that farmers are not very satisfied by the political support and they are somehow worried about the rising market competition and global climate change issues.



Annex: List of resources

a. List of key experts interviewed

Key Experts type	Role
Advisory Services	Campagna Amica Markets (Coldiretti's Project)
Advisory Services	Coldiretti Lucca
Local Action Group	Technical Administrative Manager of GAL MontagnAppennino (Local Action Group - Leader PSR Toscana, Garfagnana Lucca)
Producers' Cooperative	L'Unitaria Producers' Cooperative
Producers' Cooperative	SAPO "cooperative society among agricultural producers".
Retailers GDO	CONAD "national retail consortium"

b. SF and SFB interviews and focus groups information

Stakeholder typology	N° of participants						How were they contacted?
	Interviews			Focus Groups			
	Men	Women	Total	Men	Women	Total	
Farmers	21	11	32	12	3	15	Through local policy-makers
Producers' cooperatives	2		2	3	1	4	Through local policy-makers and farmers
Slaughtering facilities							
Processors (small/large)	4	4	8	3	3	6	Through local policy-makers
Wholesalers							
Retailers	1		1	2	1	3	Through local policy-makers
Caterers				4	3	7	Through local policy-makers
Other small food business				2	1	3	Through local policy-makers
Exporters							
Importers							
Farm inputs suppliers				1		1	Through local farmers
Advisory services				3		3	Institutional contact
Agricultural administration/Ministry of Agriculture							Through local policy-makers
Consumers' groups/organizations	1	1	2	3	5	8	Through local farmers



Local administrators and policy makers	1		1		1	1	Institutional contact
Political leaders and PMs							
Other programs/initiatives				1		1	Institutional contact
Nutritionist					1	1	Through local consumers' groups
NGOs							
Traditional and religious leaders (for Africa)							
Total	46			53			



4.12. RR12 Pisa –Italy– Food System Regional Report



WP3

Pisa (RR 12) – Italy – Food System Regional Report

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Table of Contents: Food System Regional Report

1) Socio-economic and agricultural profile of the reference region.....	313
2) Key products and regional food balance sheet.....	315
3) Food system: Key nodes and flows and role of small farms and small food businesses.....	317
3.1. Key product 1: Vegetables.....	317
3.2. Key product 2: Wine grape	318
3.3. Key product 3: Wheat.....	320
3.4. Key product 4: Beef.....	322
4) Typology of small farms in the reference region.....	324
5) Governance	325
6) Small Farms and rural livelihoods	327
7) Role of Small Food Businesses.....	328
8) The Future	329
9) Annex: List of resources	332



Socio-economic and agricultural profile of the reference region

The province of Pisa is divided in two local sub-systems: “Pianura dell’Arno” (i.e. river Arno plains) and “Colline Interne e Meridionali” (i.e. internal and southern hills).

Figura 1 – Province of Pisa (and sub areas)



The **“Pianura dell’Arno”** occupies the northern part of the territory. The area is characterised by a coastal system of high ecological relevance and important protected areas. The landscape is intensely anthropized and the rural areas have gradually diminished as a result of urban pressure. The intensive farming systems host traditional agro-ecosystems with olive groves, mixed crops, residual grazing areas. The flatland and the valleys, which are intensely urbanized, distinguish themselves for the prevalence of large specialized grain monoculture and nursery crops, mostly cultivated in greenhouse structures. Situations of abandonment and degradation affect the most marginal parts of the territory. The entire system is also characterised by agricultural activities which have the prevailing function of environmental and landscape protection of the hilly areas and that are sometimes associated with high-quality productions (olive oil), truffle season and significant forest resources.

The territorial system of **“Colline Interne e Meridionali”** is dominated by a rich forestry landscape, mostly in the south-central area. In the proximity of the coastal land, the hills predominantly host traditional woody crops such as specialized olive groves. The internal hilly areas are characterised by agro-forestry and pastoral landscapes of high conservation value. The association between olive groves and arable land is one of the most distinctive

features of the rural landscape of south-central Tuscany. Several dynamics of abandonment are particularly evident in the islands of cultivated fields immersed in forestry areas.

Beyond agriculture, in the RR the main economic sectors are textile manufacturing, chemical and pharmaceutical industries, software development firms and IT consultancies. While the recent economic crisis has reduced activities in most areas, agriculture continued to grow, thanks to traditional crops, wine production and diversification in the fruit and vegetables sector. Tourism is also an important contributor to the local economy.

Table 1: Basic data for the region

Indicators	Data per Region - Nuts 3
Land size (km2)	2,444.72
Population (thousands of people)	421,382
Density (people/km2)	172.36
GDP (thousand USD/inhabitant)	28,100
Total labour force in AWU	8,350
Total number of holdings	6,912
Total Agricultural area (ha)	158,576.23
Total Utilized Agricultural Area (ha)	95,754.35
Agricultural Area in Mountain Area	11,273.83
% of UAA in the RR	39.17%
Average Farm size	3.72
Number of farms by UAA farm size: 0-5, 5-20,20-50, >50ha	4,527; 1,365; 574; 446
Average size of farms < 5ha of UAA	1.63
Area of main crops (ha) (list the relevant crops below)	18,757.51 (triticum durum); 7,694.8 (olive); 4,395.95 (sunflower)
Area of main crops (ha) in farms < 5ha of UAA (list the relevant crops below)	3,280.87 (olive); 653.27 (wine)
Livestock (LSU) per type (list the relevant types below)	171,320 (poultry); 49,281 (sheep and goats); 9,415 (pigs); 7,719 (cattle)
Livestock (LSU) per type in farms < 5ha of UAA (list the relevant types below)	2,131 (sheep and goats); 1,458 (poultry); 1,256 (cattle)
Annual work units (AWU) by UAA farm size:0-5, 5-20, 20-50, >50ha	
Total family labour per farm size: 0-5, 5-20,20-50,>50ha	8,029(0-5); 2,418 (5-20); 1,075 (20-50); 846 (>50)

From interviews and focus groups it emerged, in general, that the farmers' perception of risks for their farming activity can vary according to the area and the types of production. Building on previous events, natural and financial vulnerabilities are perceived as the main sources of risks. In fact a number of events have been identified and can be synthesized as pest attacks, destruction of crops by wild animals, harmful weather events, economic crises and market variability. Most of farmers are worried about climate issues and wild animals:



those living in isolated territories are more exposed to crop damages caused by wildlife such as wild boars, roes, porcupines; the presence of wolves is a problem that particularly affects animal breeders. Shifts in markets and changes in consumption patterns, the relevance and impact of globalized markets, risky investments are factors that seriously concern both SF and SFB. Technological risks are perceived to a lesser extent than natural ones. Furthermore, building on the ageing of the rural population and turning to old farmers who rely on agriculture as a main activity, they usually have a traditional approach to agriculture, very conservative and resilient in order to preserve, but scarcely innovate their farm. The main concern for them is given by generational change as there is a high risk of land abandonment.

With regards to vegetables production, the major risk that seems to be perceived by farmers is related to shifts in the market and financial vulnerabilities. Building on past experience, it is very difficult for farmers to compete with the large distribution and it is difficult to maintain sustainable prices for producers. In these terms, in fact, some farmers ask for the existence of “someone or something” able to arrange the local productions, for making supply meet demand. What farmers would like to overcome is the impossibility to predict which of their goods will be sold and to plan production and orders accordingly. A logistic platform or a predetermined system could function as an entity able to give indications and directions according to food local needs. This would also allow reducing phenomena of waste food and food losses. Similarly cereal producers have been concerned by low sale price and as a consequence they tended to select traditional and neglected varieties with low yield productivity but able to target more profitable niche markets. Meat producers since at least two decades have oriented their production to enhance food safety and food quality, targeting consumption patterns characterized by lower quantities but higher sale prices.

Key products and regional food balance sheet

a. Key products produced and consumed in the region

Considering the products included in the balance sheet we have decided to address the following key products:

- Soft and durum wheat. Wheat is rather relevant in the region and is processed and consumed also through local wheat to bread supply chains and smaller wheat producers experimenting with local varieties.
- Vegetables. Vegetables – such as tomatoes, potatoes, spinaches, chards and cabbages - are relevant in particular in relation to consumption and health. Differently from the other reference region (Lucca), in Pisa there is a surplus of vegetables in comparison to consumption.
- Wine. This is also a relevant product for Pisa, interesting for export dynamics and quality standards.
- Meat (bovine). This local production is not able to cover consumption needs and is integrated by flows of meat product from outside the region. Livestock has suffered



a decline trend in recent years. There are some local circuits that make this supply chain an interesting case to study in depth.

b. Balance of production and consumption of key products in the region

The agricultural sector of the province of Pisa has many potentialities, not fully valorised yet. The 70% are small farms; the flat land counts the presence of several medium-large sized farms predominantly on cereal production. In terms of relevance, the main crops in the province are: cereals, vineyards, olive groves, vegetables and cattle. As far as the small farms business segment is concerned, the most widespread crops are: vegetables (almost all the farms of the province dedicate a small part of their territories to horticulture, for this reason we can affirm that vegetable crop is the most scattered and widespread activity), olive groves, cereals and vineyards.

Recently there has been a decline in all the production sectors, in particular with livestock farming; considering the fall in grain prices, a decrease in the number of cereal farms is also expected. The small producers located within 60 km deliver their products to the Agrimercato Cooperative, which coordinates the direct sales and manages all the local markets of the province. The Agrarian Consortium of Pisa owns the necessary facilities to meet the needs of the producers, but it's not able to provide an adequate logistical support. Weekly markets offer the full range of products: vegetables, local fish, meat, cheese, artisan bread, pasta and some external products, such as oranges from southern Italy during the winter season. Almost all of the local production is consumed in Tuscany region, except for oil and wine that are also exported outside regional borders.

Table 2: Balance of production and consumption of key products in the region

Category	[B]	[C]	[D]	[E]
	Approximate amount produced in region (ton/year)	Approximate amount consumed in region (ton/year)	Balance (consumed - produced) [B-C]	% surplus-deficit on total consumption [D/C]
Cereals	107,633.48	38,866.73	68,766.75	176.93%
WHEAT (<i>t. durum</i>)	61,899.78			
Vegetables	94,035.98	23,577.69	70,458.29	298.83%
Wine grapes	243,081.77	10,144.62	232,937.15	2,296.16%
Cattle products (Beef)	21,731.3007	45,906.69	-24,175.3893	-52.66%

c. Official statistics and key products in the region

Databases of the Italian National Institute for Statistics-ISTAT (production), INRAN-EFSA (consumption) and RICA (yields) allowed us to adequately assess the production of key products in the region.



Food system: Key nodes and flows and role of small farms and small food businesses

3.1. Key product 1: Vegetables

- a. Nodes in the regional food system: production, processing, commercialization and retail

Small farms in the RR represent the main source of vegetable production, while medium and large farms produce the remainder. Small farms mostly sell their products – fresh and processed - directly to consumers, small local groceries, restaurants, cooperatives, consortia, big retailers, solidarity purchasing groups, and, as a last resort, to wholesalers. On-farm processing is increasing for small farms, especially thanks to the new development of agro-touristic activities and easier accessibility of micro-processing technologies. Medium and large farms are engaged in the same sale channels, but they supply public canteens (Universities) and they have stronger relationships with big retailers.

- b. Flows connecting the different nodes in the regional food system

Sale channels for small farms producing vegetables are pretty fragmented and are represented mainly by direct sales on-farm, local farmers' markets and local cooperatives that, in turn, directly supply local consumers (the main local cooperative is located just outside the RR, within the same administrative region of Tuscany). Big retailers represent a sale channel of no more than 5% for small farms while for medium and large farms big retailers represent 10% ca. of their sales for vegetables. Connections between big retailers and small farms barely exist at now, mainly because of the low prices imposed by supermarkets, for the high level of standardisation requested and for high and constant quantities demanded. Solidarity purchasing groups are particularly relevant for vegetable production in the RR. Wholesalers are considered the last resort, only for the unsold products. In addition to extremely low prices imposed by wholesalers, the local producers are no more acknowledged for the particular features of their products since traceability is lost. The flows from primary producers might diminish do to the potential decrease of small farms as a consequence of too strong market competition and management difficulties for small producers. Consistently, the length of the value chain might reduce as many small farms will integrate on-farm processing and diversifying activities.

- c. Role of small farms and small food businesses within the food system

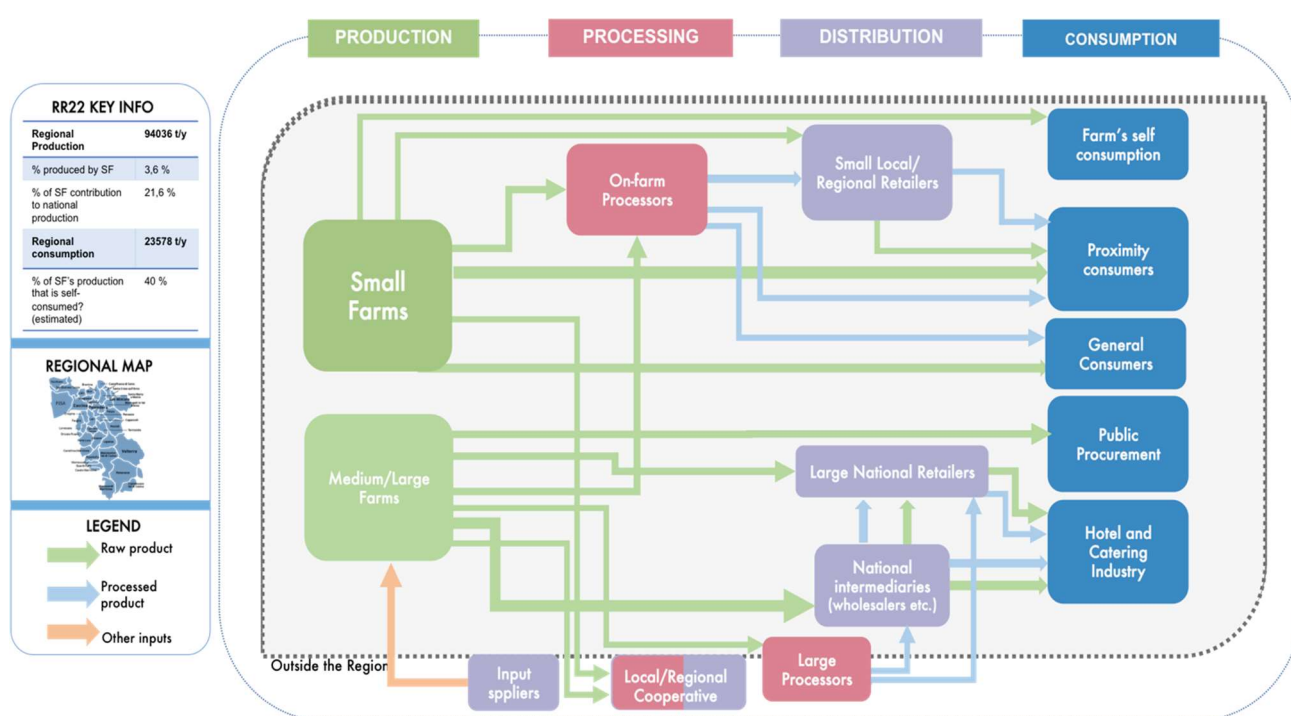
Small farms producing vegetables in the RR represent 90% of the vegetable farms and 50% of the RR vegetables' production. While on-farm vegetable processing is increasing, small external processors are not relevant in the RR. The direct sales of vegetables from small farms to local groceries are estimated barely more than 1%, even if for specific local shops and processors (ice cream producers), sales from small farms can represent 100% for



vegetables. Restaurants find it hard to be supplied only from local small farms since they are not able to guarantee the quantity and the frequency of supply the restaurants need.

- d. Importance of household self-provisioning in small farms and small food businesses

The vegetable producers interviewed have demonstrated to be pretty self-sufficient (from 20% to 70% of their total basket). Beyond a total or very strong self-sufficiency for vegetable products, including potatoes, these producers internally produce for own consumption important quantities of eggs, oil and fruit. If meat and wine are not strongly produced by vegetable farms, some farms are partially or globally self-sufficient for this produces, while for both cereals and dairy small farms producing vegetables are not producing on farm and, therefore, are not self-sufficient.



3.2. Key product 2: Wine grape

- a. Nodes in the regional food system: production, processing, commercialization and retail

From interviews and focus group it emerged that 90% of wine firms is composed of farms up to 10 hectares. Such farms are considered, in the RR territory, as small farms for wine production. For this reason, experts, stakeholders and producers involved in our research have suggested to increase the wine small farms' threshold up to 10 hectares. Almost all farms are on-farm processors for wine. However, it emerged in our RR there is an important local wine cooperative that gathers the 10% ca. of the grapes produced by small farms of the



province. Direct sales and local retailers are particularly important for small farms producing wine. Moreover, local and national intermediaries as well as exporters are relevant actors for distributing local wine production. Beyond the size of the wine producers, intermediaries and exporters can be particularly interested on the quality factors as well as on the typical characters of the wine produced. Local restaurants are relevant buyers of local wines. National and foreign tourists, together with local consumers (mainly through direct purchase channels or supermarkets), purchase wine at a local level.

b. Flows connecting the different nodes in the regional food system

With regards to processing, participants estimated that almost all grapes are processed within each farm, approximately 90% for farms up to 10 hectares and 100% for farms above 10 hectares. Relating to commercialisation and retail of small farms with internal processing, approximately 50% of sales are directly managed by farms towards consumers (considering also tourists), 25% ca. is sold to local small retailers and 10% ca. to local restaurants. Both local small retailers and restaurants are suppliers for local consumers and national/foreign tourists. To a lesser extent small farms also sell their wine to local and national intermediaries (which supply restaurants) as well as to exporters; intermediaries' commercialisation of wine from small farms has been estimated around 5% but this rate is supposed to increase in the future. Small farms rarely sell their wine to national retailers. The local wine provided to national retailers is mostly supplied by a local cooperative which accounts for 10% of grapes produced by small farms. The local cooperative sells 50% of its wine production to big retailers (supermarkets for local and national consumers), 30% directly to local consumers and 15% ca. to local restaurants.

The local value chain of small wine production – thus, the wine supply between small-farms and local consumers or local retailers – is vulnerable to the low prices and large choice of wines proposed by the national retailers (at a national level big retailers represent 60% of supply for consumers).

c. Role of small farms and small food businesses within the food system

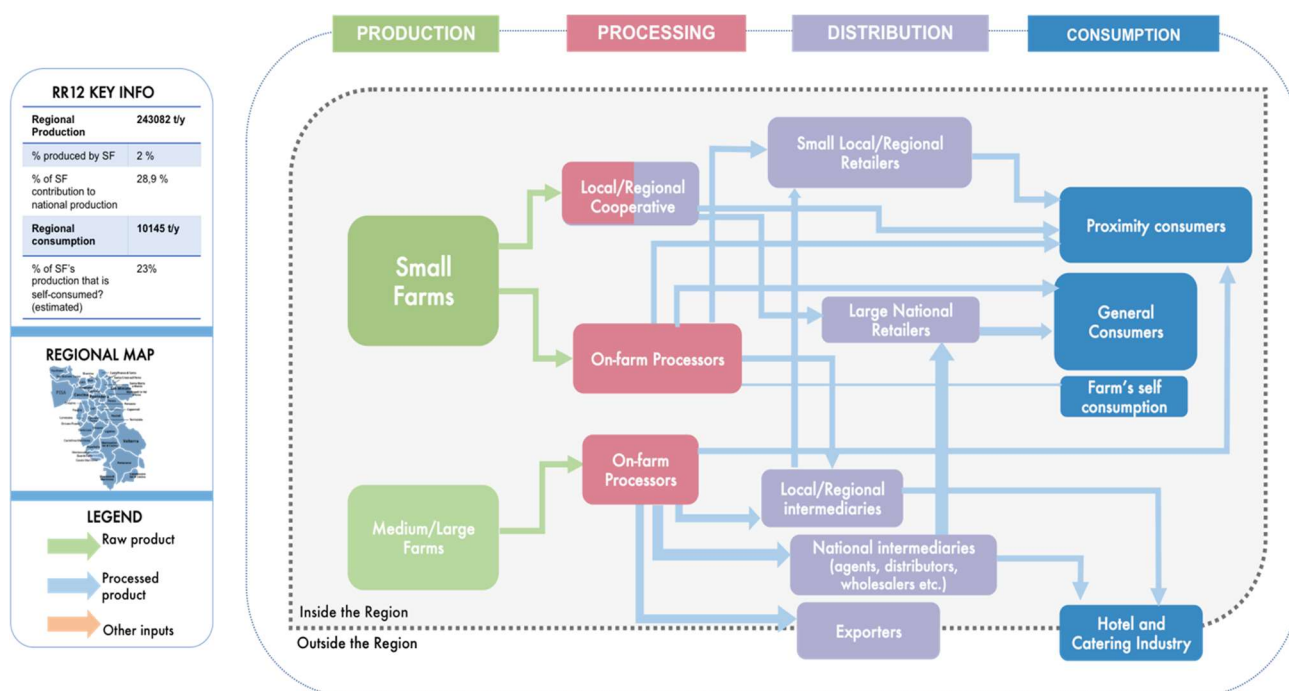
As reported above, in the RR small farms producing wine (up to 10 hectares) represent 90% of wine firms producing the most of the RR wine (grape and wine). Such wine production is mainly commercialised directly by the small farms (50%), targeting local consumers and, to a lesser extent, tourists. Small wine retailers contribute to sell local wine to consumers and represent 25% of small farms' supply. Small farms producing grapes and supplying the local wine cooperative (10% of them) indirectly integrate the mainstream wine market represented by big retailers. Small food business such as local groceries, specialised small retailers and restaurants are key to promote local producers to regional consumers and tourists.

d. Importance of household self-provisioning in small farms and small food businesses

Wine producers interviewed are partially self-sufficient with regards to total basket consumed in their household. The most self-sufficient wine farmers are able to produce on-farm the



half of their food needs. Beyond the self-sufficiency for wine and wine grapes, small wine farms are self-sufficient especially for olive oil. In addition, the on-farm production of vegetables contributes to the partial self-sufficiency of wine farms, in particular with potatoes and fruits. Meat and dairy products are not produced on farm by wine farms, while in some cases eggs are internally produced and consumed.



3.3. Key product 3: Wheat

- Nodes in the regional food system: production, processing, commercialization and retail

Small farms represent the main source of wheat production in the RR. Their production is then concentrated in stocking cooperatives that, in turn, supply big mills outside the RR. Big mills then sell wheat products to big pasta factories, eventually through middlemen. Some small farms carry out on-farms processing and sell it directly to consumers, tourists, or local groceries, but this value chain represents a niche context.

- Flows connecting the different nodes in the regional food system

From the FG discussion it emerged that 98% of the wheat produced by small farms (which should account for 65% of the RR wheat production) is delivered to local stocking cooperatives that, in turn, sell the primary produces to small mills inside the RR, to big mills outside the RR, and they also sell processed produces to national retailers. At this step, the processed wheat is outside the RR and they are traded directly, or through middlemen, to pasta factories. Small quality production and processing from small farms, to local groceries



and consumers represent a niche context. The main external shock for all wheat producers is represented by unpredictable and adverse weather conditions and climatic events. In some cases niche and quality productions face a saturated market, since also mainstream production and supermarkets are targeting such niche demand for wheat. This is exacerbated by a low level of information transferred to consumers on the variety origin of wheat as well as on the quality of traditional processing methods. Therefore, quality and niche oriented producers facing a saturated market might change again their production model and get back to mainstream supply. The flows from primary producers might diminish do to the potential decrease of small farms as a consequence of too strong market competition and management difficulties for small producers. Consistently, the length of the value chain might reduce as many small farms will integrate on-farm processing and diversifying activities (e.g. agro-tourism, etc.).

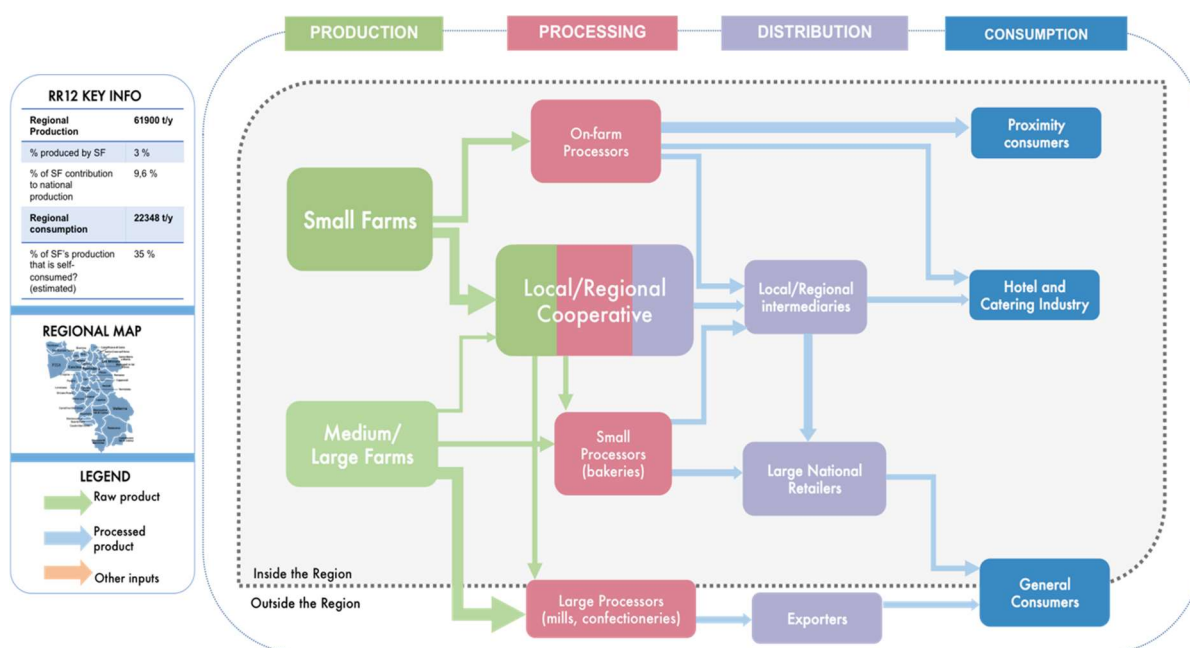
c. Role of small farms and small food businesses within the food system

Small farms producing wheat in the RR have been classified under 30 ha of UAA. Between 30 and 80 ha we identify medium farms, and above 80 ha they are large farms. However there is much debate about the classification of different size of farms. In particular producers consider that other dimension units should be used as references to classify the size of the farms, such as overall turnover or stock capacity. Small farms producing wheat are estimated to represent 65% of RR wheat production, while medium-marge farms would contribute with 35% to total RR production. The on farm processing or the product delivered to small local processors account for barely 2% of the small farm wheat production. In fact, the main role for the milling activities is played by large mills outside the RR which therefore supply large pasta factories in the north of Italy. Small farms carrying out on farm processing, producing pasta and selling it directly to local groceries or consumers represent few niche activities. Such niche productions are disconnected with the mainstream value chain dynamics.

d. Importance of household self-provisioning in small farms and small food businesses

The producers of wheat that we have interviewed have showed that small wheat farms in our RR are able to be self-sufficient until the half of their food needs. However, since they are not processors, these farms are totally dependent on purchased wheat products. On the other hand, small wheat farms can produce wine and grapes, olive oil, vegetables, potatoes and eggs up to quantities that can guarantee them the complete satisfaction of their consumption need for each of these products. To a lesser extent such farms can be self-sufficient for fruit and meat consumption, while they are totally dependent on purchased dairy products. With regards to using on-farm produced wheat for animal feeding, no data were observed; however it emerged that small farms produce wheat mainly for human food.





3.4. Key product 4: Beef

- a. Nodes in the regional food system: production, processing, commercialization and retail

Before describing the nodes regulating the meat flows within the regional food system, it is important to stress some crucial points related to the reference thresholds for determining small meat producers. On the one hand we can consider small meat farms the producers who own 20 heads of cattle in the rearing of cows and calves. On the other hand 30 heads of cattle represent a small production if the farmer is a fattener. It is also important to highlight the relevance of the external and foreign cattle farming that are supplying small local butcheries in the RR.

With regards to the production of small meat farms in the RR, they mainly supply big processors through the intermediation of a local producer association. Small farms also supply fatteners that, in turn, supply big processors by mean of the above mentioned producer association. Big processors then supply big retailers and wholesalers mainly oriented towards restaurants. Also big processors, for their supply, are supported by mean of the intermediation of the local producer association. Big retailers are also supplied by some fatteners who process the meat internally. Small farms also supply small local processors and butcheries for local consumers and tourists.

- b. Flows connecting the different nodes in the regional food system

At a local level, the most important flows of small farms producing cattle are represented by the links of small farms with fatteners (up to 25% of sales) and big processors (up to 50% of sales). In turn big processors also represent a main sale channel for fatteners with up to 50%



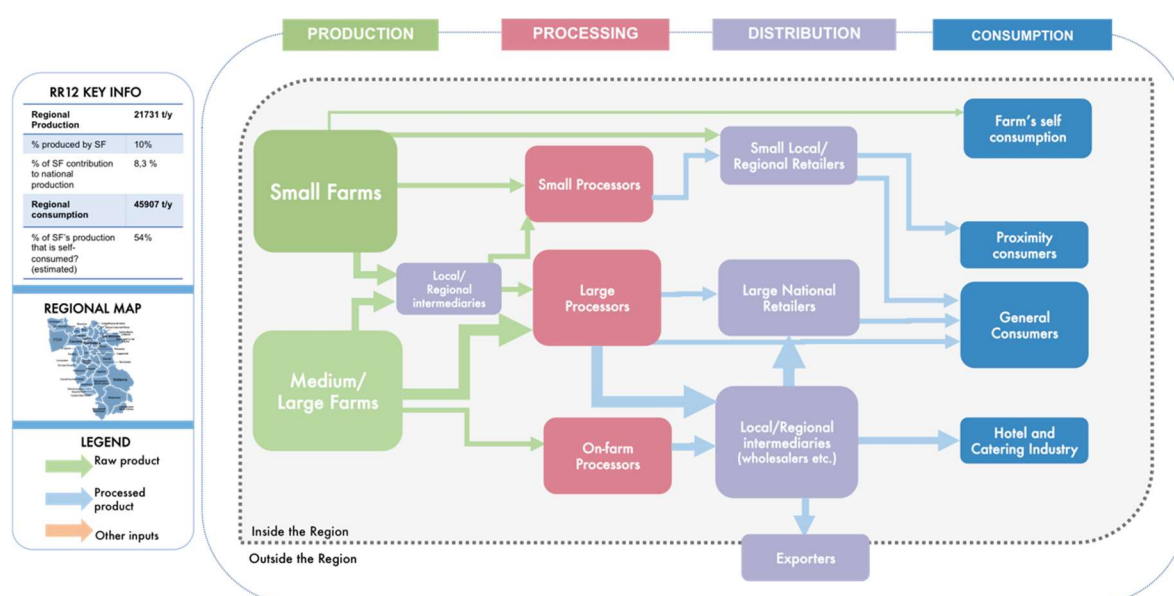
of sales. The big processors of bovine meat represent the main processing node and link with distribution. In fact big processors supply big retailers with up to 75% of their production. The remainder meat production (up to 25%) is sold to local wholesalers for local restaurants. The flows from primary producers might diminish do to the potential decrease of small farms as a consequence of too strong market competition and management difficulties for small producers.

c. Role of small farms and small food businesses within the food system

Small producers of bovine meat in the RR supply big processors that, in turn, supply big retailers. Together with fatteners, small farms produce mainly local species that are branded and that can represent up to 10% of the bovine meat available in local supermarkets. Small producers integrate the main local food system (supermarkets for local consumers) thanks to the activity of the local producer association that allow to track and certify the quality and the origin of the local meat, and guarantee suitable business relationship with big retailers. Local consumers access to local meat purchased through local butcheries that are supplied from small local meat producers. Direct sales from small producers or fatteners do not exist anymore, mainly for food safety restrictions and for changes in food consumption patterns. In fact the quantity demanded directly by consumers have sensitively decreased, while the quality has increase, thus meat consumers are mostly oriented to be supplied by supermarkets.

d. Importance of household self-provisioning in SF and SFB

Meat producers interviewed showed to be partially or nearly self-sufficient on a number of different food items. Beyond the self-sufficiency for meat, most of them are totally self-sufficient for eggs. In addition, some of them produce and consume vegetables, oil and fruits, in quantities that allow a total self-sufficiency. Only meat producers with particularly diversified activities internally produce dairy products and cereals.



Typology of small farms in the reference region

a. Small farm types in the region

The preliminary typology of small farms in Pisa takes into consideration two main variables at the same time: the degree of market integration (% of farm production to be sold in the market) and the degree of self-sufficiency (the degree household consumption is satisfied with own production).

TYPE 1 (Agriculture as a residual activity in the household) (S.S.< 50%, M.I. <50%): it is characterized by low self-sufficiency and low market integration. These farms usually do not process their products, they depend on intermediaries for the product they sell, they have a low productivity, they are specialized into one or a few products and their production is mostly self-consumed.

TYPE 2 (“autarchic”). These farms are self-sufficient but not much market integrated (S.S.> 50%, M.I. <50%). Very diversified farms, oriented to satisfy the household consumption; horticulture usually sided by animal breeding (poultry, courtyard animals).

TYPE 3 (“Commercial”) (S.S. <50%, M.I> 50%): These small farms have low self-sufficiency but are very market integrated. Highly specialized and market oriented, they process products and integrate multiple marketing channels.

TYPE 4 (“Virtuous”) (S.S.> 50%, M> 50%). These farmers are very self-sufficient and market integrated. Very diversified and oriented to quality production. They self-consume their product, but hold enough value-added quantities to success on the market.

Interviews have suggested further elaboration of this typology. We can consider two other important variables to characterize our farmers that brings to four types more:

- Farming activity which plays a primary or secondary role in household income
- Age of the farmer, who can be young or old.

Specification	Type 1	Type 2	Type 3	Type 4
Share in the RR	32%	11%	39%	18%
No of plots	5	6	8	4
Main crops produced	vegetables, wheat, maize	vegetables, wine	wine, vegetables, forage (cattle breeders)	vegetables



Share of production used for self-consumption	62%	84%	18%	25%
Share of family food needs from own production	40%	50%	32%	37%
Medium farmers age	> 60	50-60	40-50	25-40

Young farmers who rely on agriculture: they live a challenging situation, in terms of the household food security which may be backed up by family if farming is not sufficient. Often these households may turn to their products for self-consumption. Usually young farmers inherited the property.

Young farmers may concurrently have other activities, therefore farming represents a hobby or less than 50% of working time. Some of these farmers can directly run the farming activity while others require external support. This model resists because it is highly remunerative (e.g. agri-tourism, small processing).

Old farmers who rely on agriculture as a main activity, they usually have a traditional approach to agriculture, very conservative and scarcely innovative. There is a high risk of land abandonment because of difficult generation transfer.

Old farmers who find in farming a secondary but important activity. This has different characteristics depending on the territorial location (mountains and remote areas vs. urban and peri-urban farmers).

b. Role of small farm types in the regional food and nutrition security

All farmers interviewed, within all the typologies, did not complain any difficulties in terms of food and nutrition security intended as availability, physical and economic access to food, while a very minority has indicated a lack of diversity in the diet occasionally. However, some farmers, especially those that rely on farming as a main activity, may have a difficulty in making end meet, from an economic sustainability point of view.

Governance

a. Main interactions of SF and SFB with governance structures in the region

Small farms in the RR are commonly connected to producers' trade organisation. Vegetables and cereals' producers are linked to these associations (e.g. Coldiretti, CIA, etc.) from which they mainly get support for valorising produces and for accounting and management. In the bovine meat value chain local producers' association are extremely important for small farms as they get support for accounting, management and administration, as well as for



professional training and artificial insemination of cattle. Furthermore wine farms, as SFs and SFBs, are connected to different kinds of producers' organisation such as general trade organisation or specific wine producers' associations that support territorial promotion and sales of wine. SFBs are also supported by trade organisations and associations especially for the farm management.

With regards to production rule imposed by institutions they relate mainly to hygiene regulations, HACCP for food processing, qualitative standards and certifications, health and safety requirements at the workplace, animal welfare, administrative burden, VAT on produces and taxes on land ownership. Generally such rules are perceived to be highly time consuming with no particular advantage for producers. However, wine producers who adhere to and respect standards and certifications, consider these tools useful for keeping sale relationships, quality and for promoting their products. In fact, with regards to standards and certification, we have observed that small farms that carry out organic agriculture or food processes are certified to be organic producers by third parties. Also PGI and PDO represent standards that are important for wine producers in promoting and selling their produces.

b. Levels of governance and their relative importance for SFs and SFBs

Subsidies from public institutions, such as the European Union, mainly imply agricultural activities (CAO, RDP), leaving pure SFB (excluding wine farms) excluded from such financial supportive programmes. On the other hand, SFBs are more used to obtain credit from local bank for further investing and growing their production.

c. Constraints impairing full participation in the food system

As explained above, public subsidies from European funds are mainly directed towards agricultural activities, thus towards SF rather than SFB. SFBs, as processors, are particularly concerned by the respect of HACCP and of the cold chain principles.

We have not observed discrepancy between small farms and larger farms with regards to the participation in the food system.

d. External policies, decisions and social norms affecting food systems

Market demand for small farms, mainly led by local consumers, orientate the production model of small farms in our RR. It was interesting to observe that, if on the one hand local market demands regularity and specific quantities supplied, on the other hand this market also asks for local and rare vegetable varieties that imply traditional cropping methods.

e. Gender issues intersecting governance issues

We have not observed gender issues.



f. Other actors and processes important for the regional food system

In the case of vegetables, during a focus group it was highlighted the need to include in the map **solidarity purchasing groups** as customers of small farms and as intermediate or suppliers for consumers. Also **agrotouristic farms** were mentioned as relevant purchasers of vegetables from small farms, as well as an on-farm activity absorbing and giving value to the vegetable production of small farms.

During the “bovine meat” focus group, participants highlighted the need to involve in the map the **fatteners**. In addition, participants included in the map the local **meat producers’ association** which is a crucial actor for quality certification and also acts as intermediate between primary producers and slaughterhouses.

Regarding the value chain of wheat, participants to the focus group added in the map the role of **stocking cooperatives** in the RR that are crucial actors acting as intermediate between producers and processors (mills). Outside the RR, participants added **pasta factories** as purchasers for mills.

g. Forms of collaboration and organization between small farms

Small farms also collaborate between each other, especially for labour. Neighbour farmers might help small farms for bottling wine or for harvesting grapes. It might also occur that small farms borrow machinery to other small farms. However, informal collaboration between small farms are rarely observed since individualism between farmers emerge as a common characteristic in the rural areas of the RR.

h. Forms of collaboration and organization between small farms and consumers

Solidarity purchasing groups are a typical form of collaboration between small farms and consumers. Such model of collaboration mainly involve vegetable products, and, for the characteristics of the products and of the value chains, wheat, bovine meat and wine are less concerned.

i. Relationship between small and large farms, and between small and large businesses

We have observed poor collaboration and relationships between small and larger SFs and SFBs. With regards to the wheat sector medium and large producers might hire machineries (and their labour) to small farms.

Small Farms and rural livelihoods

c. Importance of household labour in SFs

For SF household labour is particularly important if compared with hired labour, especially for meat and wheat producers. Vegetable producers tend to give relatively more importance



to hired labour if compared with meat and wheat producers, while for wine producers hired labour is pretty important. With regards to SFB household labour is also crucial but relatively less if compared to SF since also hired labour nearly contributes for the half of the labour needs of SFB in the RR. While for SF household labour accounts for more than the double than hired labour.

d. Farm and non-farm income in the SF's households

With regards to non-farm income we have observed that for small farms in our RR it accounts for almost two thirds of the total household income. It is firstly important for wheat farms, and, secondly, for vegetable and wine farms, while for meat farms it accounts only for nearly the half of the total household income. Within this context, subsidies are strongly important especially for wheat farms, wine farms and meat farms with a contribution to the total income up to 90%, 60% and 55% respectively. These subsidies are mainly coming from CAP, OCM for wine and organic farming. Differently, subsidies for vegetables production are extremely weak and almost all producers do not get CAP subsidies.

e. Shocks and coping mechanisms of SF households

The main shocks for rural households are represented by the decrease of business profitability. Household have coped by diversifying the HH income with external activities, or integrating non-agricultural on-farm activities and diversifying products.

Role of Small Food Businesses

a. Main insights and patterns

In relation to small food businesses, they play a different role according to the areas of reference and key product. Wine producers tend to process their product to preserve value added within the farm; also vegetable processing plays a key role in this sense, but a lack of infrastructure and logistics was mentioned as a limitation for smaller farms. Agro-tourism can play a crucial role for small food business since they increase the on-farm processing of agricultural products such as olive oil, wine, canned products, jams, etc., (more and more through microprocessing technologies). Their activity of small food business is extremely important with regards to catering. Furthermore, agro-tourisms are also small local shops where it is possible for local consumers and tourists to purchase farm products and for the producers it represents a direct sale channel. The development of these diversification and multifunctional activities was also encouraged and supported by regional policies. However, compelling to standards and sanitary regulations is an issue for small food business that did not represent an obstacle for the fast emergence of agro-tourism in the territory.

b. Labour in SFB work



With regards to SFB household labour is crucial but relatively less if compared to SF since hired labour contributes only for the half of the labour needs of SFB in the RR. Hired labour appears to be more important in wheat and wine SFBs. For vegetable SFBs hired work still represents an important contribution to the whole labour needs of the activity. Meat SFBs appear to demand much less hired labour than the other production activities, since household labour seems to almost satisfy the work needs. Overall, labour always represents one of the main factors needed to improve the business activity in SFS and meanwhile one of the mains constraints because of the high cost and the lack of specialised workforce available.

c. SFB income

From our analysis it emerged that SFBs processing vegetables, wine, wheat and meat in our RR get subsidies only linked to the agricultural production of their business activity. Thus, subsidies sources are only agriculture driven and derive from CAP, RDP, OCM (wine) and organic farming. Therefore, SFBs whose activity do not involve agricultural production do not receive any subsidies.

d. Shocks and coping mechanisms of SFB households

Risks, both for SFs and SFBs, are mainly linked to natural vulnerabilities and criticalities of the territory. With regards to SFB in particular agrotourisms, they have fostered the local and traditional productions and food transformations in order to cope with negative climatic conditions through processing canned products that allows to have product availability all over the year and to create and capture value added.

The Future

a. Main objectives and priorities of SF for the future

Overall SFs in our RR aim to maintain their business activity or to improve their production in both terms on quality and quantities, as well as to open new market channels to sell their products.

Wine producers aim to increase production, target export and improve quality, increase territorial marketing and promote local grape varieties. Bovine meat producers mentioned circular economy in the farms as a crucial objective to achieve economic sustainability respecting human health and environment. Meat producers target innovation, organic production, to increase production and increase low cost grazing availability. For producers it is important to increase the product and management quality, diversify the production, innovate in order to overcome workforce constraints and develop coordination network.

Vegetables' SFs aim to implement territorial projects developing networks and value chain coordination between SFs to build a supply platform. They aim to implement a traceability system, an effective communication about origin, quality and seasonality of products. Producers aim to increase productivity, reducing costs, developing direct sales and on-farm



processing. It was highlighted the importance to hire socially disadvantaged workers. Vegetable producers see on-farm processing as an opportunity to increase income, diversifying the supply and organising tasting sessions. Producers highlighted the importance of increasing the custody of varieties at risk.

Wheat producers aim to build network gathering and giving value to produces, coordination, communication, synergies between producers and public canteens, identifying coordination tools along the value chain. They aim to improve niche production, increasing knowledge on healthy food (training health workers, families and teachers). Producers would like a viable production to be sustained, through diversification, identifying new markets and applying circular economy.

b. Main objectives and priorities of SFB for the future

In general SFBs main objective is to maintain or improve their business activity over the time. For the wine sector it emerged, from a local small retailer, the aim to firstly stabilise the business activity, and then to develop export of wine from small farms of the RR. Concurrently, such wine SFB could develop different kind of sales, involving other food products, organising tasting sessions and promotion of local food products. In general, for wine SFBs, the aim is to increase production and related business and to improve the ration income/labour. Vegetable SFBs aim to improve their business, considering environmental sustainability. They aim to further invest in communication to explain consumers the seasonality and the quality of the products. A crucial issue is also to find a constant supply channel from local SFs. Wheat SFBs aim also to achieve an economic sustainability of their activity. It is important for them to respond to the needs of consumers, keeping their traditional principles and methods of production, and communicating the importance of the quality of raw materials and processing methods. Meat SFBs aim to keep constant their activity, investing in promotion of their products and on the consumer knowledge for quality.

c. Risk perception by SF

Overall risks for SFs involve the administrative burden, economic crises, market competition and climatic events.

Wine SFs are concerned by an increasing administrative load. The availability of workforce is an issue considering that there will not be a generational change. The lack of links with research will not help find solutions to production and market issues. Wine SFs fear financial crisis, lack of capitals and competition from cheaper markets and new local producers such as bottlers. They perceive a lack of information on about quality and territorial specificities from sale professionals. Production costs rise because of adverse climatic events and pest attacks. High costs of labour discourage SFs from hiring workers.

For meat SFs administrative burden and food safety restrictions represent the main risks demanding professional consultancy. Risks include deterioration of structures, wild animals' attacks, bad information and knowledge of consumers on quality, increasing prices of grazing



lands, lack of generational change, dependence on informatics, need of sharing services, financial crisis and capital availability. Climate change, with adverse climatic events, drought and the consequent abandonment of land are crucial issues.

Vegetables' SF are concerned by an increasing administrative burden, low credit access, lack of information and knowledge of consumers on quality and seasonality of vegetable produces. Adverse climatic conditions are a main issue for SF, with consequences on yields, prices and market fluctuations.

Wheat producers fear a diminishing culture and knowledge/information on product quality. Risks involve the decrease of market absorption of the wheat products and the increase of low cost competitive products from external markets. Concerns include the fragmentation of the value chain, the growing administrative burden, increasing costs of labour and lack of credit access.

d. Risk perception by SFB

Wine SFBs are mainly concerned by climate change, pest attacks and related market conditions. Also administrative burden is still considered a crucial issue with particular reference to food safety restrictions (HACCP, etc.). vegetables' SFBs are also concerned by both climate change and the increasing administrative load that is time consuming. Also credit access is a crucial issue as well as food safety restrictions. Wheat SFBs consider that the main risks are represented by the lack of knowledge of consumers, the lack of information about pasta quality and they fear the unfair competition from big producers.

e. Food system forecast in 5, 10 and 20 years

The wine map is not considered to change in the next 5 years. In the next 10-20 years production might increase and many small wine farms of the region risk disappearing due to increasing competing on the market for both quality and quantity. For the meat value chain, there might be in 10-20 years a decrease of breeders and of local butcheries, concurrently with an increase of meat sales in supermarkets, and increase of demand of processed meat, a growing quality of meat in discount supermarkets, a better coordination for sharing technology. The main local slaughterhouse could stop the activity. For vegetables' value chain, in 10-20 years it is expected an increase of on-farm processing, an increase of direct sales as well as a growth of sales to solidarity purchasing groups. Concerning wheat a decrease of primary producers is expected, with low coordination and difficulties to achieve all the value chain's steps inside the RR.



Annex: List of resources

e. List of key experts interviewed

Key Experts type	Role
Cooperative	Director
Advisory Services	Director of Coldiretti Pisa
Retailer	President
Consortium	President
Advisory Services	Technical manager
Retailers GDO	Commercial manager of CONAD “national retail consortium”

f. SF and SFB interviews and focus groups information

Stakeholder typology	N° of participants						How were they contacted?
	Interviews			Focus Groups			
	Men	Women	Total	Men	Women	Total	
Farmers	15	9	24	14	6	20	Through local policy-makers and farmers
Producers' cooperatives	1		1	4		4	Through local policy-makers
Slaughtering facilities	1		1	1		1	Through local advisory services
Processors (small/large)	5	2	7	3	2	5	Through local policy-makers
Wholesalers			1	2		2	Through local advisory services
Retailers	2		2	2		2	Through local policy-makers
Caterers	1		1	3	1	4	Through local policy-makers and advisory services
Other small food business		1	1		2	2	Through local policy-makers and farmers
Exporters							
Importers							
Farm inputs suppliers					1	1	Through local farmers
Advisory services	2		2	7	2	9	Institutional contact
Agricultural administration/Ministry of Agriculture							
Consumers' groups/organizations					2	2	Through local farmers
Local administrators and policy makers				3		3	Institutional contact
Political leaders and PMs				1		1	Institutional contact
Other programs/initiatives				3	1	4	Institutional contact
Nutritionist					1	1	Institutional contact



NGOs							
Traditional and religious leaders (for Africa)							
Total	40			61			



4.13. RR13 Ugunja –Kenia– Food System Regional Report



WP3

Ugunja (RR 13) – Kenya – Food System Regional Report

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Table of Contents: Food System Regional Report

1) Socio-economic and agricultural profile of the reference region.....	336
2) Key products and regional food balance sheet.....	338
3) Food system: Key nodes and flows and role of small farms and small food businesses.....	340
3.1. Key product 1: Maize	340
3.2. Key product 2: Bean.....	342
3.3. Key product 3: Groundnut	345
3.4. Key product 4: Cowpea.....	347
4) Typology of small farms in the reference region.....	349
5) Governance	351
6) Small Farms and rural livelihoods	356
7) Role of Small Food Businesses.....	357
8) The Future	359
9) Annex: List of resources	363



Socio-economic and agricultural profile of the reference region

Ugunja Sub County, Siaya County borders the Luo and Luhya ethnic groups. It's approximately 201 Km² and occurs within a 40km radius from the equator and thus enjoys quasi-equatorial climate dependent upon the Lake Victoria ecosystem. Kisumu-Busia highway-a link between Kenya and Uganda traverse Ugunja. Ugunja falls under semi-humid agro ecological zone with rainfall ranging between 1000-2000 mm p.a. The region's population stands at 98,000 persons and a density of about 450 person/Km² (GoK Census, 2009). Approximately, 35% of this population lives below the poverty line of 1.25 US\$ per day. In Ugunja, agriculture is dominated by small farms averaging 0.8 ha. Around 90.5% farmers engage mainly in rain fed crop and livestock farming for both food security and economic purposes. Small farms produce food crops such as maize, beans and sometimes high-value crops (fruit and vegetables), sweet potatoes, cassava, millet and cows for milk and meat. The farm produce is consumed mainly at the household level and partly sold to the traders mainly in the local markets. However, during off-harvest seasons, small businesses/traders play a critical role in importing food from the neighbouring regions into Ugunja region e.g. groundnuts, maize, bananas, fruits from the neighbouring counties, mainly from Busia, Kakamega and Kitale County and Uganda; kales, vegetables tomatoes etc. from Bungoma County among others. The increasing human population and decreasing land size is threatening farming activities because available land is being converted for other commercial activities like building of rental houses and shops. The governments (national and county) and partners are intervening through provision of input subsidies, credit access and extension services to support small farming as an agribusiness.

Table 1: Basic data for the region

Indicators	Data per Region - Nuts 3
Land size (km2)	201
Population (thousands of people)	98,000
Density (people/km2)	487
GDP (thousand USD/inhabitant)	
Total labour force in AWU	
Total number of holdings	
Total Agricultural area (ha)	16,290
Total Utilized Agricultural Area (ha)	13,003
Agricultural Area in Mountain Area	-
% of UAA in the RR	64.7
Average Farm size	0.8
Number of farms by UAA farm size: 0-5, 5-20,20-50, >50ha	
Average size of farms < 5ha of UAA	0.8
Area of main crops (ha) (list the relevant crops below)	
Area of main crops (ha) in farms < 5ha of UAA (list the relevant crops below)	13,003 (maize, beans, sorghum, cassava , sweet potatoes, vegetables)



Livestock (LSU) per type (list the relevant types below)	Poultry (local chicken), cows (majorly local breed and few dairy)
Livestock (LSU) per type in farms < 5ha of UAA (list the relevant types below)	Poultry (local chicken), cows (majorly local breed and few dairy)
Annual work units (AWU) by UAA farm size: 0-5, 5-20, 20-50, >50ha	0-5 ha; 4
Total family labour per farm size: 0-5, 5-20, 20-50, >50ha	0-5; 3

Agricultural technological changes became more pronounced in the 20th Century driven mainly by a combination of factors including both climatic and non-climatic. However, the stakeholders argue that the variety of seeds and planting materials generated in 70s and 80s didn't last long in ensuring high productivity and food security.

The national government initiated the provision of subsidized fertilizers, empowerment funds for youth and women as well as social protection fund for the aged to promote income generation and harmonization of the agriculture sector wide policies but these initiatives have not translated into tangible impact at the SFs & SFBs in Ugunja. SFs still face exploitation by the middlemen in the market, lack of financial viability and business model for farmer groups, as well as general marginalization of the poor in the society.

The attempt to re-introduce agricultural extension services to support and boost agricultural productivity at the SFs has not picked up because the devolved units still face lack of capacity to execute. The County Governments are mandated to implement while the national government provide policy support but the resource support from finance to technical support still require time to be felt at the SFs level.

The table below shows the crops and seed variety adopted, challenges faced by SFs & SFBs, programmes, policies & technologies introduced, system & skills built over years according to the individual interviews for farmers, small food businesses, officials of farmer groups & agricultural extension officers and focus group discussions (FGDs) held for small scale farmers in Ugunja Sub County:

Period	Programmes; Strategies; policies;	Main crop & livestock adopted	Challenges faced by SFs & SFBs	Skills & Input made by stakeholders that facilitate uptake of new crops & seeds & technologies
1970-1980	National Conservation Programme	Local varieties of cassava & sweet potato; improved seeds of maize; soybeans; vegetables (mix of indigenous & exotic species); local breeds of cows, sheep, goats & chicken	Fluctuating prices of commodities, low levels of technology, unprecedented weather extremes (drought & famine), increasing human population, rural-urban migration, emergence of diseases, subdivision of land especially ranches (former white settlement schemes), & the collapse of East African	Trainings on production, soil conservation; agroforestry: improved seeds



		Improved seeds of maize & vegetables	Community (EAC), which affected negatively the small scale farmers & the overall Kenya' economic growth due to collapse of the regional trade	
1980-1990	The World Bank(WB)/International Monetary Fund (IMF) funded Structural Adjustment Programmes (SAPs) adopted by Kenya in 1986	Local & improved varieties of cassava & sweet potato; improved seeds of maize; soybeans; vegetables (mix of indigenous & exotic species); local & exotic breeds of cows, sheep, goats & chicken	intense frequency of drought cycle, unpredictable rainfall, emergence of pests and diseases and deterioration of the soil fertility; rigid policies, slowed economic growth, & changes in the external economic environment	Trainings on production, soil conservation; agroforestry: improved seeds and irrigation; intercropping crops with shrubs/trees
1990-2000	Agroforestry programme; Lake Victoria Environment Management Programme (LVEMP),	Improved seeds of maize & vegetables	Fluctuation of weather patterns; distorted markets; lack of access to quality inputs; middlemen/women exploiting farmers	Training of farmers ; agroforestry
2000-2010	National Development Poverty Reduction/Eradication Plan (NPEP) 1999-2015	Improved seeds and planting materials for banana (tissue cultured) ; vegetables; maize; cassava; groundnuts; beans; Sweet potato	Farmer groups lacked financial viability & business model, quality inputs, lack of markets for their products	Training of farmers on demand driven & farmer-led extension services; Improved varieties introduced; Establishment of small scale farmer led interest groups and forums; gender issues (women)
2010-2017	Kenya' Vision 2030; The National Accelerated Agriculture Inputs Access Programme (NAAIAP); National Expanded Irrigation Programme; Government of Kenya and Sweden jointly funded Agricultural Sector Development Support Programme (ASDSP) to support implementation of the Kenya Agricultural Sector Development Strategy (ASDS), 2010-2020	New livestock introduced: Pigs, poultry & dairy cows; groundnut; Tomato; Yam; Maize; Banana; Sweet potato (Orange Fleshed Sweet Potato_(OFSP); local poultry; Beans; Vegetables	Intense frequency of drought cycle, unpredictable rainfall, emergence of pests and diseases and deterioration of the soil fertility	Irrigation; lime application; training; market & production information; certified inputs; organic farming; & Country Governments introduced subsidised fertilizer & seeds of maize & beans to date; consolidated agricultural reform legislation; empowerment funds for youth & women; promotion of public private partnerships (PPPs)

Key products and regional food balance sheet

a. Key products produced and consumed in the region

Key products produced and consumed in Ugunja:

1. Maize,



2. Beans
3. Groundnuts
4. Cowpeas

Other crops include, cassava, sweet potato, banana & indigenous & exotic vegetables like kales & cabbage.

The identification of the staple food in Ugunja was made possible through a combination of methods as follows:

- **Step 1:** Review of secondary data existing at the county and sub-county offices
- **Step 2:** Consultation with community of practice and agricultural stakeholder (including supermarkets and sub-county officers /key informants especially on areas/crops they can clearly estimate or approximate the figures
- **Step 3:** Interview with a sample of 10 farmers – two for each major crop e.g. 2 major cereal producers, 3 major vegetable producers, 3 oil crop producers, 3 milk (livestock) producers and 3 fruit producers.
- **Step 4 :** Focus group discussions with groups of small farmers e.g. 10-15 in number to harmonise the figures and analyse gender issues
- **Step 5:** Researchers' opinion and experience in the region

b. Balance of production and consumption of key products in the region

Crop	Produced (tonnes/year)	Consumed (consume all but not tonnes consumed /per year by households)	Balance (Produced-Consumed) tonnes/year
Maize	5184	5184	0
Beans	1566	1566	0
Groundnuts	39.15	39.15	0
Cowpeas	1.16	1.16	0

The above refers to only produced from the RR but production in the Ugunja is not sufficient for households throughout the year. They fill the deficit through reliance on exports from the neighbouring counties and countries like Uganda, which supplies majorly cheap maize, beans, cowpeas, groundnuts and other major crops and fruits like banana

c. Official statistics and key products in the region

The lack of regular data collection and validation by the government and agriculture stakeholders; the few data collected had to be validated at the focused group discussions and consultations with the community of practise as well as at farmer level.



Food system: Key nodes and flows and role of small farms and small food businesses

3.1. Key product 1: Maize

- a. Nodes in the regional food system: production, processing, commercialization and retail

Production:

Small scale farms are the major producers of 100% maize produced from small farms in the RR. The production of maize in the RR is not sufficient for the households and other consumers in the RR. The farms outside RR, in the neighbouring counties and countries like Uganda supply the RR with cheap maize during times of deficit.

The small scale farmers will then supply grains directly to microprocessors, middlemen/women, small and regional retailers, small restaurants and institutions like schools.

Processing:

The micro millers play key role as processors and distributors by either converting maize grains into flour for making local delicacy or buying to store and sell to consumers or mill maize grains to produce flour for sale to households and small food businesses like small restaurants. Also, they provide service to consumers by milling grains for them at a cost. Some micro millers are on-farm and others are based in the local markets.

Distribution:

In the distribution, about 67% of maize produced in RR is taken up by key players like micro millers and the middlemen/women, known locally as 'brokers' do mobilization work/aggregation by buying from small farmers then sell to the small local or regional retailers at a higher price. The small local and regional retailers, they a times buy directly from the small scale farmers then sell later to local or external consumers. They also act as wholesalers because once they aggregate what brokers sold to they can either sell to the local consumers including the micro millers or to the regional retailers who will then sell outside RR.

Also, during times of deficit, the farms outside RR, in the neighbouring counties and countries like Uganda supply the small and regional retailers in RR with cheap maize.

Consumption:

The small scale farmers produce and consume approximately 33% of their produce directly or take to the micro millers to shell into flour. At the time of deficits, the small scale farmers will either by grains from the small retailers or the micro millers.



Other consumers will either get grains directly from the small scale farms or micro millers or small scale retailers. This apply to small scale businesses like the small restaurants and institutions like the primary and secondary schools in the RR.

b. Flows connecting the different nodes in the regional food system

The small scale farmers produce and some middlemen/women buy from them directly depriving them some benefits because they don't control price setting. The surplus of maize is marketed by the family members but the prices are controlled by the business brokers or buyers/SFBs in the market or within the village. Some farmers donate to close relatives during extreme seasons like drought.

The sales to markets and villagers are vulnerable to external shocks in that farmers have little control on pricing.

c. Role of small farms and small food businesses within the food system

Maize production in the RR is majorly done by small scale farmers. The farmers initiate land preparation, and inputs purchase either from outlets like shops, private or government led input supplies.

The small scale farmers can supply directly to the microprocessors (micro millers), small and regional retailers, and different consumers in the RR. But during the time of deficits, they receive grains or flour from micro millers and small retailers.

d. Importance of household self-provisioning in small farms and small food businesses

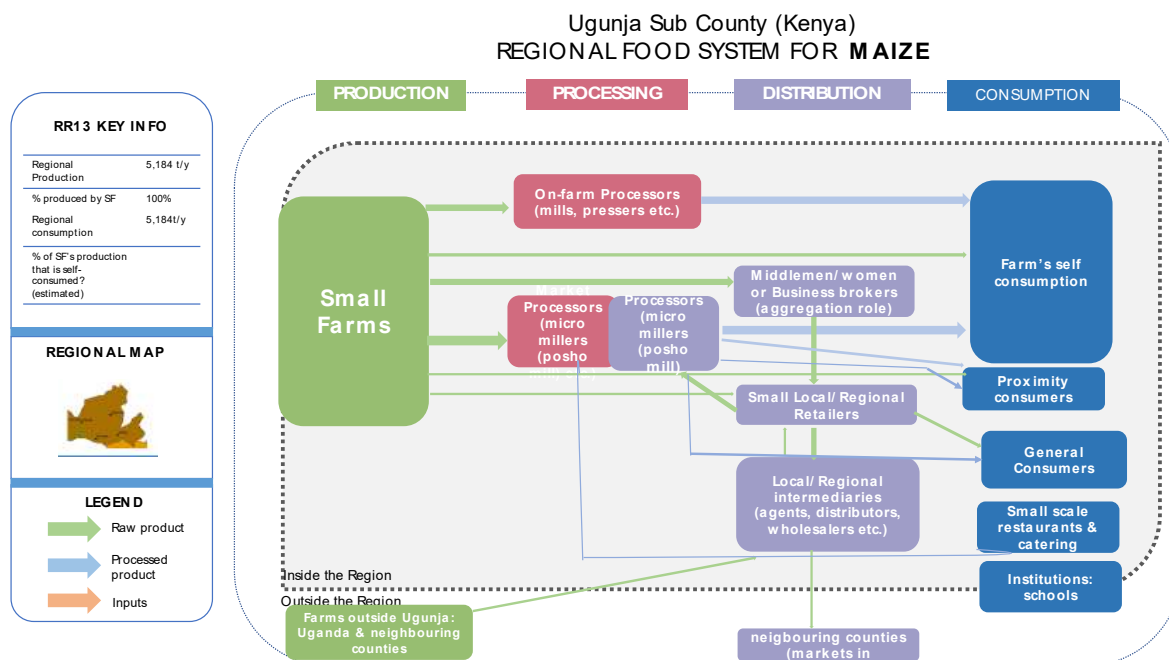
The SFs ensures the much produced at the farm level meet the needs of the households and if there is surplus, they link up with the SFBs in sales and finally sell them to consumers. The SFBs are also instrumental during the low seasons or during extreme seasons like drought or pests or disease attacks on crops; SFBs import to meet the deficiencies in the markets in the RR. But the price setting is determined by the external factors like the source and distance to the source of the maize needed to meet the local needs. The main challenge is that SFs & SFBs in the RR are coordinated among themselves due to weak networks, which are majorly informal operating with no strong internal systems.

e. Other relevant information

Maize is a crop that is attracting a lot of attention nationally because it's the main source of carbohydrate, and main material for feed production for livestock and poultry hence politics is influencing its production, consumption, commercialization and trade. There is incidences of delay in distribution of inputs like seeds and fertilizer rendering farmers missing to sow seeds at an appropriate time especially during the short rains.



The data of maize production is not up-to-date because of weak data and information system at the county level. The data which has been relied on are from individual interviews, FGDs and community practice and disaggregated data from government and non-state actors.



3.2. Key product 2: Bean

- Nodes in the regional food system: production, processing, commercialization and retail

Production:

Small scale farms are the major producers 100% beans produced from small farms in the RR. The production of beans in the RR is not sufficient for the households and other consumers in the RR.

The farms outside RR, in the neighbouring counties and countries like Uganda supply the RR with beans during times of deficit.

The small scale farmers will then supply grains directly to middlemen/women, small and regional retailers, small restaurants and institutions like schools.

Processing:

There is no processing of beans in the region apart from sorting and drying by the farmers.



Distribution:

In the distribution, about 20% of beans produced in the RR is taken up by key players including the middlemen/women, known locally as 'brokers' who do mobilization work/aggregation by buying from small farmers then sell to the small local or regional retailers at a higher price. The small local and regional retailers, they a times buy directly from the small scale farmers then sell later to local or external consumers. They also act as wholesalers because once they aggregate what brokers sold to they can either sell to the local consumers including general consumers or to the regional retailers who will then sell outside RR.

Also, during times of deficit, the farms outside RR, in the neighbouring counties and countries like Uganda supply the small and regional retailers in RR with beans

Consumption:

The small scale farmers produce and consume 80% of their produce directly or sell surplus. At the time of deficits, the small scale farmers will either by beans from the small retailers or the micro millers.

Other consumers will either get grains directly from the small scale farms or micro millers or small scale retailers. This apply to small scale businesses like the small restaurants and institutions like the primary and secondary schools in the RR

b. Flows connecting the different nodes in the regional food system

The beans for sale is marketed by the family members but the prices are controlled by the business brokers or buyers/SFBs in the market or within the village. Some farmers donate to close relatives during extreme seasons like drought. Few farmers rely on non-family members in providing labour to support maize and beans farming. This is because it increases the cost of production and also there is limited finance to hire casual labourers. The hired casual labourer is mostly during planting, weeding, harvesting, processing and transportation. The sales to markets and villagers are vulnerable to external shocks in that farmers have little control on pricing.

c. Role of small farms and small food businesses within the food system

Beans production in the RR is majorly done by small scale farmers. Because it's intercropped with maize, farmers use the same cost in land preparation, except in input purchase where they either buy certified seeds from agro-based dealers or they use locally dried and sorted seeds. Seeds of bean is not part of the subsidy from national and county government. The farmers initiate processing the beans produce by harvesting, sorting, drying, shelling, some apply chemical (pesticides) while other use ash mixed with herbs to keep off weevils and other pests, storage and either transport some to markets or sale within the village if there is surplus. They also do market search within or outside their villages. According to the farmers



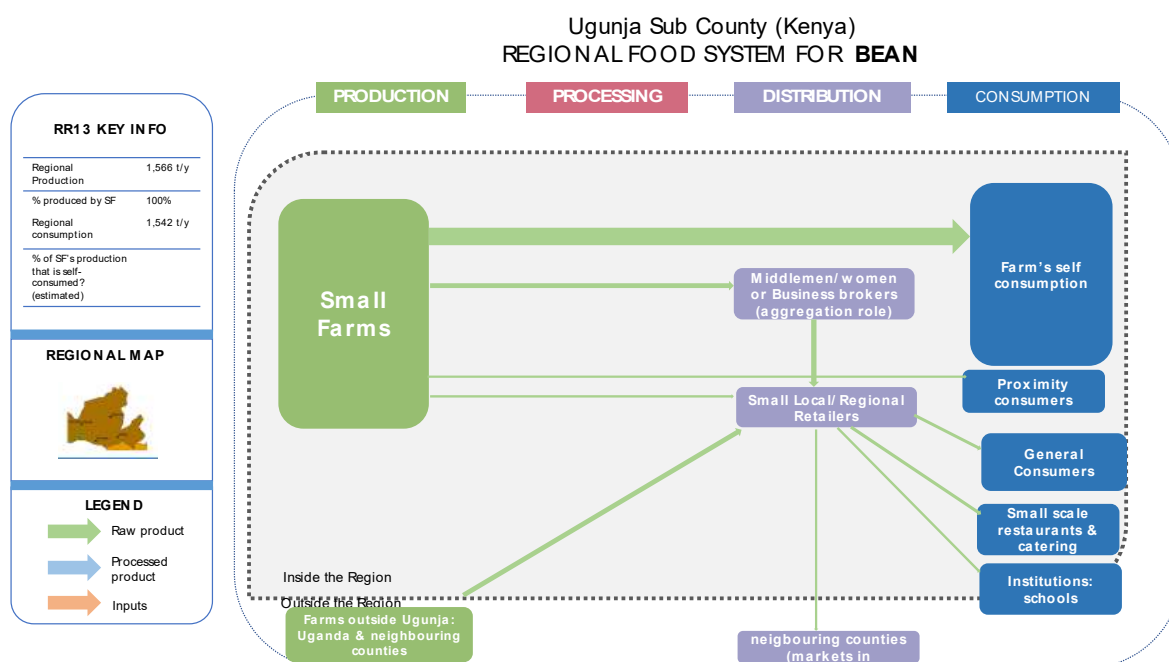
interviewed, they don't control the price setting hence they don't maximise as source of income.

- d. Importance of household self-provisioning in small farms and small food businesses

The SFs ensures production at the farm level meet the needs of the households and if there is surplus, they link up with the SFBs in sales and finally sell them to consumers. The SFBs are also instrumental during the low seasons or during extreme seasons like drought or pests or disease attacks on crops; SFBs import to meet the deficiencies in the markets in the RR. But the price setting is determined by the external factors like the source and distance to the source of the maize needed to meet the local needs. The main challenge is that SFs & SFBs in the RR are coordinated among themselves due to weak networks, which are majorly informal operating with no strong internal systems.

- e. Other relevant information

Beans is not supported like maize under the subsidy programme at the national and county government level yet it's the main source of protein and farmers like because there are varieties which are disease resistant, they fix nitrogen into the soil that benefit maize and other crops and it possible to sort from the harvest and get good seeds for the next planting season hence its cost effective than maize.



3.3. Key product 3: Groundnut

- a. Nodes in the regional food system: production, processing, commercialization and retail

Production:

Small scale farms are the major producers of 100% groundnuts being produced in the RR. The farms outside RR, in the neighbouring counties and countries like Uganda supply the RR with groundnuts during times of deficit.

The surplus of groundnuts immediately after harvest is supplied directly to middlemen/women, small and regional retailers, and general consumers in the RR.

Processing:

There processing of groundnuts in the region mainly involve boiling or baking/frying for general consumers in the RR.

Distribution:

In the distribution, approximately 78% is sold to the other consumers in the RR. This is taken up by key players including the middlemen/women, known locally as 'brokers' who do mobilization work/aggregation by buying from small farmers then sell to the small local or regional retailers at a higher price. The small local and regional retailers, they a times buy directly from the small scale farmers then sell later to local or external consumers. They also act as wholesalers because once they aggregate what brokers sold to they can either sell to the local consumers including general consumers or to the regional retailers who will then sell outside RR.

Also, during times of deficit, the farms outside RR, in the neighbouring counties and countries like Uganda supply the small and regional retailers in RR with groundnuts.

Consumption:

The production of groundnuts in the RR is less consumed by the households with approximately 28.5% is consumed directly by the producers (households). At the time of deficits, the small scale farmers will either by beans from the small retailers or the micro millers.

Other consumers will either get grains directly from the small scale farms or small scale retailers. This apply to small scale businesses in the RR

- b. Flows connecting the different nodes in the regional food system

Groundnuts for sale is marketed by the family members but the prices are controlled by the business brokers or buyers/SFBs in the market or within the village. Some farmers donate



to close relatives during extreme seasons like drought. Few farmers rely on non-family members in providing labour to support maize and beans farming. This is because it increases the cost of production and also there is limited finance to hire casual labourers. The hired casual labourer is mostly during planting, weeding, harvesting, processing and transportation. The demand for groundnuts is high in the RR.

c. Role of small farms and small food businesses within the food system

Groundnut production in the RR is majorly done by small scale farmers. It is planted in a standalone plot. The main input is seeds sourced from the local market but not certified. Fertilizer used is mostly compost manure. The land preparation is mainly done by family members. The government is supporting few groups to grow groundnuts. The farmers initiate processing the groundnuts by harvesting, sorting, drying or consume when green, shelling, storage and either transport some to markets or sale within the village if there is surplus. They also do market search within or outside their villages. According to the farmers interviewed, they don't control the price setting hence they don't maximise as source of income. Also, very few farmers are planting it because there is limited support especially on its agronomic practices and subsidy support.

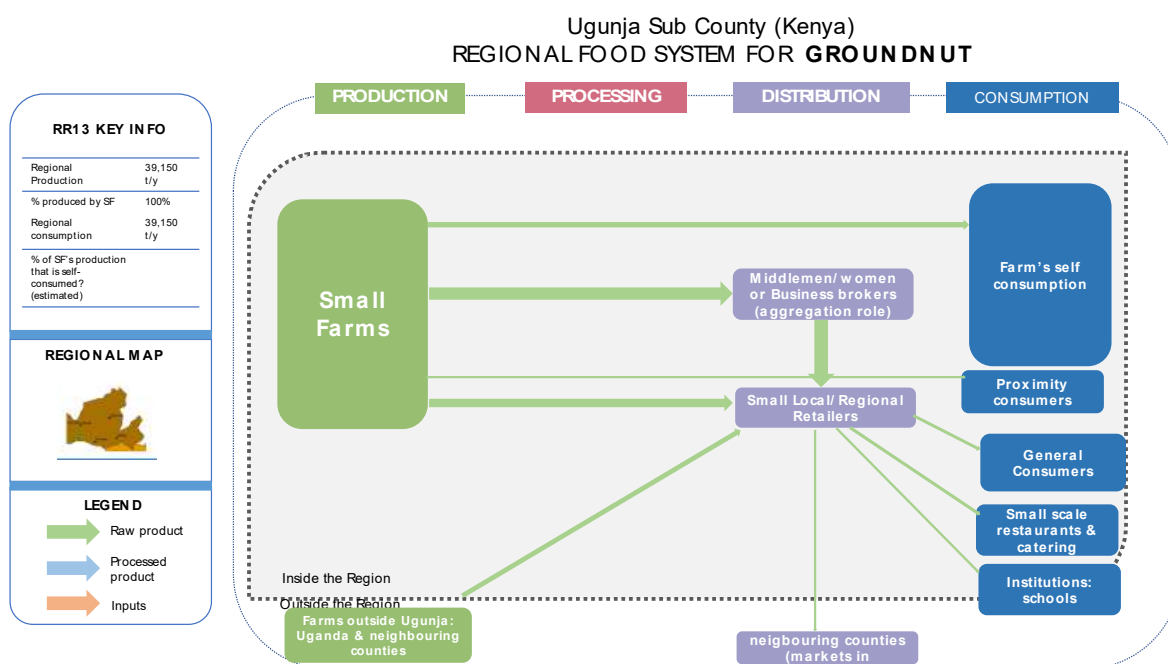
d. Importance of household self-provisioning in small farms and small food businesses

The SFs ensure production at the farm level meets the needs of the households and if there is surplus, they link up with the SFBs in sales and finally sell them to consumers. The SFBs are also instrumental during the low seasons or during extreme seasons like drought or pests or disease attacks on crops; SFBs import to meet the deficiencies in the markets in the RR. But the price setting is determined by the external factors like the source and distance to the source of the maize needed to meet the local needs. The main challenge is that SFs & SFBs in the RR are coordinated among themselves due to weak networks, which are majorly informal operating with no strong internal systems.

e. Other relevant information

The groundnut is another source of protein but it does well under standalone plot hence requires more space for production.





3.4. Key product 4: Cowpea

- a. Nodes in the regional food system: production, processing, commercialization and retail

Production:

Small scale farms are the major producers of 100% groundnuts being produced in the RR. The production of cowpeas in the RR is not sufficient for the households and other consumers in the RR.

The farms outside RR, in the neighbouring counties and countries like Uganda supply the RR with cowpeas during times of deficit.

The small scale farmers will then supply grains directly to middlemen/women, small and regional retailers, small restaurants and institutions like schools.

Processing:

There is no processing of cowpeas in the region apart from sorting and drying by the farmers.

Distribution:

In the distribution, about 72% of cowpeas produced in the RR is taken up by key players including the middlemen/women, known locally as 'brokers' who do mobilization work/aggregation by buying from small farmers then sell to the small local or regional retailers at a higher price. The small local and regional retailers, they a times buy directly from the small scale farmers then sell later to local or external consumers. They also act as



wholesalers because once they aggregate what brokers sold to they can either sell to the local consumers including general consumers or to the regional retailers who will then sell outside RR.

Also, during times of deficit, the farms outside RR, in the neighbouring counties and countries like Uganda supply the small and regional retailers in RR with beans

Consumption:

The small scale farmers produce and consume 80% of their produce directly or sell surplus. At the time of deficits, the small scale farmers will either by beans from the small retailers or the micro millers.

Other consumers will either get cowpeas directly from the small scale farms or micro millers or small scale retailers. This apply to small scale businesses like the small restaurants and institutions like the primary and secondary schools in the RR

b. Flows connecting the different nodes in the regional food system

Cowpeas for sale is marketed by the family members but the prices are controlled by the business brokers or buyers/SFBs in the market or within the village. Some farmers donate to close relatives during extreme seasons like drought. Few farmers rely on non-family members in providing labour to support maize and beans farming. This is because it increases the cost of production and also there is limited finance to hire casual labourers. The hired casual labourer is mostly during planting, weeding, harvesting, processing and transportation. The demand for cowpeas when it's still green is high in the RR.

c. Role of small farms and small food businesses within the food system

Cowpeas production in the RR is majorly done by small scale farmers. The main input is seeds sourced from the local market but not certified. Fertilizer used is mostly compost manure. The land preparation is mainly done by family members. The government is supporting few groups to grow groundnuts. The farmers initiate processing the groundnuts by harvesting, sorting, drying or consume when green, shelling, storage and either transport some to markets or sale within the village if there is surplus. They also do market search within or outside their villages. According to the farmers interviewed, they don't control the price setting hence they don't maximise as source of income. Also, very few farmers are planting it because there is limited support especially on its agronomic practices and subsidy support.

d. Importance of household self-provisioning in SF and SFB

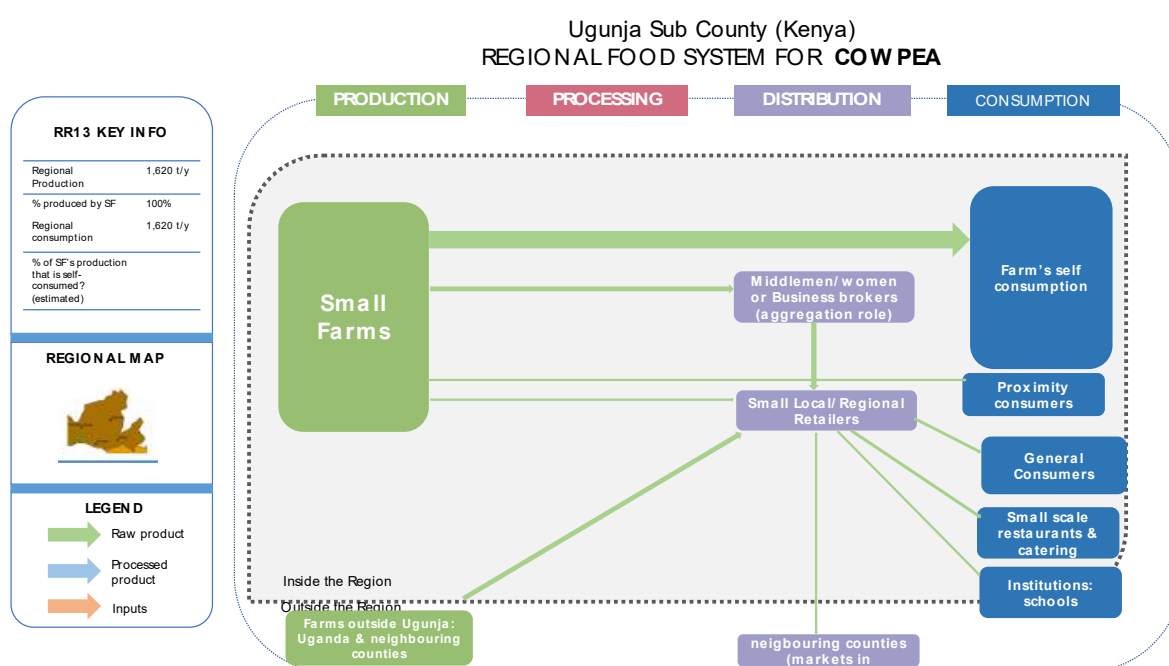
The SFs ensure production at the farm level meet the needs of the households and if there is surplus, they link up with the SFBs in sales and finally sell them to consumers. The SFBs are also instrumental during the low seasons or during extreme seasons like drought or pests



or disease attacks on crops; SFBs import to meet the deficiencies in the markets in the RR. But the price setting is determined by the external factors like the source and distance to the source of the maize needed to meet the local needs. The main challenge is that SFs & SFBs in the RR are coordinated among themselves due to weak networks, which are majorly informal operating with no strong internal systems.

e. Other relevant information

Cowpeas is another source of protein but it does well under standalone plot hence require more space for production.



Typology of small farms in the reference region

a. Small farm types in the region

Table 2 below shows typology of small farms in the RR as captured in the Step 1 of the study and reviewed at the regional workshop. During the in-depth interviews, the typology really captured the four types of small farms in the region that most farms in the region are characterised by greater self-sufficiency but less market integration. This is reflected in the fact that most farms are mainly producing for household/self-consumption i.e. meeting household food needs rather than market needs. As such from the interviews both with individual farmers and agriculture stakeholders including the community of practice more than 80% of all staples produced in the region are consumed directly at the household level but the nutrition and balance diet are key factors in food security, which farmers have not put more emphasis. From the in-depth study, less than 20% of the staple produce are sold to the market. But even for the quantities sold, a greater share still end up into domestic



consumption within the region. It was observed that during periods of deficiency, products from outside enter the RR through local markets.

There is also another group which is rather marginalised and can neither be self-sufficient nor effectively integrated within available markets. This group constitute about 20% of the farmers in the area and are characterised by very small pieces of land i.e. less than 1 acre and in most cases, these farmers lack farm inputs. This group of farmers also receive significantly low yields i.e. 5 times lower than their counterparts who are able to access inputs and with relatively larger sizes. As such, this group each year have to rely on food relief to meet their food needs. There are only 5% of farmers with some relatively greater level of self-sufficiency and market integration. The national and county governments and non-governmental organisations are targeting these farmers with subsidies while the private sector and micro banks are targeting them with cheap loans (credit facilities).

Table 2: Proposed small farm typology

		Degree of self-sufficiency	
		< 50%	> 50%
Degree of market integration	< 50%	Less self-sufficiency and less market integration (20%)	Greater self-sufficiency and greater market integration (5%)
	> 50%	Less self-sufficiency and greater market integration (5%)	Greater self-sufficiency and less market integration (70%)

b. Role of small farm types in the regional food and nutrition security

All these types of farmers play primary role of meeting the needs of households and general consumers in terms of food quantities and nutrition.

The surplus is sold to small food businesses to generate income to help households meet other needs. The surplus will either go to general consumers through the small retailers or general consumers outside the county.

Other farmers donate to relatives who are mostly less sufficient and less integrated in the local markets to meet their food needs in terms of quantities and diet.



The small scale farmers have been farming for decades and their children are ready to take up their farming activities especially of the subsidy programme is sustained by the government and the NGOs.

Governance

a. Main interactions of SF and SFB with governance structures in the region

Subsidies and credit services: The national and county government is advancing farm extension services and input subsidies for seeds of maize and beans, tractor services and fertilizers (both DAP & CAN for top dressing) to individual small scale farmers in RR. The beneficiaries interviewed during the exploratory field study shared that they recorded improved yield. The non-state actors advancing credit to farmers include the One Acre Fund provides farm inputs on credit to small scale farmers working in groups. The repayment is done by the farmers after the harvest. One farmer (female) who benefitted from the Once Acre Fund' farm input credit support reported 80% maize yield per unit unlike the previous years she used to harvest low yield. Another farmer was a beneficiary of the Kenya Women Microfinance Trust (KWFT) and she recorded improved yield. The female farmers interviewed felt it is hard to access credit from microfinance institutions due to stringent conditions and lack of collaterals. However, the small scale farmers have no influence on the design and disbursement of the extension services, subsidies, loans and credits provided both by the governments (national & county), microfinance institutions and the non-governmental organisations.

Among the 30 farmers select for the in-depth interview, they access credit for **farmer groups (self-help groups)**, which are not registered with the county or national government but they have form informal groups to support each other in many activities including advancing soft loans under the money mobilization model called table banking. Under the table banking managed by the farmer groups, the group members contribute regularly to the kitty and they have freedom to borrow money for capital or to sort out other social challenges like school fees and repay based on the mutual agreement with the group officials. About 20% of farmer interviewed benefit from such credit system and even though it is the easiest way of accessing soft loan it is not reliable in terms of accessing enhanced loan for bigger investment. Under this informal money mobilization model, farmers who members of a group have control in decision making. The culture of coming together to support each other by the small scale farmers is something they inherited over years, which was passed from one generation to the other. It is a model or system which they replicate in the farming and other socio-economic activities.

The national government is administering support to benefit youth and women in the counties. These include The Youth Enterprise Development Fund (YEDF), Women Enterprise Fund (WEF), Uwezo Fund and the recently introduced National Government Affirmative Action Fund (NGAAF). In addition, counties have county funding and subsidies to support SFs and SFBs but mostly disbursed through formal groups because they are



revolving funds. This approach has benefited a lot of formal SFs and SFBs groups and networks but it has also created a wide gap between government and SFs and SFBs because the informal groups are left out in the support. The funds are hardly accessible to the SF & SFB due to what interviewed farmers & SFBs referred to as lack of awareness, long bureaucratic process, lack of abled formal farmer groups, which is a requirement and illiteracy level is high hence hindering them from writing bankable proposals.

b. Levels of governance and their relative importance for SFs and SFBs

The national government is supporting the county governments in capacity building and policy direction under sectors. The national and county governments have adopted public private partnership, which brings on board the collaboration with the non-state actors like the private investors and non-governmental organisations (NGOs). County governments support farmers up to the Sub County and Ward (Location) level. The non-state actors have realigned themselves with the devolved system and they have to work with the county governments in supporting farming. The implementation of agricultural projects has been devolved to the counties and it's the obligation of the national government and non-state actors to support them financially as well as generate their own revenue and fundraise through public private partnership. Annually, the counties receive specific allocations in addition to what they generate from county taxes and fundraising (internal or external) in partnership with the investors and NGOs. Agriculture receive between 6-7% of the national budget and support for implementation at the county reflects 6-7% of the total budget to counties.

The informal and formal groups and network of SFs and SFBs in the RR have helped them to some extent but still they have not utilized much in terms of partnering with the governments and non-state actors to hence productivity, market linkage, partnership and capacity building. The devolved system of governance in Kenya is a great opportunity for the SFs and SFBs to access affordable services and inputs because the system has representation up to the Ward (Location) level. The informal and formal groups and networks in the villages and the Wards can link up with the Ward representations including the Members of the County Assembly who represent Wards, the Village and the Ward Administrators, the local area Chiefs and Assistant Chiefs and villager elders who report to the County and the national government respectively.

There are opportunities for support to SFs and SFBs under the devolved system of governance through formal and informal groups and networks but they face the challenges including the limited space for SFs and SFBs to shape the design and planning, access to learning and provide policy direction. It still top-down approach even though in the national Constitution, it recommends public participation including farmers and SFBs. There are lessons being learned and SFs and SFBs are optimistic their contribution will be impactful in the future once they are recognised as important stakeholders too.



c. Constraints impairing full participation in the food system

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d. External policies, decisions and social norms affecting food systems

Regional Integration: Kenya being a member of the East African Community (EAC) is spearheading regional integration. The positive take of the SFs, SFBs and agriculture stakeholders is that regional integration bridge the food deficit in the region but at the same time it leads to discouragement and unhealthy competition because of high cost of production in Kenya as compared to other EAC member states. Currently, food products from Uganda are cheaper than produced locally hence surplus from RR will have to be bought by SFBs at equivalent price rendering the SFs making losses or minimal profit if any.



Land use changes: The continuation of subdivision of land among families is leading to reduction of land size available for crop and livestock production. Individuals and families are converting the small pieces of land as plots for construction of houses and commercial activities at the peri-urban areas. The agricultural officers said that the attempt to convince farmers to combine small pieces (land amalgamation) failed but they have focused on aggregation of farm produce and sales through groups or cooperatives which is partly working. Urbanization and agricultural productivity are now competing for the available land in the RR.

Lack of affordable and reliable source of finance: the farmers' income is faced by many priority needs including school fees, health etc. but the accessibility of cheap credit compounds the whole situation forcing farmers to limit the quantity and quality of farm inputs leading to perennial losses. The other pressing family needs like education is consuming large portion of the income earned from sale of agricultural produce hence little is saved to recoup into farming.

e. Gender issues intersecting governance issues

The study team interacted with the farmers, extension officers, SFBs and other stakeholders in RR. Traditionally, men and women do specific things separately and share some chores together. The key lessons learnt is that men at the family level help family in ploughing the land using hoe, oxen plough or tractor while other energy demanding activities like weeding and harvesting are shared between the gender groups (women, youth and children), especially when planting crops like maize, beans, and sweet potato. In land preparation, sowing, weeding and harvesting of sorghum and finger millet women do most of the work; men only contributing during land preparation. In transporting, marketing and selling the produce, it's shared between males and females in the family but transportation is majorly by young men using the motorbikes and bicycles. Motorbike is majorly used in the county to transport agricultural produce to the nearest markets or to access main and tarmacked roads because the sub-county still has challenges of accessibility compounded by rains making the earth roads unmotorable.

The land being tilled is majorly controlled by men but women can decide on what crop to plant in consultation with the males/husbands. Again after harvested produce is owned by the whole family but husband is consulted on what to sale but women are the major sellers in the market. SFBs are either co-owned by both wife and husband but females majorly the sellers in the SFBs. The informal and formal farmer groups are majorly run by women; they are strong in resources mobilization than men. The money mobilization platform called Table Banking is purely organised by women and it has been adopted across the country by women.

f. Other actors and processes important for the regional food system



Wholesalers buy in large quantity and sell in bigger quantities and sizes than the retailers. They play major role in RR because they act as storage for the low seasons.

g. Forms of collaboration and organization between small farms

In Kenya, the informal money mobilization model called table banking need to be formalised to help farmers capitalise on their numbers and the culture of saving as groups. This is designed form the rural women but it can also be leveraged to help men and youth in farming.

h. Forms of collaboration and organization between small farms and consumers

Mostly, consumers buy directly from small farms or from the SFBs at the markets. The informal linkage among the SFs & SFBs and the consumers could be strengthen in the future to provide them that opportunity to share and learn quality, quantity and nutritional value of consumer preference and what needs to be introduced in the market.

i. Relationship between small and large farms, and between small and large businesses

In the RR, majority are small scale farmers and there is little or no interaction with the large scale farmers.

In the markets in the RR, there exist large and small SFBs. The large SFBs tend to dominate space and dictate the formal way of doing business as well as outcompeting small SFBs in attracting customers. The large SFBs have well-built shops and confirm majorly to the laws, policies and regulations governing food businesses. They are also mostly members of an official group or network. They also file taxes and pay any other legal charges. The small SFBs are operating mostly in the peripheries or peri-urban area selling their goods along the roads, on verandas or in small shops or makeshifts structures. They are majorly non-compliant because they are selling small portion/quantities of different food products. They are majorly not members of formal networks or groups because they enjoy the informal networks or groups. Their prices are low compared to large SFBs. The large and small SFBs are competing for the same customers, goods and spaces. In the RR, there is no formal or informal network or group bringing both groups together.

j. Other governance issues

Youth need to be attracted to do farming because they find it not benefitting due to low income, which they have witnessed in their home. They find it also not fancy to engage in farming because it is labour intensive.



Small Farms and rural livelihoods

a. Importance of household labour in SFs

In the RR, families are majorly extended families. Family members contribute to the labour force with some hiring external labour in case of need and especially during land preparation, planting, weeding, harvesting, transport and storage.

At least 2 family members spend 6 days per week on the farming supporting implementation of farm activities in all the small scale farms visited and household interviewed. At least 25% of households get the support 2-3 non-family members spending averagely 6 paid days a week while 10% of households interviewed get support from 1-2 non-paid non-family members who spend approximately 2 days per week.

The land tillage is majorly done by oxen and hand with a few using tractors especially the subsidised tractor services by the government. Most of the labour like planting, weeding and harvest is done manually with the support of family members and few hired worker based on activity. The household members support processing, transportation, marketing and sale of produce at the market and at home. This help the SFs to cut cost of labour and eventually the cost of production. The household members are also easy to build on existing customers who have been doing business with the family over years. They have the memory of what family produces under specific condition and they can help in enhancing production as well as value of the produce.

b. Farm and non-farm income in the SF's households

According to the interviews at the farms, the SFs in the RR are majorly preoccupied in the farming. They get food and generate over 90% of income from sale of farm produce. . Very few farmers engage in non-farm source of income. Out of the small scale farmers who participated in the in-depth interview, less than 10% engage in non-farm activities. This include, sale of non-food items like cloths and services like transportation using motorbikes., which is major pre-occupation of the youth. The elderly find farming to be generating better quality food and income. Youth find the non-farm activities like transportation generate cash quickly to meet their other needs. They also find riding motorbikes fancy than farming.

The County and the National Government are providing subsidized farm inputs like fertilizer, seeds and tractor services, but majority of the farmers still not aware and for those aware majority can't afford or can't even manage to mobilize sufficient resources for early land preparation. The subsidised 2-kg packet of maize seed and 50-kg fertilizer bag is being retailed at USD2 and USD18 in comparison with USD4 and USD35 in the retail shops and agro shops. The SFs which benefited from the subsidy programme recorded improved production per unit with some recording increased income from sale of surplus, which they used to meet other family needs and plough back the capital.

c. Shocks and coping mechanisms of SF households



High cost of inputs: Generally, the cost of input in the RR is very high. Even though the governments have distributed subsidised inputs, they have only reach few farmers because of low awareness and still the cost cannot be afforded by some SFs. The farmers who can't afford both at the retail shop and the subsidised opt for the local seeds and manure. The locally selected and preserved seeds are cheaper and the manure is locally available.

Climate change and weather variability: the farmers have diversified the crops to adapt to the extremes associated with weather and climate change. Local and indigenous varieties like vegetables and cereals like millet and sorghum are being adopted. Also, the farmers use local weather predication and monitoring methods like looking at the behaviours of birds and ants and reaction of trees through flowering and emergence of green leave, which indicates expected rainfall.

External markets: Food produce from external markets like Uganda are cheaper and often give competition to the locally produced cereals. SFs more often store them till prices stabilizes to their advantage or when there is deficiency in the local markets they then release. Unfortunately, they don't have control of the prices and they ended up selling below their expected prices so as to at least meet other household needs or dispose them before pests destroy them.

Role of Small Food Businesses

a. Main insights and patterns

The main SFBs in Ugunja include,

- i. Small Restaurants
- ii. Small Cereal, Vegetable and Fruit Venders
- iii. Small Millers
- iv. Small On-Farm Businesses

All these SFBs receive all products from the SFs in raw form. The small scale on-farm traders sell directly at the gate of their farms to middlemen/women who then aggregate and sell the produce to small and regional retailers.

The small restaurants buy products like beans, cowpeas and processed products like maize flour from small millers in order to prepare different delicacies for the local customers in the local markets in RR or from outside but operating or passing by RR.

The small scale cereal and vegetable venders, mostly buy directly from the SFs when available but during times of deficit, they rely on small scale retailers or regional retailers who have received products from outside the RR.



Among the SFBs interviewed, some started food businesses as a new source of income, lifestyle change and other reasons like lack of formal jobs, and demise of the breadwinner. About 4 out of the 10 SFBs interviewed have been in the business for more than 10 years with majority have engaged in business for less than 5 years.

The source of the capital used for kick-starting the SFBs range from personal savings, borrowing from relatives to borrowing from informal groups 'table banking' to microfinance institutions. The major source of SFBs is the 'table banking' because group members trust and live near each other in the RR. They know who each other's needs.

Some of the SFBs have been transferred from generation to generation. But the youth are majorly taking up the non-food businesses because they find it fancy than selling food items.

The urbanisation is fuelling the growth of SFBs because they are accessing increasing customers and huge demand for food. Unfortunately, they have not been support sufficiently by the stakeholders and they operate mostly informally along the roads, on verandas or in makeshifts. SFBs have the potential to transition to large food businesses if stakeholders and policies integrate their context. Over 80% of interviewed SFBs have recorded steady growth in business over the last 5 years.

b. Labour in SFB work

More than 90% of the interviewed SFBs utilise family labour while less than 10% hire casual labour to support in running the SFBs. Those SFBs who hire casual labourers are mostly those running hotels and small shops. They argue that the family labour cuts down the cost of operation and secure customers as well as retain old customers.

c. SFB income

Unfortunately, most of the SFBs don't keep proper records but what they shared showed they are making some interest out of their businesses though it is minimal to meet all family needs and expand the businesses. About 70% of the interviewed SFBs recorded average income while 30% record lower income than average while 10% recorded high than average. The SFB is potential but lacks major support from the stakeholders. They operate majorly informally excluding the small hotels because they are required to register and be compliant. The SFBs uses mostly cheap mode of transport like motorbikes and bicycles because they want to reduce cost and increase interest. The SFBs are operated by those who have not advanced in any training or education but they have basics in business.

d. Shocks and coping mechanisms of SFB households

High cost of raw materials: the small hotels are getting raw milk from farms or from supermarkets or other supplies. The raw milk could be cheaper but during drought which often affect milk production, the hotels have to rely on pasteurised milk which is expensive



than the raw milk. This leads to high cost of tea and milk at the counter hence either resulting to reduction in customers or high cost of doing business.

Climate change and weather variability: the SFBs are directly affected by the extremes associated with weather and climate change because it disrupt supply of raw materials and even reduce customers because like floods disrupt transport and movement of people and goods. The SFBs are forced to reduce activities in order to minimise losses.

The Future

a. Main objectives and priorities of SF for the future

Increase production: Generally, the future objectives and priorities of small farmers interviewed include to be role model in farming in the region by increasing produce so as to motivate other SFs and attract youth to venture into farming.

Commercial SF: increase produce and commercialize farming is also dream of some SFs as well as increase farm land under agriculture. The households highlighted enabling factors including, access to affordable inputs; build resilience and increase produce to satisfy self and generate enough for sale to increase income. Access to reliable support from governments and sector partners supporting new businesses to complement farming.

Inherited SF: Above 99% agreed that their children will inherit their SFs. None was willing to sell their land but they hope children will inherit and continue with farming.

Increase labor force: Some SFs hope to employ more labor force to support in SFs especially the subsidy programme is helping them to increase productivity per unit and access inputs timely.

b. Main objectives and priorities of SFB for the future

Increase production & stock: The SFBs strive to increase produce for sale on the farm and to the general consumers in the neighborhood and at the local markets in the RR.

Expand business and infrastructure: Some SFBs are hoping to expand their businesses by not only increasing stock but also varieties and expand the building.

Inherited SFBs: Majority of the SFBs interviewed agreed that they will allow their children to inherit their businesses.

Non-food businesses/ Alternative Business: At least 20% of the 12 SFBs interviewed were thinking of selling all stock after retiring and do other businesses but not SFBs.



c. Risk perception by SF

The SF interviewed perceived risks facing them differently but they unanimously agreed on general risks facing them currently like the unpredictable rainfall pattern. The farmers enumerated a number of risks including, emergence of pests affecting crops and livestock, unpredicted weather pattern, climate change, high cost of inputs and lack of provision of quality inputs, soil erosion, hailstones, wildlife attack especially the monkeys and squirrels, invading crop farm, floods, and invasive species and weed attack like the striga weed.

The recent attack by army worms threatened the maize production and lucky enough the national government with support from the county government managed to reach many farmers with pesticides. The striga weed is still a menace even though national, county and NGOs are jointly addressing it through training on how to improve soil fertility and use of 'push and pull' factor to also keep off pests in farms. Farmers unanimously agreed that lack of rain for long resulting to drought and excessive flood attributed to climate change provide opportunities like improve prices for produce. Drought and flood disrupt regular supply of goods and services creating high demand and prices fluctuations, which a time favors the SFs who had stocks ready for such seasons.

Personal health was also treated as a high risk which will affect productivity in the farm. One farmer shared that she has been sick for long and that has affected her farming. Access to reliable medical services in the remote villages is still a challenge even though medical services have been devolved to the county governments. The national and county governments are putting in more resources to support delivery of reliable medical services even at the village level.

d. Risk perception by SFB

The SFBs face unique risks ranging from financial, market related, unpredictable weather pattern, extreme weather events, politics, livestock and crop diseases, insecurity and high cost of labor, policy and regulations and related services that support business growth.

The SFBs perceive that the risks like the emergence of livestock and crop diseases reduce the production of major raw materials. Also, those running small hotel businesses are threatened by water scarcity during drought resulting in prevalence of waterborne diseases which affect eateries. The extreme of weather events like flood cut transport and communication hence they can be able to access source and markets for their products.

Financial risk affects the SFBs because the micro financial institutions and government led financial support programmes are not reliable to them. Microfinances find it hard to leverage affordable loans with low interest rate because of the market dynamics and the scale of the business of SFBs. Politics and physical insecurity seems to occur intensively at the same or build on each other especially during the electioneering period. This has resulted to disruption and destruction of businesses and even injuries and loss of human lives. The markets also are affected in terms of existing markets flooded with cheap products from



neighboring country and counties hence farmers and SFB in the RR loose market that provide better prices to their products.

The legislations, policies and regulations governing the running businesses are perceived by the SFBs that they have not factored in their nature and context at which they operate in. There is opportunity at the County government to include SFBs in the policy discussion and planning because they are developing legislations and policies at the county level but guided by the national government.

e. Food system forecast in 5, 10 and 20 years

The Kenya Agricultural Sector Development Strategy (ASDS), 2010-2020, overall goal is “To transform Kenya’s agricultural sector into an innovative, commercially oriented, competitive and modern industry that will contribute to poverty reduction, improved food security and equity in rural and urban Kenya”. ASDS recognizes the small-scale farming as predominant in the high-potential areas operating mostly on a commercial basis and carrying out production on farms averaging between 0.2-3ha. The increasing support by the national and county government and non-state actors through provision of technical support and subsidies to small scale farmers will likely to bring a lot of changes in the near future. Increased production is already being witnessed in the few SFs benefiting from subsidies provide by the governments and NGOs like the Once Acre Fund.

The SFs are likely to increase produce per unit for household consumption and income generation. This will have positive impact in the supply to different outlets. For example, the supply of maize to the processors is less than 1% and 32% to retailers in the local markets. In the next 5 years, there is likely to be increase in production and supply to the retailers and to the processors due to pressure to meet other needs at the household level. But this will not guarantee satisfaction of the nutritional level.

The ASDS has been succeeded the Kenya Climate Smart Agriculture Strategy (KCSAS), 2017-2026, which is another ambitious strategy with the broad objective to facilitate adaptation to climate change and build resilience of the agricultural systems while minimising emissions for enhanced food and nutritional security and improved livelihoods. The implementation of this strategy will be mainly be done by the County Governments, encompassing clear structure up to the Ward (Location) level made up of several villages. The Third Medium Term Plan (MTP3) for the Kenya Vision 2030 has also integrated climate change into the major pillars including agriculture. These policies and strategies are designed to support and spur growth and build resilience of the agriculture sector through leveraging of necessary provisions like subsidies, modern technologies and partnerships. In the next 10 years, the small scale farmers are likely to have adopted better technologies, undertake value addition, engage in agribusiness, build resilience and improve in partnership with the external and internal markets.

The country doesn’t have any clear plan or strategy beyond 2030. There is no clear strategy for the farmers after 2030 but there is hope that the implementation of the Vision 2030,



KCSAS and other agriculture related sector policies, plans and strategies will spur growth towards achievement of sustainable and resilient economy. According to the farmers, they expect their children to inherit the farms and SFBs, which are vibrant and resilient to shocks as well as competitive in the national and regional markets. The region would likely to be self-sufficient in food production and producing necessary inputs to sustain and lower cost of production towards achievement of food nutrition security. More farmers will be exporting value added products and more processing infrastructure will have been established in the nearest urban and rural areas.

Majority of the farmers interviewed and consulted are optimistic that they can potentially produce more food in the respective farms if extension services, farmer groups are strengthened, reduction on cost of input, easy access to affordable credit, and partnership with the government, non-state actors, and private sector is also strengthened.

f. Other future related issues

Opportunities:

Even though there are limited resources to the agricultural sector in the county, farmers, extension officers and stakeholders are optimistic that devolution is taking shape and there is opportunity for the sub-county to receive more resources in the near future. The county governments are also autonomous and they can seek financial support from development partners within and outside Kenya.

Farmer cooperatives are preparing to acquire assets like land which is still available in the county. The farmers emphasized on land acquisition as a step towards being independent that will guarantee them the freedom to implement their own ideas. There is also opportunity to improve on management and absorption capacity of the cooperatives if stakeholders team up to support them in capacity building and technical skills.

The available land for livestock and crop production in the sub-county is yet to be fully maximized hence the sub-county and the farmers have the opportunity to adopt intensive farming practices that are ecofriendly and produce more on the same small pieces of land they own. Again, this is threatened by urbanization which is competing for space with farming. It is noticeable now how the urban is

The East African Community integration will have direct impact on the RR because the main superhighway linking Kenya and Uganda is passing through the RR. Also, most of the affordable food products are coming from Uganda. This will have direct impact on farming in the RR if the regional markets are linked with efficient systems.

Climate change will remain to be a threat to the SFs and SFBs. Fighting climate change requires the global community to take action jointly to cut Greenhouse Gas (GHG) Emissions. The reality is that different countries will respond differently but the net effect of climate change will still be a threat to the SFs & SFBs.



Annex: List of resources

a. List of key experts interviewed

No.	Organisations/Department
1.	Ugunja Community Resource Centre
2.	Ugunja Community Resource Centre
3.	Crop Officer, Siaya County Government
4.	Livestock Department, Siaya County Government
5.	Livestock Department, Siaya County Government
6.	Livestock Department, Siaya County Government
7.	Extension Officer, Siaya County Government
8.	Extension Officer, Siaya County Government
9.	Extension Officer, Siaya County Government
10.	One Acre Fund,
11.	Gender Expert/Climate Change, Suswatch Kenya
12.	Cooperative Officer
13.	Stockholm Environment Institute - Africa Centre, c/o World Agroforestry Centre (ICRAF)
14.	Gender Expert, The International Center for Evaluation and Development (ICED) P.O. Box 39323-00623 Parklands, Nairobi
15.	Kenya Agriculture and Livestock Organization (KALRO)
16.	Environment and Climate Change Adviser, Vi- Agroforestry /STEPS Fellow
17.	Senior Lecturer Department of Environmental Sciences, Kenyatta University

b. SF and SFB interviews and focus groups information

Stakeholder typology	N° of participants						How were they contacted?
	Interviews			Focus Groups			
	Men	Women	Total	Men	Women	Total	
Farmers	11	19	30	21	30	51	The respondents and the participants of the FGDs were contacted using existing networks linked with ACTS, ACTS has done other studies in the RR and it was easy to link up with the national and county government and non-governmental organisations in the RR and at the national level. The SFBs were easily reached using the government and the local
Producers’ cooperatives	3	2	5	4	5	9	
Slaughtering facilities	1	0	1	2	0	2	
Processors (small/large)	0	2	2	0	2	2	
Wholesalers	1	0	1	0	0	0	
Retailers	2	3	5	2	4	6	
Caterers	0	1	1	0	1	1	
Other small food business	6	6	12	6	4	10	
Exporters	1	1	2	0	0	0	
Importers	1	1	2	0	0	0	
Farm inputs suppliers	3	2	5	3	1	4	



Advisory services	4	2	6	2	3	5	organisation called Ugunja Community Resource Centre (UCRC) who has long term working relationship with ACTS and the government departments at the RR. Communication was also done through emails, phone calls and social media (watsapp and facebook)
Agricultural administration/Ministry of Agriculture	4	2	6	10	3	13	
Consumers' groups/organizations	0	0	0	0	0	0	
Local administrators and policy makers	3	1	4	2	3	5	
Political leaders and PMs	1	0	1	2	1	3	
Other programs/initiatives	1	0	1	1	0	1	
Nutritionist	1	1	2	2	1	3	
NGOs	4	3		5	3	8	
Traditional and religious leaders (for Africa)	2	1	3	3	3	6	
Total	88			129			

c. Other important issues

The average annual turnover is per farm is averagely USD330 & average total annual income is USD54. The farmers in RR self-produced at least 63% of the household' food, trade with neighbours at least 15% and purchase at least 28% of the household' food from the local markets and small shops. This is shows that the small scale farming is not efficient in the RR hence the income is lower than average even though approximately 51% of household income from farm. Also the family members involved in farming are relatively old, approximately 35-43 years old.

Household structure and dynamics: Approximately 68% of the proportion of the household's food is self-sufficient while 1.8% of the farm produced is traded with neighbours. Approximately 31% of the family proportion is purchased from the local markets and less than 1% is purchased from the supermarkets in the neighbouring towns.



4.14. RR14 Latgale –Latvia– Food System Regional Report



WP3

Latgale (RR14) – Latvia – Food System Regional Report

Authors: Sandra Šūmane, Emils Kilis, Talis Tisenkopfs, Anda Adamsone-Fiskovica, Mikelis Grivins

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Table of Contents: Food System Regional Report

1) Socio-economic and agricultural profile of the reference region.....	367
2) Key products and regional food balance sheet.....	369
3) Food system: Key nodes and flows and role of small farms and small food businesses.....	371
3.1. Key product 1: Wheat	371
3.2. Key product 2: Cow milk	374
3.3. Key product 3: Potato	377
3.4. Key product 4: Honey	380
4) Typology of small farms in the reference region.....	382
5) Governance	384
6) Small Farms and rural livelihoods	389
7) Role of Small Food Businesses.....	391
8) The Future	393
9) Annex: List of resources	397



Socio-economic and agricultural profile of the reference region



Latgale is the easternmost region of Latvia and also of the European Union: it borders Russia, Belarus and Lithuania. This peripheral location means longer distances and more costs for the regional residents and entrepreneurs, including farmers, to principal urban centres, markets and services within Latvia.

Approximately 14% of the entire population of Latvia live in Latgale, and it has a high proportion (37%, 2018) of ethnic Russians. The regional population has decreased to 270 211 in 2017. Depopulation has affected Latvia as a whole, but the impact is most critical in Latgale (-7.7% since 2013) due to outmigration and negative natural population growth. Approximately 60% of the population live in urban areas. Small and very small villages and groups of individual farms or houses (up to 10 houses) remain a typical form of settlement in the rural areas.

Latgale is the least economically developed region in Latvia, with the lowest average monthly bruto salaries (671 euro compared to 961 euro in Latvia (March 2018) and the highest level of unemployment (15.9% (April 2018)). Entrepreneurial activity and investments are lower than in other regions. Due to this modest economic performance Latgale accounts for a disproportionally small percentage of Latvia's GDP (7.3%) and has the lowest per capita GDP in Latvia (6839 euro (2015)). As regards the employment structure, agriculture has a more significant role than in other regions. The sector provides jobs for 11.4% of all economically active people.

Agricultural production in Latgale is dominated by small-scale farming. It is the Latvian region with the biggest share of small farms (SFs). On average, agricultural holdings there are smaller (19.7 ha) than in Latvia (27.6 ha) as a whole. The principal characteristics of agriculture are provided in Table 1. In addition, it can be noted that Latgale has a high proportion of organic holdings. In 2017, there were registered 1464 certified organic farms



which cultivated 56 832 ha. It counts for approximately 40% of all organic holdings and 34.3% of total organic agricultural land in Latvia.

Table 1: Basic data for the region

Indicators	Data per Region - Nuts 3
Land size (km ²)	14,550
Population (thousands of people)	270
Density (people/km ²)	19
GDP (thousand USD/inhabitant)	7,912
Total labour force in AWU	24,600
Total number of holdings	24,086
Total Agricultural area (ha)	508,900
Total Utilized Agricultural Area (ha)	474,300
Agricultural Area in Mountain Area	n.a.
% of UAA in the RR	32.6
Average Farm size	19.7
Number of farms by UAA farm size:	
0-5 ha	7,683
5-20 ha	12,218
20-50 ha	2,600
>50ha	1,446
Average size of farms < 5ha of UAA	2.4
Area of main crops (ha)	
Cereals	135,727
Wheat	72,504
Barley	17,794
Rye	4,231
Pulses	9,569
Open field vegetables	475
Potatoes	4,044
Rape	14,308
Area of main crops (ha) in farms < 5ha of UAA	Potatoes, open area vegetables*
Livestock (LSU) per type	
Cattle, of which	98,300
dairy cows	37,200
Pigs	4,400
Sheep	2,810
Goat	300
Poultry	981
Livestock (LSU) per type in farms < 5ha of UAA	Sheep, goats, cattle, dairy cows*
Annual work units (AWU) by UAA farm size:	



0-5 ha	4,900
5-10 ha	5,700
10-50 ha	9,800
>50ha	4,100
Total family labour per farm size: 0-5, 5-20,20-50,>50ha	No public data available

* No data in requested units available at NUTS 3 level.

Source: Central Statistical Bureau of Latvia, data of 2016 and 2017.

There are several events which have influenced agricultural development and small-holders' situation in Latgale and the country as a whole. Firstly, the agricultural reform in the beginning of the 1990s (decollectivisation) resulted in a very fragmented agricultural production structure. Farming performed a very crucial function of socio-economic safety net in rural areas, but its production efficiency was often low. Rural policies failed to create social and economic alternatives or improve the situation of small farmers (Slee 2000). Integration and accession to the EU in 2004 provided new opportunities and resources to farmers, including small ones (with some specific target support programmes to semi-subsistence farms and small farms). In the meantime, public agricultural support has not been well-balanced among various goals and farms, and small farms have not been among the principal beneficiaries: the biggest share has been devoted to modernisation goals and absorbed by a limited number of large farms (Vēveris and Kālis 2011).

Key products and regional food balance sheet

a. Key products produced and consumed in the region



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On the basis of the available statistics on food production and consumption in Latgale region and in discussions with experts of the regional agriculture, the following key products were selected for in-depth analysis in Latgale: wheat, milk, potatoes and honey. According to the joint SALSA methodology, four regional key products had to be selected to respond to

following criteria: two products that are much produced and consumed (wheat and milk), one - with high production but low consumption (potatoes), and one with social or cultural relevance in the region (honey).

b. Balance of production and consumption of key products in the region

Table 2 includes data on production and consumption of these four products in the region.

Table 2. Production and consumption of the key products in Latgale.

Product	Approximate amount produced in the region (ton/year)	Approximate amount consumed in the region (ton/year)	Balance (produced - consumed)	% surplus-deficit on total consumption*
Wheat	217 262	63 428	153 834	2.42
Milk	203 556	71 761	131 795	1.84
Potatoes	63 997	17 834	46 163	2.59
Honey	1 014	218	796	3.64

* Accordingly to the project methodology, calculated as Balance divided by Consumption.

Source: Central Statistical Bureau of Latvia; Data on consumption are calculated on the basis of EFSA database "Comprehensive European Food Consumption Database" (<https://www.efsa.europa.eu/en/data/food-consumption-data>).

Wheat, milk and also potatoes production are considered among the best suited agricultural branches for Latgale region taking account of its agro-climatic conditions. However, potatoes and wheat are sown in a comparatively smaller area than in Latvia as a whole, and the average yields of wheat and potatoes per ha are well below the national average (in 2017, they were respectively 66% and 47% of the national average). Nevertheless, wheat is the most produced crop and the most consumed crop in the region, and it is also one of the principal export products (approx. 45% traded outside the region). Milk in turn is the most typical regional animal product, both in terms of production and consumption; a considerable part (approx. 50%) is exported. Considering potatoes' production-consumption balance, its production volumes greatly exceed consumption within the region, albeit it is a key product in consumers' diets. Finally, honey is important product in the region for cultural reasons, it is a traditional product. Compared to other key products, the production volume of honey is low, but it considerably exceeds the regional demand, leading to a significant surplus (3.64%). In total, the region is self-sufficient regarding all the four products.

There are slight variations in production and consumption of these key products in SFs. Table 3 summarises production and consumption of the key products at the regional level (X), and more specifically in SFs (SF). The relevance of the products at SF was estimated on the basis of their relative importance in SFs' production and consumption structure, and SFs' contribution to regional production. Milk and potatoes were found to be typical products in small farms. SF produce a remarkable share (20%) of these two products in the total regional production output. Wheat is comparatively less produced in SF, but wheat-based products are typical consumption products. Although it cannot be said that honey production is very widespread among SF, honey is a typical SF product as approx. 80% of honey comes from small farms.



Table 3. Four key products for the Latgale region

	Production		Consumption	
	High	Low	High	Low
Wheat	X	SF	X SF	
Milk	X SF		X SF	
Potatoes	X SF		SF	X
Honey	SF	X		X SF

c. Official statistics and key products in the region

Available national statistics characterize well production of these products at regional level; some data are freely available regarding production in different farm-size groups; more specific data are available for a fee on request. Available national data on consumption are not region specific, but calculations for regional consumption can be made for many products. However, these data are on consumable end products (like, bread and cheese) and not raw products (like, wheat). To calculate regional consumption, we used data from EFSA database “Comprehensive European Food Consumption Database”.

Food system: Key nodes and flows and role of small farms and small food businesses

3.1. Key product 1: Wheat

a. Nodes in the regional food system: production, processing, commercialization and retail

Wheat is one of the major crops grown in Latvia, and it also central for the Latgale region (72 504 ha in 2017). Since wheat is mainly an industrial export product, the major share of this cereal is produced by medium and large farms operating in the region, though there is a discernible contribution of small farms (estimated around 10%). Around half of the interviewed 36 farmers grew at least some wheat, though only three noted that they sold wheat. Majority of small farms growing wheat do this for self-consumption, i.e. for animal feed. On the whole, however, the trend is definitely towards an agro-industrial model of the sector driven by large intermediary companies, processors and retailers, and medium and large farms.





Photo © Anda Adamsone-Fiskovica

b. Flows connecting the different nodes in the regional food system

Cooperatives play a central role in this agro-industrial model. There are several of them operating in the region. Commercial grain producers typically are cooperative members. Also the three interviewed small wheat producers who sold grain, did it through the cooperatives whose members they are. Cooperatives provide a range of services to their members: grain collection, pre-processing, storage, sales; supplies of production inputs (fertilizers, pesticides, fuel etc), offer agricultural machinery. What counts for small farmers is that they can postpone payments to the cooperatives for these provided inputs in spring until selling grain in autumn. In addition, there is a security in payments: the cooperative is paying fast for supplied grain.

c. Role of small farms and small food businesses within the food system

Regional farmers supply wheat also to the regional collection centres of agro-industrial companies such as *Baltic Agro*, *Linus Agro*, *Ageorna*, *Scandarga*. These are usually foreign companies and work also as suppliers of seed material, fodder, plant protection products, fertilisers.

The region used to feature its own large grain pre-processing company (*Daugavpils Dzīrnavnieks*), located in Southern Latgale, which was a crucial market channel for farmers of the surrounding areas, but it went bankrupt in 2014. Another company – *Rēzeknes Dzīrnavnieks* – has been operating in Eastern Latgale offering grain collection, pre-processing and storage facilities and services.

Grain producers sell wheat also directly to grain processing companies - e.g. *Rīgas Dzīrnavnieks*, which is one of the largest grain processing companies in the Baltic region. There is a range of smaller and larger bakeries and local confectionaries in the region that use wheat flour as raw material for their products. Given the fact that wheat as such is not a

product sold on food markets, it mainly reaches end-consumers in a processed form – either as flour or a product of flour (bread, pastries, etc.).

- d. Importance of household self-provisioning in small farms and small food businesses

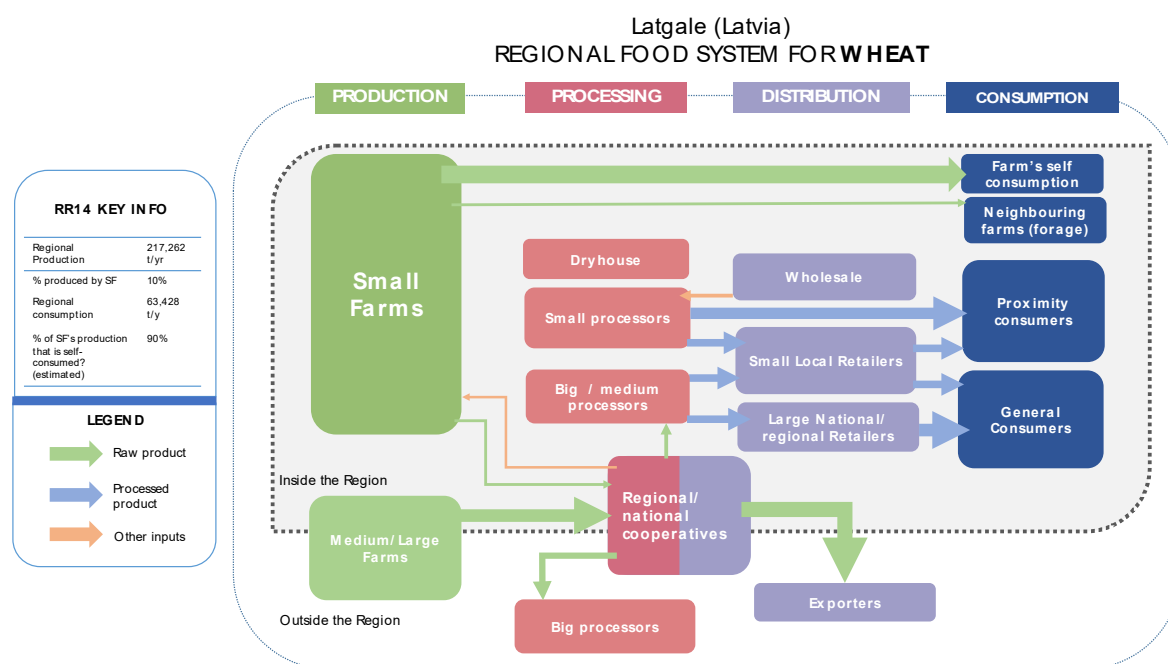
Small farms producing wheat operate predominantly within a mixed self-provision/proximity subsystem. As noted above, these farms produce wheat for own animal feed. Occasionally they sell or exchange some surplus grain with other farmers in the region or export organically produced wheat.

- e. Other relevant information

The focus group participants mentioned following processes and their anticipated impacts that are influencing and/or will influence wheat production in small farms: (i) climate change and increasingly unstable weather conditions (e.g. draughts, flooding) may drive big grain farms to split into several smaller units and this may favour conversion smaller farms to organic cultivation which is climate-wise more resilient; (ii) the upcoming government support programme for small farms for joint machinery acquisition may stimulate small farmers to cooperate more in production and marketing; (iii) the influx of younger generation farmers and newcomers to agriculture could stimulate innovativeness of take-over farms; (iv) increasing market demand for special wheat varieties required for making products of special quality (organic flour, pasta, etc.) could drive innovation in production and specialisation of grain farms.

On the other hand there were factors mentioned which may further undermine and weaken small farmer position in grain sector, like an overall tendency towards farm concentration which puts land use and price pressures on small growers. Cooperation is also made difficult by specific climatic conditions such as short sowing and harvesting periods. Focus group participants considered that farmer education, cooperation and state support were necessary for small grain producers to stay in the market.





3.2. Key product 2: Cow milk

- Nodes in the regional food system: production, processing, commercialization and retail



Photo © Anda Adamsone-Fiskovica

The dairy sector takes a prominent place in the regional food system of Latgale. According to estimates (See Table 2), regional production exceeds regional consumption almost three times. A notable share of milk (approx. 50%) is exported outside the region; one of the largest milk processing companies in Latvia, *Preiļu siers*, is the largest exporter in the Latgale region. During recent years the dairy sector has experienced several shocks as a result of the Russian embargo, abolishment of EU milk quotas and fluctuating milk prices. Accordingly to experts, fragmentation of milk production and processing has aggravated these shocks as



many relatively small farms and processing companies faced difficulties to adapt. Dairy herds and milk production have considerably decreased in 2017.

There is a potential for developing various direct sales channels at proximity subsystem, already used by a number of small farms and small food businesses, like on-farm sale, farm shops, farmer markets, agricultural fairs, direct supplies to offices and residential apartments in cities, box schemes and supplies to restaurants. The decline of small cooperatives in the region during the recent years has been also urging small-holders to seek new sales channels. While a number of farmers have turned to bigger dairies, other have started to develop individual and direct channels, such as supplies to consumers in cities and sales on farmer markets. The raise of direct marketing was stipulated by milk crisis of 2014 - 2016 when prices paid to farmers fell by 40-50%. For example, a dairy farmer was selling raw milk to a big dairy in Lithuania for 24 cents a litre while he was also selling fresh milk to consumers in regional towns directly for 50 cents a litre. This suggests that direct marketing along with small-scale processing are seen by some small milk producers as viable economic alternatives to the mainstream sales channels.

b. Flows connecting the different nodes in the regional food system

Typically though, small dairy farms are selling surplus fresh milk to varied mainstream customers in proximity and agro-industrial subsystems – cooperatives, local processors, big dairies, intermediary buyers collecting raw milk for selling to processors in and outside the region or exporting to neighbouring countries. In particular large processors from neighbouring Lithuania purchase significant quantities of fresh milk from farmers in Latgale and are in fierce competition with national dairy companies. It has, however, been noted by experts that processors are generally unwilling to buy milk from small farms, partly due to the lower quality of milk supplied by these farms, which poses a challenge for small dairy farms having no alternative channels for selling their product. Although farmers' cooperation in dairy sector is quite developed in Latvia, overall, membership in cooperatives (small and very few operating in the region) and using them as intermediaries is not common in Latgale. Latgale farmers give preference to individual arrangements with processing companies or middlemen.

Consumers purchase milk and dairy products primarily through regional and national retail chains, as well as smaller shops. Public food procurement, in particular the School milk programme is important to provide with milk school children. These dairy products and milk are coming from bigger producers and processors. Direct access to supermarkets and local stores for small food businesses for selling their produce is very limited due to the industrialised food distribution patterns (specific requirements, demanding regulations).

It should be noted that despite the high and growing number of certified organic dairy farms in Latgale, organic milk sub-system is rather vaguely developed. Likewise in wheat sector, there is missing organic processing also in dairy sector. Organic milk is sold in the regional conventional chains or is transported to certified processors outside the region. Opening of separate organic processing lines on conventional dairies in the neighbouring regions signal that organic processing facilities might be soon opened also in Latgale dairies.



c. Role of small farms and small food businesses within the food system

Most dairy farms in the region are small ones (a statistically average herd in Latgale was 4.7 milking cows), and they make a notable contribution (approx. 20%) to the overall regional production volume of milk. Still most of the marketed milk is produced in medium and big dairy farms. The milk from small farms is distributed via a quite complex set of channels in domestic, proximity and industrial markets.

Processing was generally insignificant as a source of income in the case of the farmers we interviewed. However, on-farm small-scale processing already represent a growing niche for small dairy farmers who produce various kinds of dairy products valorising old recipes, preserving culinary tradition and contributing to availability of local and farm products.

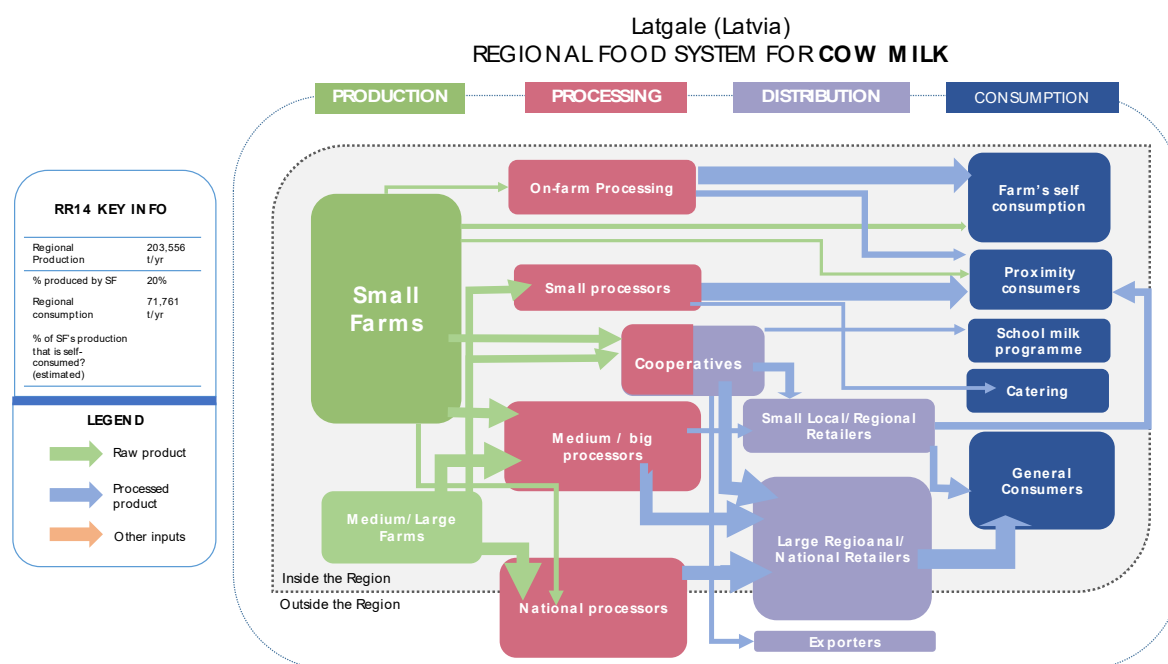
d. Importance of household self-provisioning in small farms and small food businesses

On average, a smaller proportion of milk produced on farm is consumed by the household or fed to animals. Approximately a half of the interviewed farmers were engaged in some form of artisanal processing (making cheese, cottage cheese, cream, butter) for family needs, informal exchange via family and community networks outside formal market, and for small-scale sales.

e. Other relevant information

As regards factors that might influence milk production on small farms in the future, focus group participants indicated several tendencies: (i) the growing international demand for milk will push up quality standards of production and urge small farms to modernise; (ii) farmer education and mutual experience sharing may activate product and marketing innovations and be stimulating for small food businesses; (iii) development of small-scale processing and commercialisation of culinary heritage products might successfully develop together with rural tourism services; (iv) the envisaged new government support measures for small farms, such as support to collective purchase of machinery will come together with facilitation of farmer cooperation and might be conducive to strengthening and competitiveness of small farms.





3.3. Key product 3: Potato

- a. Nodes in the regional food system: production, processing, commercialization and retail



(Photo © Anda Adamsone-Fiskovica)

Potatoes represent one of the traditional Latvian food products, which occupies a prominent place in the diets of many households in Latvia, especially in rural areas (sometimes even called the “second bread”). Latgale comes second after the Zemgale region in terms of the area used for growing potatoes, and there are more potatoes produced than consumed in the region (See Table 2). At the same time, Latgale has witnessed a reduction of the areas for potato growing in view of declining population numbers in the region and the changing consumption patterns. This has gradually reduced the role of potatoes in daily meals.

Furthermore, there is strong competition with imported potatoes that are offered for lower prices in retail chains. Export of potatoes, in turn, has been comparatively limited both in Latgale and Latvia as a whole, with processed potato products accounting for the majority of export.

The major share of regional potatoes is produced by medium and large farms (e.g. *Debeskalni* in Svente). But potatoes are a very common crop for small farms, and also the vast majority of the small farmers we interviewed grew potatoes. On the whole, it is estimated that small farms produce approximately 20% of the potato output in Latgale. This estimate was corroborated by focus group participants.

b. Flows connecting the different nodes in the regional food system

Potatoes for human consumption sold via more formalised market mechanisms are mostly present in local farmers' markets. There is also a growing trend in urban areas of pre-ordering a specific amount of potatoes from farmers prior to the growing season. However, focus group participants noted that the expenses associated with transportation, and limited demand have made farmers less disposed to selling their potatoes at farmers' markets. On other hand, while the presence of small farmers as providers in processing is limited, one processor (*Aloja*) was highlighted by focus group participants because this processor purchases organically grown potatoes from small farms.

While cooperatives in Latvia are common in both grain and milk sectors, potato growers are much more individualised and seldom form producers' cooperatives.¹⁹ There is a cooperative uniting 10 major vegetable and potato producers in Latvia (*Mūsmāju dārzeni*), but none of the members come from the Latgale region. There is also, however, the Union of Potato Growers and Processors (*Kartupeļu audzētāju un pārstrādātāju savienība*) uniting around 30 members all over Latvia. The union aims to represent the common interests of the group in local and foreign markets.

c. Role of small farms and small food businesses within the food system

Small farms mainly grow potatoes for self-consumption, including for animal feed. They are also providing and/or selling the produce to their neighbours, friends, relatives and other consumers. Therefore, they operate primarily within the domestic and proximity models. However, it should be noted that focus group participants indicated that the proximity model has gradually become less significant for small farmers who grow potatoes. For example, changes in public procurement procedures have reduced the role of small farmers in the provision of potatoes to local schools and kindergartens, which, in turn, has led to lower production volumes. Consequently, it was argued that the domestic model accounted for the vast majority of potatoes grown by small farms.

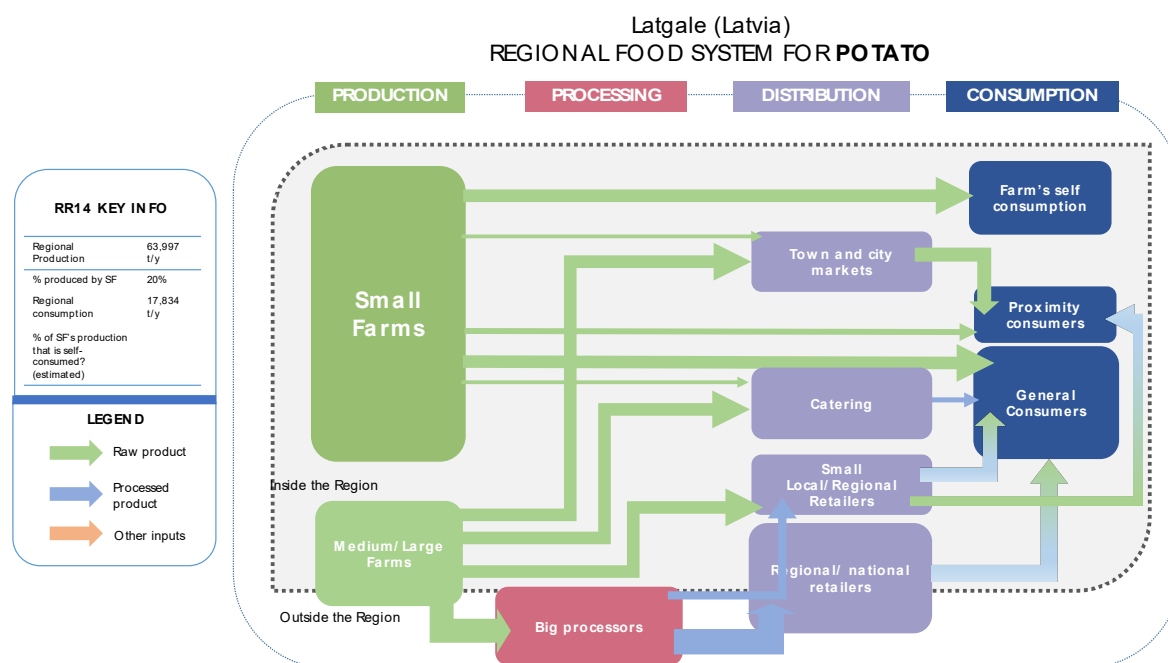
¹⁹ Out of 49 registered agricultural cooperatives operational in 2017 as members of the Latvian Association of agricultural cooperatives, 21 represent dairy sector, 18 - grain sector, 5 - fruit (and vegetable) sector, 3 - forestry, 1 - sheep-rearing, 1 - agricultural services. (<http://www.lka.lv/atbilstibas-lpks/>)



Primary processing of potatoes is mostly done on the farms – sorting, preparing (peeling, cutting) potatoes for restaurants or other catering service providers. Secondary processing, in turn, is mostly related to the industrial production of starch (also from organically grown potatoes) (*Aloja-Starkelsen* Ltd.) and potato chips (*JTC LATFOOD*). But these companies are located in the Pierīga region, and there are no major processors in the Latgale region. The niche of frozen (fried) potatoes has so far been occupied by foreign suppliers without any notable national players present in this segment.

- d. Importance of household self-provisioning in small farms and small food businesses

The interviewed farmers reported very different data regarding yields, which varied between 3 t/ha and 20 t/ha. Also, the total area where potatoes were sown varied greatly. In most cases it was well below a hectare and lumped together with other common vegetable varieties (though potatoes were generally sown in a bigger share of the area) meaning potatoes are grown primarily for self-consumption. The above has implications for the traceability of the actual amounts of potatoes produced on small farms. The farmers themselves do not keep track of the volumes grown and there is no official record of potatoes sold due to the lack of formal market mechanisms within this system. It was even indicated in our focus group discussion that small farms actually produce more than 20% of the total potato output in Latgale, but this can simply not be confirmed because potatoes are distributed via informal mechanisms (e.g. gifts, barter).



3.4. Key product 4: Honey

- j. Nodes in the regional food system: production, processing, commercialization and retail



(Photo © Anda Adamsone-Fiskovica)

Honey is a traditional product with an important place in Latvian cuisine and overall culture. Honey production in Latgale is notably higher than its consumption (See Table 2) meaning that a considerable share (at least half) is marketed outside the region.

To a large extent, bee-keeping in Latvia is hobby-farming that is well-suited for the middle-life and older-age people; there is a minor share of professional bee-farms. Typically bee-keeping is carried on as a legacy from their ancestors, though also newcomers are not a rarity. Often bee-keeping is secondary, not a principal specialisation of a farm. All of the nine interviewed bee-farms and food businesses had some other crops and/or animals. While the number of hives ranged from three to 86, two distinct groups appeared – farms with up to 10 hives, and farms with 30 or more hives. This threshold is largely related to the terms of subsidies whereby organic farms are required to have at least 20 hives and conventional farms – 30 hives to qualify for state support.

According to a survey carried out by the Bee-keeping Association of Latvia in 2012, 71% of honey is sold to individual consumers by the bee-keepers themselves, 16% go to wholesale trade, 9% - to both supermarkets and specialised bee-keeping stores, while 4% are sold to bakeries and other food processing businesses.²⁰ Supermarkets mostly give preference to imported honey that is available for a lower price than the local product. Small farms in Latgale noted the severe competition with imported honey from Ukraine and the nearby Lithuania. Some bee-keepers also pointed to the unfair domestic competition whereby informal direct sales of honey are by-passing certain formal requirements and tax payments, and are therefore undermining the officially registered and honest businesses.

²⁰ National programme of bee-keeping for 2014-2016.

https://www.zm.gov.lv/public/files/CMS_Static_Page_Doc/00/00/00/28/10/LV_nacionala_biskop_programma.pdf
(in Latvian)



k. Flows connecting the different nodes in the regional food system

There are very few large honey processing and trade companies in Latvia, and also smaller companies are predominantly located in the other regions of Latvia. This is another reason why bee-keepers of Latgale mainly sell their products directly to end-consumers. Large processors give preference to cheaper honey from the third countries, thus leaving local producers outside this market segment. While there is a niche for honey as a raw material in the domain of confectionary, this does not represent a notable market since the overall volumes of honey as a secondary ingredient are rather small.

Individual farms distribute honey in an unprocessed way, though some processed goods and bee-keeping by-products are becoming prominent (e.g. wax, pollen, bee bread, propolis, royal jelly, bee venom) used for medical (apitherapy), cosmetic and other purposes. The region also features small businesses that offer services of organic wax cell production for bee-keepers. The number of farms that undertake some on-farm processing of honey and its by-products is increasing, yet there is still a notable potential for generating higher value added and diversifying the assortment. This also calls for improved knowledge-base and skills of farmers that require additional investments in terms of time and money.

At the consumption side, farmers point to the decreasing consumption of honey in the country. This is due to depopulation, changes in diets, and limited public and private incentives for consumer education of the important qualities of this product. An interesting observation of cultural differences was noted during the focus group discussion that ethnic Russians make wider use of honey for preparing different dishes than ethnic Latvians.

l. Role of small farms and small food businesses within the food system

Honey represents a product that almost exclusively comes from small farms. According to estimates, small farms contribute around 80% of the honey produced in the region, and none of the large bee-keeping farms in Latvia are present in Latgale. This makes honey a special case when considering the role of small farms in relation to food security.

Honey is also a commercial product providing farms with a considerable income not only from subsidies but also from sales. The specificity of the product is that it cannot be consumed in great quantities by the farming household, thus only some 5-10% are kept while the rest is being either given away or sold. By far the most common trade channel for honey is direct sales thereby adhering to the domestic and proximity subsystems. All the interviewed bee-keeping farms (except for one that used honey mostly for self-consumption) sold most of their produce in person to individual clients, with only few of them using also other market channels like direct sales at farmers' market or middlemen. The couple of SFBs dealing with bee-keeping were or were planning to use individual internet-based platforms for reaching out to clients. Small farmers place great emphasis on the quality of their produce pointing to the taste nuances of the different kinds of honey coming from a diverse range of plants and collected in different years. This notable variation in taste of the various sorts of honey, and



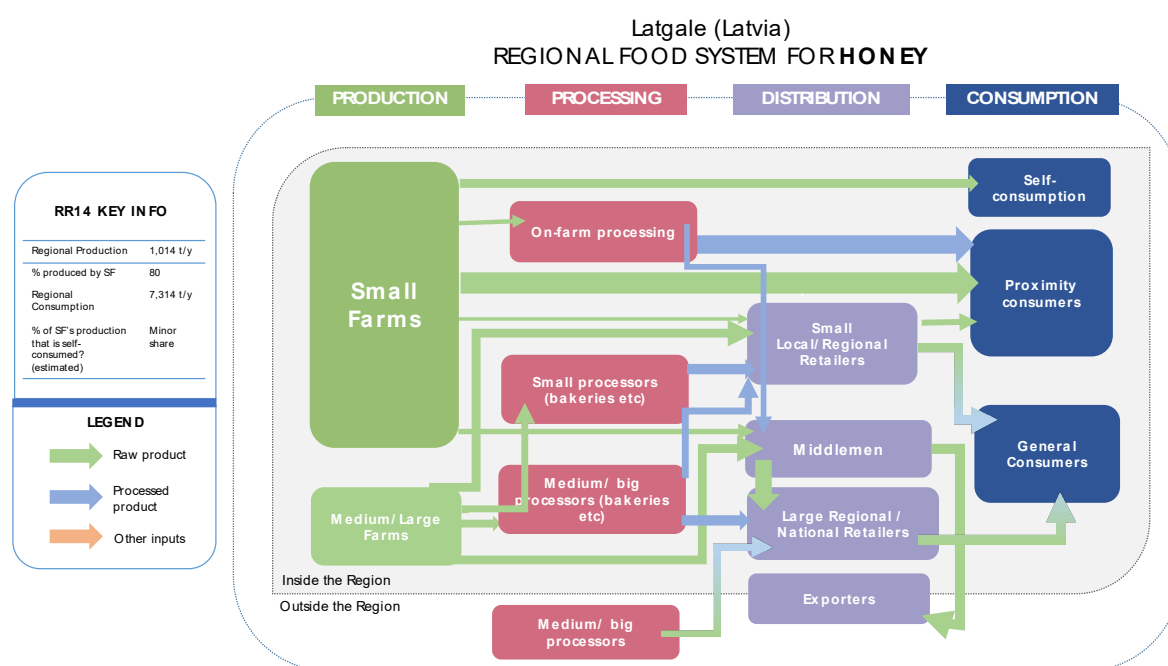
differences in consumer preferences are used as an argument in favour of direct sales to individual customers where tasting of the produce and face-to-face promotion of its unique qualities is made possible.

m. Importance of household self-provisioning in SF and SFB

Honey is a typical product of barter and gift economy in Latvia, used for informal exchange both among extended family members and in the wider social milieu. A telling example of this is offering honey as a gift or sign of gratitude to doctors in the capital city. Given the therapeutic value of honey, it is also a popular present to relatives with acute or chronic illnesses.

n. Other relevant information

There is a specific niche of **organic honey** that has been expanding over the last years (due to higher state support level for organic bee-keepers introduced in 2015, and also due to the specific topography of the region which is not well-suited for intensive farming), creating an opportunity also for new export markets. Yet this is a more realistic option for larger bee-keepers rather than small farms which are presently not tended towards cooperation.



Typology of small farms in the reference region

According to the SALSA Analytical Framework, the initial small farm typology was developed accordingly to two criteria: (1) small farms' market integration expressed as a proportion of sold production and (2) the degree of farm self-sufficiency expressed as a share of self-consumption of the products produced on the farm. The Analytical Framework



suggests a threshold of 50% of sold and self-consumed production to distinguish between the types of small farms. By applying this methodology to our analysis, it was possible to discern four types of small farms in Latgale (See Table 4).

Table 4. Proposed small farm typology

		Degree of self-sufficiency	
		< 50%	> 50%
Degree of market integration	< 50%	Type 1: Lifestyle and hobby farms	Type 2: Semi-subsistence farms with moderate market integration
	> 50%	Type 3: Market oriented specialised small farms	Type 4: Market oriented small farms with a function of self-provision

Type 1: Lifestyle and hobby farms: These are inherited or bought farms that are only marginally engaged in economic activity. Due to low levels of production these farms are neither well integrated in markets, nor are they the main source of food for the family. Some of them are phasing out agricultural activities due to owners' ageing, health or other reasons. Other are new, (re-)established by younger generation people, in-comers from the cities or re-emigrees who are returning to family properties and rural communities after a period of work and financial accumulation abroad. In this latter case when younger people take over a farm, a farm may be reorganised in order to develop a viable economic unit for food production, niche experimentation (e.g. hemp production) or new rural services. This type of farms is difficult to assess in quantitative terms, but they remain a vital part of the rural social structure and landscape, and at a certain degree also a source of food for the household and closest social network.

Type 2: Semi-subsistence farms with moderate market integration: These farms are typically engaged in low-input - low-output agriculture. The farming model and practices are mostly oriented towards self-provision of food, feed, energy (fire-wood), fertiliser (compost, residuals). A considerable share of the products generated are used for family consumption, feeding farm animals and other on-farm needs. A part of the products might be offered to or exchanged with the extended family members or neighbours. These farms operate in a community and sharing economy framework and include food as well as other farm resources in various forms of exchange, mutual help and barter. Some farms produce products in greater quantities, which allows them to sell surpluses for profit. Sales might be organised either directly to individual clients or through intermediaries (cooperatives, processors, middlemen).

From the perspective of food and especially nutritional security, it should be added that semi-subsistence farms often maintain and transmit the culinary heritage of the locality and region, and provide continuation of the local food culture. For example, some of the farmers we interviewed made cheese, and various fruit preserves, based on recipes that had been in local circulation for a fair period of time.

Type 3: Market oriented specialised small farms: Type 3 represents farms specialised in a limited number of products that are produced mainly for the market. This is done efficiently



to generate substantial monetary income despite the relatively small size of land the farms are operating on. We note the application of intensive agro-technologies, use of less intensive agro-ecological approaches and an adherence to organic farming methods in this group of farms. The key products characteristic of small-scale specialised farms include both typical products (milk, grain) and niche products (e.g. organic products, fruit, berries, mutton, wool, etc.). Specialisation can be oriented towards bulk production, in particular in those farms aiming at upscaling (grain and dairy farms). These farms sell their products to processors, cooperatives and middlemen. Other farms are rather meeting the demand in high quality products which might be sold at a premium price.

Type 4: Market oriented small farms with a function of self-provision: these small farms still fulfil the function of self-provision, but their main activity is producing agricultural products for the market. They have a multi-branch profile and they produce various food products in smaller quantities to provide for the family; but they produce certain cash crops in bigger quantities intended to be sold for profit. Therefore, these farms might be quite specialised and technologically advanced. These farms may actively seek niches of specialisation and therefore be quite innovative. Diversification and multi-functionality are the main strategies adopted by this group of farms.

The key products typical in this group of farms are similar to those in types 3 and 2. However, the product range might be slightly broader in comparison to type 3 as these farms still provide food and other products for the family. It is also worth mentioning that farms in this cluster are very responsive to seasonality and they are one of the main providers of fresh and seasonal products on the market.

Governance



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a. Main interactions of SF and SFB with governance structures in the region

Small farms and food businesses operate in a set of multi-level governance frameworks. At local level, they are intertwined in informal social networks of professional, neighbourhood and local communities. For farmers, relations with other local farmers vary from cooperation to competition, but in all the cases other farmers serve as a reference in farmers' decision making: farmers observe, discuss and learn from each other on farming, marketing, administrative and other farming-related issues. Informal cooperation is quite widespread among small farmers, or rather neighbouring farmers of different sizes, and it is rooted in local culture and customs. Farmers regularly provide and receive non-economic assistance - help each other with labour and machinery, exchange products etc.

While most of the interviewed small farmers found moral, technical support in local farming and professional community, their views about their relations with other local people and their perceived place and role in rural communities and society in general were more divided. A part of the interviewed farmers expressed their feelings of being appreciated by locals, because of the work they do, food produce and well-maintained landscape. Other small farmers, however, felt estranged in their communities, especially in those with social and economic problems, like long-term unemployment, alcoholism, poverty. These farmers expressed they felt misunderstanding from the side of other locals about their devoted "dirty" work in agriculture. Some minor conflicts were reported about sharing collective public space, like villagers and local administration complaining about farmers polluting public roads with manure.

b. Levels of governance and their relative importance for SFs and SFBs

National level food and agricultural regulations and policies were the most referred to when discussing governance arrangements. Most of the interviewees and all the interviewed farmers were benefitting from some public support, national or European. For farmers and those businesses linked to a farm, these were single area payments, payments for cattle, organic agriculture, support from targeted programs for dairy farms, semi-subsistence, small farms and young farmers, fuel exempted from excise tax. In particular, the government support programme for modernisation of small farms (project grants of 15 000 EUR) and support programme for development of small-scale food processing (project grants from 5 to 40 thousand EUR) were positively estimated. These programmes have allowed many small farms to improve infrastructure, acquire new machinery and introduce new crops and methods of production; they have stipulated emergence of many small businesses. However, not all small processors have passed registration procedures and received trade permits yet.

It should be also noted that Latgale region has benefited the most from organic agriculture support schemes and policies. The comparatively high number of organic holdings suggests that a favourable combination of political, geographical, agro-ecological and market conditions may have boosted organic farming in Latgale to the benefit of many small farmers, especially younger ones. Some of the interviewees directly referenced the fact that organic



farming attracts greater subsidies, and indicated that this was the reason for their choosing organic farming. Consequently, it could be argued that the prevalence of organic farming is contingent, at least in part, upon the availability of EU funds.

c. Constraints impairing full participation in the food system

Otherwise small farmers did not report on specific restrictions in public policies or support related to their size. Existing public support was estimated as covering well the whole range of farm sizes, regions and agricultural sectors. However, small farmers can be unintentionally penalized or discriminated as it is more likely for them to not meet the requirements and not qualify for public support (for instance, because of insufficient turnover on bank account), or to have proportionally higher costs to access public support. Their experience suggest the need to differentiate taxes, public support and procedures accordingly to farm size and specialisation. It was also repeatedly put forward by research participants that the existing public support for agriculture and rural development should be restructured so that it better facilitates agro-ecological, resources-efficient agricultural production, artisanal food production and services.

Many of the research participants pointed to the need for a more targeted support for small farms, like semi-subsistence farms' and small farms' public support programmes that already have been implemented and much appreciated, or support to small farmers for buying land (which in some Latgale regions can be very resources demanding as there is available only abandoned agricultural land whose cultivation demands additional investments). In addition, an upper limit was requested to be set for the amounts received from public support; otherwise bigger farms receive proportionally much more.

A farm's size is an issue also when considering small farms' market involvement. Definitely, requested amounts, quality and regularity of supplies by bigger market actors who dominate food systems put some limits to individual small farms' market options and reduce their negotiation capacity. The interviewed small farmers producing surplus bulk products, like grain and milk, were well integrated in conventional chains though. They sell to the same cooperatives, middlemen or processors as bigger farmers. While cooperative members and those selling to middlemen were rather satisfied with market transactions, dairy farmers reported also arbitrary attitudes and practices from the side of processors. For instance, a processor did not make analysis but announced that a farmer's supplied milk has low quality and one-sided decided to pay less. Other farmers found that milk quality standards were too high and inflexible. For instance, in spring there is less fat (albuten) in the supplied milk (because of cows' pregnancy) and that means lower quality and smaller price. In autumn in return, there is more fat in milk, but the price is not increased. These farmers felt very dependent on the processor.

d. External policies, decisions and social norms affecting food systems

Although the interviewed farmers and business owners recognized the necessity of regulations and the importance of received public support, in the meantime they said to be



struggling in meeting the legal requirements that food, agricultural and other relevant regulations impose them. The interviewees pointed that requirements are always more and more demanding, too often changing, new ones are difficult to understand, they are inflexible and ignoring real-life situations and there is no one to explain them how to implement them. For instance, in case of floods and resulting yield damages and limited market access (a farm was cut off from roads), the farm still has to make 200 eur/ha in order to qualify for receiving public funding. Or another farmer reported that controls are not postponed despite of his demand with a valid reason. In particular several organic farmers mentioned strict requirements of production and sales, and over-controlling as too demanding, restricting and even leading to abandoning organic farming in one case. In addition, several dysfunctions were expressed regarding the administrative and controlling system.

In general, there is a lot of bureaucratic work in agriculture, in particular if a farm applies for and receives public funding; this paper work reduces considerably the time available for actual farming; in one case a farmer abandoned the idea to apply for a public support because of the paper work involved. Some procedures ignore timing in agriculture or are too short, for instance new animals must be registered in a week time. There was reported miscoordination and poor data and information exchange between public institutions that consumes farmers' time and energy. In face of many and changing regulations and procedures that are difficult to understand and implement, the professionalism of persons issuing those regulations is questioned, and, on the other hand, farmers and producers themselves feel distrusted (e.g. "the State Revenue Service treats everyone as a potential tax evader"), with underestimated their professionalism and limited decision making. Food sector is very top-down governed, with a considerable dose of uncertainty and insecurity for small farmers and small business owners.

e. Gender issues intersecting governance issues

No particular gender-related differences were identified in attitudes towards farmers, division of tasks in farms or agricultural governance structures. Men's help is searched for farming tasks where physical force is needed, and men more often were operating agricultural machinery, but not in all farms and not systematically. However, accordingly to experts' estimations, small farmers in Latgale are majority senior women because of shorter lives for men.

f. Other actors and processes important for the regional food system

When analysing and mapping regional food systems we have been focusing on food market actors, their connections and food products circulating between them. A more complete picture of a food system would involve also non-market actors from policy, agricultural advisory and education, financial, civic and other relevant sectors. In addition to food products, there are other important elements of the food system, such as information, knowledge, inputs, funds, rules and norms, machinery, equipment, infrastructure, which have a big impact on food security. Some processes and elements of the food systems are more



subtle, diverse or complex. For instance, in parallel to the depicted food system, there is also a “grey” one, consisting of informal and also illegal activities. Informal practices are particularly widespread among small farmers.

g. Forms of collaboration and organization between small farms

Few small farmers though are active members in formal farmer organisations – cooperatives, associations or other. Among the interviewed farmers, cooperative members were commercially oriented small farmers, in particular grain and dairy farms. These are two sectors in which cooperation is the most developed in Latvia. Being a cooperative member provides such advantages as joint marketing, better price, supplies of inputs (fertilizers, fuel, pesticides) and agricultural machinery, credit (postponed payments to a cooperative for its provided inputs), secure and timely payment for supplied products. Farmer associations were frequented mostly for networking, learning, receiving advice. In some cases membership was a formal condition to work in a particular branch or with a particular processor. For instance, for Holstein cows’ breeders membership in the association is necessary for monitoring the breed and also for receiving public subsidies; one must be a member in the dairy cooperative Viļāni to supply milk there.

Several farmers were members in collective organisations only to qualify for public support. Two thirds of the interviewed farmers were no members in any organisation; and one third expressed that according to their knowledge there were no any collective farmer organisation in the region; other did not see any interest in being a member or considered themselves inappropriate because of age or busyness. This moderate membership in collective organisations discovers Latgale’s small farmers’ quite weak involvement in the agricultural sector’s formal governance and power structures. (Contrary to bigger farmers who have well-established lobbying structures.) At some extent, small farmers’ ‘voice’ is transferred by local agricultural advisors who are working directly with them. However, local level agricultural advisors have become quite rare in rural municipalities, their employment is up to local administration’s priorities and financial possibilities. Small food business owners in turn appeared more often to be members of cooperatives or associations (e.g. culinary heritage associations). Even though the experience was not always positive, membership was associated with practical benefits: e.g. information, potential to influence policy decisions.

h. Forms of collaboration and organization between small farms and consumers

Individual direct selling was less popular among Latgale small farmers than in the other Latvian reference region Pierīga (16 of 36 respondents reported direct selling to individual clients). While the selected key products partly explain this (vegetables and fruit in Pierīga are very advantageous for direct selling), it is rather lack and scarcity of local consumers and also poor collective marketing. Latgale region is experiencing depopulation due to strong outmigration and negative natural population growth. Several farmers mentioned there were no customers, “I would not know whom to sell even if I produced more”. In addition, consumers’ purchasing and consumption habits are changing. Food is purchased primarily



in supermarkets where small farmers products are the least likely to be found (however, small farms rarely supply also to smaller retailers).

Consumers have particular tastes and it may be challenging to satisfy their diversity. As one dairy farmer reported, for one person her farm's milk is too fat, for other too liquid, and at the end it is less stressful for her to sell to a dairy, not individual clients. There is increasing demand, particularly among young families, for organic and healthy products, which can be advantageous for small farms, as many of them are organic. However, no particular communication or collaboration between small farmers and consumers were identified that might improve small farms' situation in the market. Even opposite, fluctuating prices and uncertainty about consumers were among the principle risks mentioned by the small farmers. The tradition among local people to grow own food reduces small farmers' chances to establish direct selling links with local consumers.

i. Other governance issues

To deal with this insecurity of 'insurmountable' requirements and improve their farms viability, small farmers may use 'alternative' solutions. For instance, when a certified slaughterhouse is too far away from a farm to bring there livestock for reasonable costs, livestock is sold on a farm and slaughtered "by the client" "around the corner"; farm products that cannot be sold officially because a farmer does not have all the needed authorisations or he cannot meet the formal requirements (of packaging, for instance) are sold illegally; some products are sold without documentation or a farm's turnover is reported under 3000 euros (a threshold under which farms are exempted from some taxes) to avoid paying taxes, which often were claimed to be too high and putting farms at the risk of peril; farmers who cultivate small plots up to 0.3 ha register them as permanent grassland to receive any subsidies (it is the only category under which they can receive payments for so small plots); machinery services are bought for a lower price from unregistered local service providers (they also avoid paying taxes which are too high for them to keep their business profitable) and these expenses are integrated under other expense categories in financial reports. It is difficult to estimate the real extent of such 'grey' practices, but they point to a range of difficulties that formal rules impose on small farms.

Small Farms and rural livelihoods





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As stated above, Latgale is economically the least developed Latvian region which suffers the most also from a range of socio-economic problems – depopulation, unemployment, poverty. Limited employment opportunities in Latgale, especially in rural areas, may contribute to the resilience of small farms but can also bring negative consequences such as *poverty-pockets*, low-paid jobs and opportunity *lock-ins*.

a. Importance of household labour in SFs

A common theme in the interviews was that farming was the only real option available to these farmers in face of migration or social delinquency. While not all farmers talked about this, some intimated that they continue working on the farm mainly because they lack any practical alternatives that would allow them to generate enough income to sustain themselves. While they could sell their holding, it was argued that there are few, if any, other employment prospects, and most would involve them working on a fixed schedule that was deemed less desirable than working on one's own farm.

b. Farm and non-farm income in the SF's households

As illustrated by several of the interviewed successful small farmers, farming can be a solid business opportunity, but in Latgale it plays also an important social safety net function. Small farms have been a considerable support for farming families since decades by providing food, other farm-based resources (like, energy, water), employment, income, personal development and other. As an interviewee summarised, “small farmers work themselves and do not cue for social allowances”.



Small farms' contribution to rural livelihoods extends beyond farming households. Although many farms are poorly involved in market transactions, they still provide with food a broad set of people, sometimes for free or in exchange. Small farmers maintain social and economic activities and networks in countryside, they keep rural areas populated. In terms of employment, small farms provide with jobs primarily family members, on regular or occasional base. Very few of the interviewed farms had some non-family employees.

Small farms are important sources of revenues for rural households. Three quarters of the interviewed farmers stated that their farms bring a half and more revenues in their family total income. In eight farms farming was the only source of income. However, many farmers reported little or none profit after all the costs are paid; annual farms' profit were estimated between 0 and 10000 euros (one case). In most of the interviewed farms agriculture was the only economic on-farm activity. In very few farms (5 out of 36) some non-agricultural economic activities were developed and brought additional income. These non-agricultural activities were forestry and tourism. Finally, it has to be noted that subsidies compose a considerable share in farms' income, most often the interviewed farmers reported the share of public subsidies between 30 and 50 %.

c. Shocks and coping mechanisms of SF households

Along the long-lasting unfavourable socio-economic situation, small farms have experienced also a range of shocks. For many of the interviewed farmers, the very beginning of farming has been challenging when (re)establishing their farms during the decollectivisation in the 1990s. More recently, in particular dairy farms have been suffering from several crisis in the sector following the abolishment of EU milk quotas, Russian embargo on EU products, and from permanently low and fluctuating prices. Natural disasters, like floods and drought, and animal diseases was another common source of shocks causing losses of yields and income. There are also many personal and family events, like deaths, births, loss of off-farm jobs that put a considerable pressure on farms' operation. Farmers have opted for various solutions in order to cope with these shocks: switching from one branch to another, diversifying production, securing the farm against natural disasters, or patiently waiting till the situation gets back to 'normal' again.

Role of Small Food Businesses

a. Main insights and patterns

As regards small food businesses, our study finds that, compared to small farms, small processors in Latgale have lower relative importance in primary production. This can be explained by the effects of increased competition in the food industry in the last decades



which lead to the closure of many small processors in Latgale (vegetable processors and small dairy processors in particular).

It should be noted, however, that a recent reinvigoration of small food businesses can be observed, and it was also referenced and illustrated by the businesses we interviewed. Such businesses are attempting to revive regional culinary traditions and grow out of a vital home processing movement that emphasises craftsmanship and artisanal production. Newly established small food businesses are driven by the values of authenticity and target premium and niche markets.



(Photo © Anda Adamsone-Fiskovica)

Several factors contribute to the emergence of small food businesses in Latgale: a culinary heritage movement and projects which are popular in the region, rural tourism activities, LEADER projects, various forms of niche and direct marketing, cultural events such as town festivals, traditional celebrations, food and tourism fairs. For example, a small dairy business *Jura Siers* produces five kinds of historical local cheeses from own farm's milk and markets the produce via on-farm shop. The farmer is a member in various associations such as Culinary Heritage, Rural Traveller, which provide access to information and knowledge. The farm offers also educational excursions to visitors, thereby linking culinary heritage tradition with food education.

b. Labour in SFB work

The situation as regards the availability of, and need for, labour is complicated. Due to the size of the businesses, labour requirements are modest, and most businesses employ family members, though both full-time and occasional employees are not uncommon. Nonetheless,



a number of our interviewees indicated that depopulation was a serious long-term threat the effects of which were already apparent. The number of clients and customers was low, and some complained about the availability of labour (a sentiment echoed by the farmers we interviewed). Indeed, the declining population in the surrounding area, in addition to technological limitations, old equipment and the location (i.e. far from regional centres) were the main obstacles to expansion and producing more food.

c. SFB income

A common reason for starting working for a business was the continuation of a family tradition, but the search for new business opportunities and lifestyle changes were also prominent reasons. This was also reflected in the range of professional experience exemplified by our respondents. Small business owners were generally at the extreme ends the scale when it came to time worked in the business, with the majority having worked either up to 5 years or more than 20 years. We suggest that this reflects the countervailing trends of ageing and the influx of younger farmers and entrepreneurs. There was a great range in terms of annual turnover among the businesses we interviewed. The smallest business reported an annual turnover of just 4500 euros, while the biggest reported a turnover of 120 000 euro. Nonetheless, a common thread was the important role played by public financial support (in most cases - EU funding).

d. Shocks and coping mechanisms of SFB households

The strengths of regional small food businesses primarily relate to their embeddedness in the local context, and the growing demand for locally-sourced, organic products. Their location and proximity gives them an advantage over other business, though it hampers the expansion of their business due to the distance from regional and national centres. They provide goods that are perceived as being of higher quality and this makes them competitive with cheaper mass-produced products. Furthermore, small businesses often use locally grown or processed raw materials, offer local products and attempt to preserve the methods, traditions and culinary heritage specific to the region.

The Future

a. Main objectives and priorities of SF for the future

The interviewed farmers had three kinds of plans for their farms: to expand, to maintain without changing anything, or to reduce their farming activities. These future objectives varied accordingly to the farmers' personal situations, primary reasons being farmers' physical condition related to their age and health. A part of the farmers did not have particular objectives, and they were planning to continue farming as beforehand. Older



farmers most often were planning to reduce farming activities, or keep their farms status quo as long as their health allows and then liquidate the farm or give it over to a successor if there was one.

A half of the interviewed farmers, and more often they were younger ones, were very keen to develop and expand their farming business. Their plans were to invest in agricultural machinery and buildings, buy additional land, improve production quality, increase volumes, diversify on-farm activities (processing), develop or switch to a new branch. In order to be able to implement their plans, public support for investments and personal health were two most often mentioned conditions. A half of the farmers had some successor or they were planning that their children would continue farming after their retirement. For the other half, children were not there yet, or they were not interested in farming and had settled their lives in urban areas or in other professions.



(Photo © Anda Adamsone-Fiskovica)

b. Main objectives and priorities of SFB for the future

The aims and objectives of small food businesses betray an optimistic future outlook. Some aim to introduce new production methods and maintain the quality of their products, whilst also developing their own brand. Others, on the other hand, aim to increase their international presence and visibility (e.g. in international food fairs). The objectives, in turn, lead to a somewhat predictable range of requirements. By expanding, businesses hope to attract new clients. Financial investments would allow them to expand production and purchase new equipment. However, given the advanced age of many small business owners, future prospects will be determined in large part by their health and ability to continue working.

c. Risk perception by SF



The principle sources of risks that probably will influence small farms' operation also in future were related to nature (weather, wild animals, diseases), market (fluctuating or low prices, lack of customers, physical distances to markets, competition with cheap imports), poor farm's production resources (outdated machinery, lack of available land) and lack of financial means to invest, personal reasons (age, health), changing and demanding regulations. Accordingly to some research participants' estimations, small farms are more resilient than big farms in front of some of these risks (like severe weather conditions) because of their better adaptability. However, the decreasing number of small farms and small farmers' experiences suggest that the totality of structural conditions are not so advantageous for them. Small farms' future possibilities were often linked to small farmers' individual entrepreneurship, innovativeness and hard work and non-conventional, niche sectors.

d. Risk perception by SFB

As regards the future, the overall outlook is pessimistic and fraught with uncertainty, but there is some measure of optimism fuelled by recent trends. Many small businesses are owned and run by people close to or above pension age, and there is considerable uncertainty as to whether the businesses will continue. In some cases, children or grandchildren may take over, but this was not always certain. Furthermore, depopulation may also impact local demand for the products provided by small food businesses. However, there is growing demand for organic food, quality products and regional cuisine in Latvia as a whole, and this may help in maintaining the existence of specialised regional small food businesses.

Nonetheless there are several sources of risk that businesses in the region will likely have to face and overcome. Issues such as health and depopulation, and the resulting loss of local clients and labour force are common and will affect a large number of small food businesses. The somewhat unpredictable nature of official regulations and requirements was also referenced by our interviewees. Businesses that also grow or produce the raw materials for their own products noted risks associated with unpredictable weather conditions or animal diseases (e.g. swine flu). An additional potential long-term issue was the quality and traceability of food products and raw materials. This is both a question of trust and a question of economic competition. For example, products from neighbouring countries (e.g. Belarus, Lithuania) are cheaper and sometimes marketed as local products.

e. Food system forecast in 5, 10 and 20 years

The hitherto public support measures have strengthened SF position in proximity markets in particular via improvements in production capacity, product quality and small-scale processing. If these support measures are to be continued in modified and adjusted form in the next EU programming period so that they better address SF situation and needs, regional stakeholders anticipated a good potential of further increase of contribution of SF and SFB to regional / medium level food systems. They related SF and SFB contributions to providing



greater availability of local, farm-based, special quality and niche products via diversified and organised direct sales channels.

Research participants saw the future of SF and SFB in Latgale in an integrated socio-economic perspective acknowledging their contribution to food provision via domestic, proximity and industrial models as well as acknowledging wider social functions such as maintaining countryside populated (which is also related to the aspect of security of remote EU boarder territories), securing diverse business patterns in rural areas and counterbalancing tendencies of excessive land concentration.

In order to capitalise on this potential of SF and SFB, in particular in proximity food systems, the research participants advised to focus on three key measures:

- (i) To improve farmer education, access to information, knowledge and experience sharing in particular on issues of marketing small farm products and cooperation in marketing;
- (ii) In terms of policies, to balance current asymmetric public support more in favour of small producers and agro-ecological production systems (bigger and intensive farms are primary beneficiaries of public support measures (Vēveris and Kālis, 2011);
- (iii) To facilitate development of new digital platforms (e.g. internet platforms, mobile applications, digital sales assistants) enabling marketing SF and SFB products in proximity and distant markets.



Annex: List of resources

Several information sources were used to generate this report. Existing information and knowledge (statistical data, reports, literature, online materials, previous research) was combined with original information gathered from interviews and focus group discussions with various stakeholders – small farmers, small food businesses and other experts of regional food system and small farms. The source of the presented statistical data is Central Statistical Bureau of Latvia, if not mentioned otherwise. The tables below provide an overview of the participants in the expert interviews, SF and SFB interviews and the focus group discussions.

g. List of key experts interviewed

No	Affiliation
1	Cooperative
2	Farmer NGO
3	Farmer NGO
4	Farmer NGO
5	Farmer NGO Local government
6	Research institute
7	Research institute
8	Research institute
9	Research institute
10	Agricultural advisory

h. SF and SFB interviews and focus groups information

Stakeholder typology*	N° of participants						How were they contacted?
	Interviews			Focus Groups			
	Men	Women	Total	Men	Women	Total	
Farmers	15	21	36	5	1	6	By phone. Face to face interviews and discussions.
Producers' cooperatives							
Slaughtering facilities							
Processors (small/large)	3	2	5				
Wholesalers							
Retailers	2		2				
Caterers		1	1				
Other small food business	1	2	3				
Exporters							



Importers						
Farm inputs suppliers						
Advisory services				1	1	2
Agricultural administration/Ministry of Agriculture						
Consumers' groups/organizations						
Local administrators and policy makers				3	1	4
Political leaders and PMs						
Other programs/initiatives				2		2
Nutritionist						
NGOs					2	2
Traditional and religious leaders (for Africa)						
Total	47			16		

* When a participant had several affiliations or occupations (for instance, a farmer being also a cooperative member, or a small food business – a processor and a retailer), the principal one was selected.

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4.15. RR15 Pierīga –Latvia– Food System Regional Report



WP3

Pierīga (RR 15) – Latvia – Food System Regional Report

BSC | BALTIC STUDIES CENTRE

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Table of Contents: Food System Regional Report

1) Socio-economic and agricultural profile of the reference region.....	401
2) Key products and regional food balance sheet.....	403
3) Food system: Key nodes and flows and role of small farms and small food businesses.....	405
3.1. Key product 1: Wheat	405
3.2. Key product 2: Cow milk	409
3.3. Key product 3: Vegetables	413
3.4. Key product 4: Apple	416
4) Typology of small farms in the reference region.....	419
5) Governance	422
6) Small Farms and rural livelihoods	427
7) Role of Small Food Businesses.....	429
8) The Future	431
9) Annex: List of resources	436



Socio-economic and agricultural profile of the reference region



Pieriga region is located in the central part of Latvia, surrounding the capital city Riga, situated along the Gulf of Riga (Baltic Sea) and bordering with Estonia in the north. Pieriga region is a statistical region (NUTS3) created in 2004; it does not have a joint historical socio-cultural identity or socio-economic integrity. It partly overlaps with Riga Planning region, an administrative unit, also created recently, in 2006.

One of the key factors of the region's development is the presence of the capital city Riga. Riga is a hub of entrepreneurship, innovation and education, and is the biggest city in Latvia. Strong interaction between Riga and surrounding Pieriga region territories – in terms of flows of people and human resources, goods including food products, capital – forms the backbone of Pieriga's business environment. The region has a vital entrepreneurial activity with 29 thousand holdings (or 84 enterprises per 1000 inhabitants). The share of GDP is the second largest (15%) in Latvia and GDP per capita is 9 843 EUR. However, there are internal differences of socio-economic development in the region. Municipalities closer to the capital city show positive development trends – the average income level is among the highest in Latvia, the population is increasing, and the age structure is better balanced. On the other hand, municipalities located in more remote territories are in a reverse situation - the income level is quite low, the unemployment level is high, and the number of inhabitants is decreasing due to low birth rates and significant emigration.

Agriculture plays a comparatively small role in the regional economy. It contributes 3.3 % to the gross value added and provides jobs to 5.5% (9.7 th) of the total regional labour force. The total number of farms is 9037, with an average size of 29.5 ha. Small farms (<5 ha²¹) compose 37%, and in Pieriga region their number decreases faster than in other Latvian

²¹ In accordance with the joint SALSA definition we consider as small farms those with up to 5 ha or 8 economic size units (ESU). Research suggests that a more nuanced approach is needed. Farm size is sector-dependent: while a 5 ha-farm in wheat production is extremely small, 5 ha is a lot for an apple farm. The size of a farm could be considered also in terms of a farm's ability to ensure 'sufficient' livelihood for a farming family. In this regard, for instance, 5 ha can be a meaningful threshold in the apple sector and vegetable, especially greenhouse vegetable, sector in Latvia. Otherwise, farms up to 50 ha can be considered small.

regions (LVAEI 2013). The main branches in the regional agriculture are cereals (32% of UAA with wheat (47.6 th ha), barley (12.2 th ha), and rape (11.41 th ha) being the principal (cash) crops) and dairy farming (23.2 th LSU of dairy cows) and pig breeding (26 th LSU of pigs). The region is internally heterogeneous in terms of agro-environmental conditions. In the western part of the region, the quality of agricultural land is one of the highest in Latvia, therefore the production of cereals is well developed there. The eastern part of the region is more suitable for dairy farming and pig-breeding.

In general, the agricultural production in Pieriga region is more market-oriented – farms are bigger and more modernised – than in the other reference region of Latvia (Latgale).

Table 1: Basic data for the region

Indicators	Data per Region - Nuts 3
Land size (km ²)	10,135
Population (thousands of people)	368
Density (people/km ²)	36
GDP (thousand USD/inhabitant)	10.7
Total labour force in agriculture in AWU	9,800
Total number of agricultural holdings	9,037
Total Agricultural area (ha)	266,600
Total Utilized Agricultural Area (ha)	253,300
Agricultural Area in Mountain Area	n.a.
% of UAA in the RR	25
Average Farm size	29.5
Number of farms by UAA farm size:	
0-5 ha	3,368
5-20 ha	3,694
20-50 ha	1,138
>50ha	772
Average size of farms < 5ha of UAA	1.89
Area of main crops (ha):	
Cereals	82,959
Wheat	52,467
Barley	12,237
Rye	5,499
Pulses	4,217
Open field vegetables	2,126
Potatoes	4,951
Rape	13,096
Area of main crops (ha) in farms < 5ha of UAA (NUTS 2 level data))	Potatoes, open area vegetables
Livestock (LSU) per type	



Cattle	45,985
Dairy cows	22,949
Pigs	25,691
Sheep	2,030
Goat	215
Poultry	15,497
Rabbits	490
Livestock (LSU) per type in farms < 5ha of UAA (NUTS 2 level data)	
Sheep, goats, cattle, dairy cows	
Annual work units (AWU) by UAA farm size:	
0-5 ha	2,300
5-10 ha	1,700
10-50 ha	3,000
>50ha	2,800
Total family labour per farm size: 0-5, 5-20,20-50,>50ha	
No public data available	

Source: Central Statistical Bureau of Latvia

There are several events which have influenced the situation of small holders, and agricultural production in general, in Pieriga and the country as a whole. Firstly, the agricultural reform in the beginning of the 1990s (decollectivisation) resulted in a very fragmented agricultural production structure. Farming performed a very crucial function of socio-economic safety net in rural areas but its production efficiency was often low. Rural policies failed to create social and economic alternatives or improve the situation of small farmers (Slee 2000). Integration in, and accession to the EU, from 2004 onwards provided many new opportunities to farmers, including small ones (with some specific target support programmes to subsistence farms and small farms). In the meantime, public agricultural support has not been well-balanced among various goals and farms, and small farms have not been among the principal beneficiaries: the biggest share has been devoted to modernisation goals and absorbed by a limited number of large farms (Vēveris and Kālis 2011).

Key products and regional food balance sheet

a. Key products produced and consumed in the region

Considering the available statistics and experts' opinions on food production and consumption, the following key products were selected for the in-depth analysis of the food system in the Pieriga region: wheat, cow milk, vegetables and apples²². All these products are typical agricultural and food products in Latvia. Wheat and cow milk are produced and consumed in significant quantities in the region. Wheat is by far the most produced crop in

²² According to the joint SALSA methodology, four regional key products had to be selected: two that are much produced and consumed, one - with high production, but low consumption, and one with social or cultural relevance in the region.



Pieriga (52 th ha and 238 th t). Both wheat and cow milk are industrial and export (wheat being the principal export crop) products, although smaller-scale and artisanal production is also widespread (in particular in the dairy sector). From the perspective of the production-consumption balance, more vegetables are produced than consumed in the region. Pieriga is one of the two principal vegetable production regions in Latvia, mainly due to the proximity of markets in the capital city Riga and some other bigger towns. Finally, apples were selected as a typical regional product: it is widely grown for self-consumption, but also for commercial purposes. Latvian commercial fruit production is concentrated in the Western part of Pieriga region where several fruit processing companies and research organisations are also located.

Table 2. Production and consumption of the key products in Pieriga.

Product	Approximate amount produced in the region (ton/year)	Approximate amount consumed in the region (ton/year)	Balance (consumed - produced)	% surplus-deficit on total consumption
Wheat	238,872	168,871	70,001	0.41
Cow milk	155,408	84,048	71,360	0.85
Open field vegetable	37,813	12,895	24,918	1.93
Apple	3,417	7,314	-3,897	-0.53

Source: Central Statistical Bureau of Latvia; Data on consumption are calculated on the base of EFSA database "Comprehensive European Food Consumption Database"

(<https://www.efsa.europa.eu/en/data/food-consumption-data>); Data on apple are based on an expert's estimation and the authors' calculation on the base of the data from Skrivele et al (2008) Fruit and berry growing in Latvia (<http://www.lvai.lv/pdf/Raksti-viss-drukai.pdf>).

There are slight variations in the production and consumption of these key products in SF. Table 3 summarises production and consumption of the key products at the regional level (X), and more specifically in SF (SF). The relevance of the products at SF was estimated on the basis of their relative importance in SFs' production and consumption structure, as estimated in SF interviews²³. Whereas milk, apple and especially vegetables were found to be typical products in small farms, wheat was less typical. We deduce this from the fact that it was difficult to identify small farms producing wheat, which, at the regional level, is primarily an industrial export product. Milk and vegetables were more often marketed in SF, while apples and wheat were often produced for self-consumption (including for forage). Most of the SF interviewed produced several regional key products.

Table 3. Production and consumption of the key products in Pieriga region and in small farms in Pieriga

	Production		Consumption	
	High	Low	High	Low
Wheat	X	SF	X SF	
Cow milk	X SF		X SF	
Vegetables	X SF		SF	X
Apples	SF	X		X SF

Source: Central Statistical Bureau; SALSA small farms' interviews

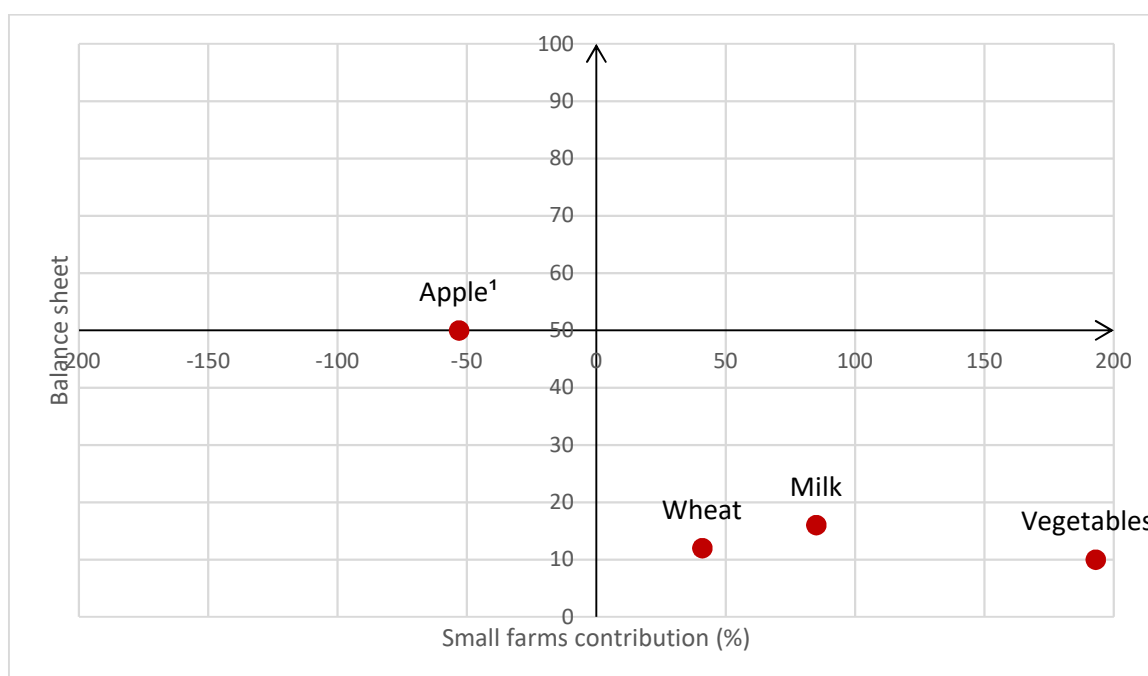
²³ Some share of these products, especially those produced for self-consumption and with irregular sells to individual clients, may not be included in the official statistics.



b. Balance of production and consumption of key products in the region

The balance sheet (Figure 1) characterises each key product accordingly to its regional production - consumption balance (X axis) and to small farms' contribution to its total production volume (Y axis). There is considerable self-sufficiency in the region regarding three of the four regional key products - wheat, milk and particularly vegetable are produced with a surplus. The share of small farms' contribution to regional production volumes vary between 10 and 16% for these products. Apples are a distinctive case, as there is a considerable deficit in the regional apple production and small farms' contribution is higher, reaching half of the total regional apple production volume.

Figure 1: Balance sheet for Pieriga key products²⁴



Food system: Key nodes and flows and role of small farms and small food businesses

3.1. Key product 1: Wheat

- a. Nodes in the regional food system: production, processing, commercialization and retail

Wheat is a key crop produced in Pieriga and also a key industrial and export product. It is produced for three purposes: human consumption, animal forage and biogas production. As

²⁴ On the X axis, the value '0' means production is equal to consumption, a negative value means there is a deficit in production, and a positive value means surplus of production.



follows, three linked, but separable wheat subsystems exist. When mapping and analysing regional wheat food system, we disregard wheat production for biogas as it is not directly linked to regional food security²⁵.



Agro-industrial model is dominant in the wheat food-system in Pieriga. It accounts for 70% of the regional grain (Wheat FG). There is an ongoing concentration in the entire wheat food chain with several big market actors - wholesalers, cooperatives, processors and retailers - playing a major role. A big share of Latvian wheat, including from Pieriga region, is exported. 60% of wheat remains in the region though.

On production side, the average size of grain farms is increasing, and the number of small farms producing wheat has been rapidly declining. Small farms still produce 12% of the regional wheat. In general, grain producers are well-organised in grain marketing cooperatives. There are several cooperatives operating in the region (*Abra, Latraps, VAKS*). However, mostly big and medium farms are involved in the cooperatives. Small farmers are much less often cooperative members; none of the interviewed small grain producers was a cooperative member.

b. Flows connecting the different nodes in the regional food system

Other important wheat buyers in the region are middlemen - agro-businesses (*Elagro trade, Scandagra, Agerona, Lītagra etc*) which buy grain for selling in national or international markets. Again, we did not identify any small farms as their suppliers. Regional farmers, including small farms, also deliver wheat to dry-houses, which process and sell it to flourmills and

²⁵ Statistics presented in this report show the total wheat production data without distinguishing between different subsystems.



bakeries for processing into consumable wheat products. Finally, big livestock farms (*Baltic Porc*) also buy grain directly from other farmers for animal forage.

Bakeries and other processors are also crucial actors, in particular when considering human consumption. One of the three biggest bakeries in Latvia (*Fažer*) and numerous smaller ones (*Flora*, *Lāči*, *Lestenes maiznīca*, *Liepkalni*, *Roga Agro*, *Siguldas maiznieks*, etc.) are located in Pieriga. There is a high concentration in the Latvian bakery market, and also Pieriga's bakeries experience tough competition. Bakeries tend to buy wheat or flour from wholesale traders which can ensure constant supplies and a stable price, but not from individual regional farms with fluctuating yields. On the other hand, some farmers question the viability of bakeries because consumption of grain products has been steadily decreasing during the last decade in Latvia. Few bakeries (*Liepkalni* being an exception) produce their own grain. It is common for regional bakeries to deliver their products outside the region all across the country; a small part is exported.

Wheat products (flour, bread, pastries, etc.) are distributed to consumers primarily through supermarket chains, smaller shops and catering companies. Some regional bakeries (*Lestenes maiznīca*) also participate in school meal procurement programs and deliver their products to pupils.

In addition to the agro-industrial model, two other wheat subsystems - proximity and ecological - are present in the region. They are solid and dynamic, but remain comparatively marginal in market terms. 20% and 10% of the regional wheat turn over in proximity and ecological models respectively (Wheat FG).

c. Importance of household self-provisioning in small farms and small food businesses

The majority of small farms producing wheat are operating within a mixed self-provision/proximity/agro-industrial sub-system. Small farms produce wheat mostly for self-consumption, i.e. for livestock forage (farmers call it 'adding value to grain'). Occasionally they sell some surplus grain to neighbouring farmers or middlemen operating in the region. The end-products originating from these farms, for which grain is used as input (such as milk, dairy and other livestock products) enter proximity and agro-industrial chains. The proximity sub-system also includes the wheat chain for human consumption. It contains farmers who have developed processing, are milling grain, baking bread and pastry from their own grain (*Zutiņi*), and artisanal producers of bread, pastry and other processed grain products (*Ilzes darbnīca*). These artisanal products are sold primarily to local consumers, in farmer markets, on farms. Non-farm artisanal producers tend to buy flour and other grain products from retailers or wholesalers, which points again to the interlink between agro-industrial and proximity sub-systems.



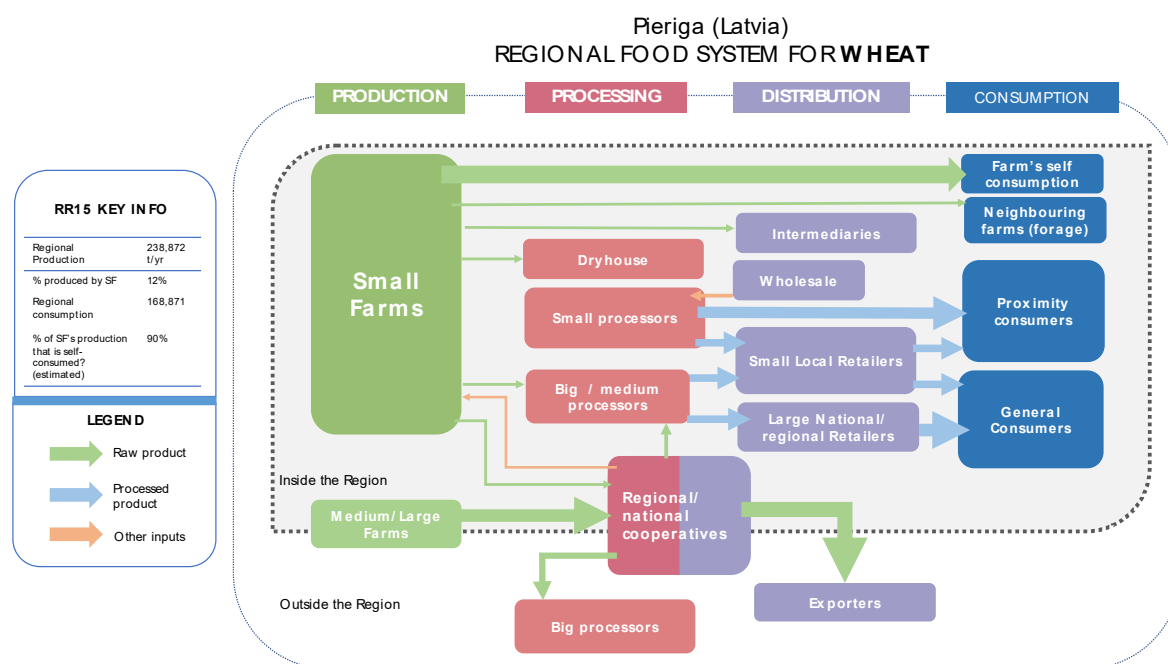
d. Other relevant information

There is also an emerging ecological subsystem that involves producers, processors and consumers of ecological products. According to the focus group discussion, commercial organic wheat production is not profitable yet because of lower yields and low public subsidies for organic wheat that do not cover production costs at a reasonable level. The organic wheat chain infrastructure is also underdeveloped (lack of dry-houses, processors). This lack of regional commercial organic wheat is reflected in the overlap of the ecological subsystem with other regional subsystems. The ecological model is linked to the agro-industrial model because the shortcomings of local ecological raw material, flour and other ingredients makes processors import them from abroad or purchase them from large processing companies; final organic wheat products are also distributed in supermarket chains (pasta of *Austras koks*). The overlap with the proximity model is evident as there are still some local ingredients used/bought, and end products are sold in local and short food chains (e.g., direct sales, farmers' markets). In addition, many organic livestock farms produce own wheat for forage, which overlaps with domestic and proximity models.

Stakeholders pointed to several factors which will influence future developments in the regional wheat food system. Land market will influence production structure. Wheat farms willing to expand production and new entrants are constrained by little available land in Pieriga and growing land prices. In this situation, better tailored public support to local small and medium farmers for buying land would ensure their better access to land; however, no changes in current support for buying land, sometimes found complicated regarding procedure and expensive, are envisaged. Further concentration in wheat production is expected.

Public agricultural policy and support measures will continue to play decisive role. A suggestion was expressed to link public payments also to output (yields) not only area. The focus group participants admitted that lots of developments in the wheat production system are the matter of financial costs: "it's all about the price" (of inputs, services, grain). In general, no considerable changes were envisaged within and between the regional wheat subsystems. However, the focus group participants saw a good future potential in the ecological model which they linked to growing consumers' awareness on ecological and transparent food production and to growing consumers' purchasing power.





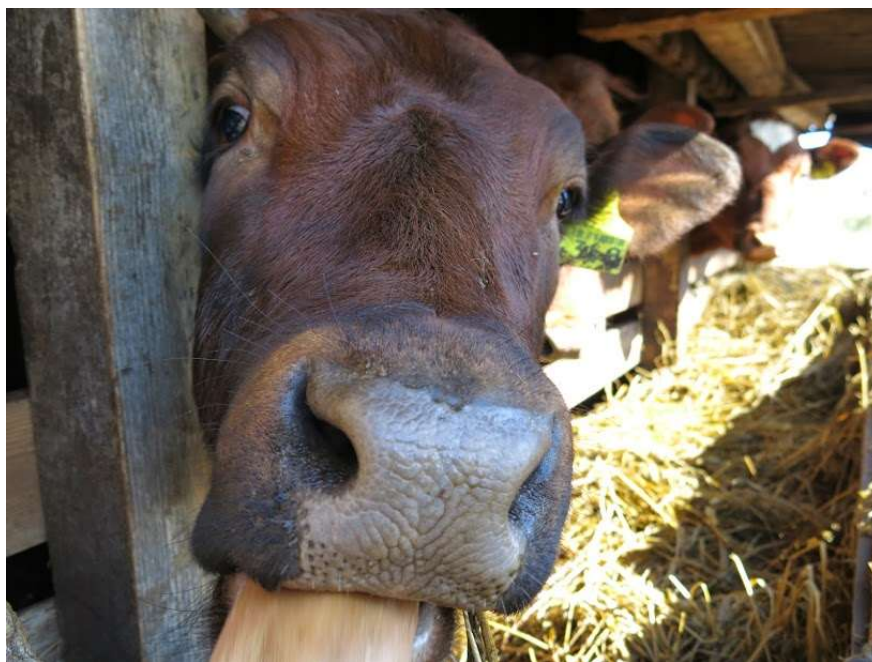
3.2. Key product 2: Cow milk

- a. Nodes in the regional food system: production, processing, commercialization and retail

Milk production is one of the principal agricultural branches in Pieriga. In total numbers, there are fewer cows in Pieriga than in other Latvian regions, but, on average, the farms are the biggest - 7.8 cows per farm (for comparison, in the other Latvian RR Latgale, the herds are the smallest with 2.6 cows per farm).

Despite the ongoing concentration trend in the dairy sector, it is dominated by small farms. However, the region is not uniform in terms of milk production. Comparatively bigger herds (especially in the western part of the region), several dairy cooperatives (*Piena Cēļš*, *Pienene*, *Braslava*), big processors (*Tukuma piens*, *Limbažu piens*, *Rīgas piena kombināts*, *Jaunpils pienotava*), retailers and middlemen who are linked to export/import markets characterise the sector's agro-industrial subsystem in the region. Milk FG's participants estimated that considerable public investments in the agro-industrial production model via subsidies, and support to production development projects, have led to the dominance of the agro-industrial model over other subsystems in the region. Very few of the interviewed small dairy farms operated in the agro-industrial system; those who did were selling milk to big regional processors. According to some stakeholders, direct delivery to processors can even be disadvantageous for small farmers because they tend to receive a lower price.





b. Flows connecting the different nodes in the regional food system

Whereas the agro-industrial model is more prominent in the western part, the north-eastern part is characterised by smaller scale production. The proximity model is represented by smaller processing companies (*Sabiedriba Mārupe*, *Degoles pienotava*), small retailers, niche and artisanal processors (*Soira*, *Edgara siera*), farmers - processors (*Mazļauri*) and farmers who operate in shorter food chains. In particular, the presence of small and medium food businesses in the region was found to be crucial for a lively proximity model linking local small producers to local customers. Small dairy farmers typically operate at a very local level as they sell milk and dairy products almost exclusively to individual customers in their vicinity. The proximity to Riga also allows for direct market exchanges with consumers there - selling in farmers' markets, to direct purchasing groups, delivery to enterprises and other regular customers. Dairy farmers working in places more distant from Riga face far more difficulties to build stable individual market channels due to a lesser number of customers and their lower purchasing power. A remarkable part of direct sells were estimated to be in the informal sector. The public procurement programme 'School milk' that facilitates the consumption of locally produced milk in regional schools is also important for the proximity model. SFs approved of the approach of this public procurement program, but they indicate that they do not experience any direct benefits (financial or moral) from it as bigger milk processors have taken charge of delivering milk to schools.

In addition, we distinguish the ecological dairy subsystem, even though it is linked with the agro-industrial and proximity models. One of the regional big processors (*Tukuma piens*) is also operating an organic processing line (the raw milk and end product are not exclusively local though, as they are imported from, and exported to, other Latvian regions). There are also several organic dairy farms in Pieriga who deliver fresh and processed milk directly or in other short food chains to consumers. Many organic dairy farms sell milk in conventional

chains though, due to the organic processing companies being located too far away. In addition, there are many uncertified organic farms. Stakeholders saw good potential in this subsystem in the future, but with two policy and market conditions: (i) favourable policy measures in terms of public payments for the production of organic milk and (ii) physically accessible organic processors in the region.

It should be noted that the dairy sector has experienced quite a severe crisis during recent years, caused by the Russian embargo, abolishment of EU milk quotas, with consequences for the entire milk food system. Among the interviewed small farmers, dairy farmers were more likely to refer to difficulties and have been considerably reducing their herds and production activities. Some dairy farmers have switched to a different branch of agriculture or have developed on-farm processing of dairy products in order to ensure sufficient income and economic stability of the farm.

c. Role of small farms and small food businesses within the food system

Smaller farms maintain the domestic dairy model as they consume a considerable share of their produced milk either as fresh milk and simple processed milk products, or use it for animal feed. But the number of small farms operating within this model is declining. According to experts' opinion, it is not advantageous for farmers with a couple of cows to sell milk even to individual clients as income does not cover the effort and costs of delivery. High production costs is a reason why very small-scale semi-subsistence dairy farms cease to operate - it becomes cheaper for them to buy milk and dairy products from bigger neighbouring farmers. In addition, increasing land prices makes renting land to other (bigger) farms more profitable than farming.

d. Other relevant information

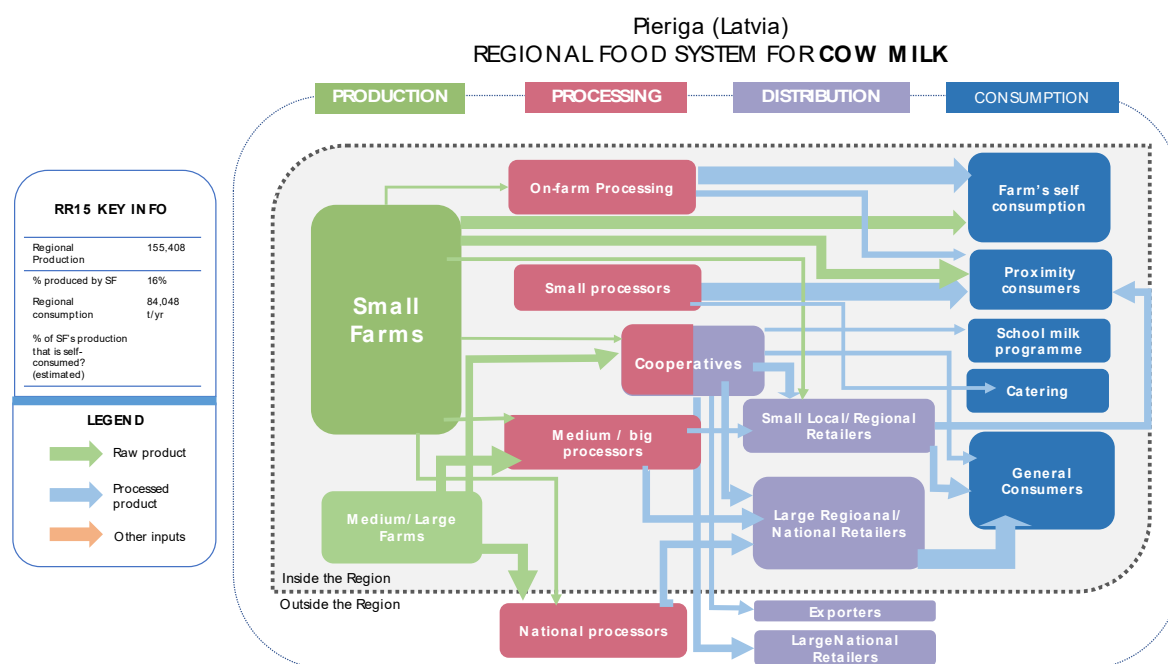
According to the milk FG participants, some key processes and factors that are already influencing dairy farms and will also be key in future developments in the entire milk food system are: structural changes in the farming sector, the associated changes in the production profile of farms, marketing as a key activity, technological development of farms and socio-demographic context and factors influencing farming activity. Table 4 below represents an attempt to classify and rank the codes of key tendencies in dairy farm development in Pieriga (including small dairy farms) developed on the basis of the responses of the participants of the milk focus group discussion.



Table 4. Key processes and factors influencing dairy farms in Pieriga region

Categories / processes	Codes	Count	Rank (count total)
Farm structure	Farm growth, Farm concentration	6	1 (12)
	Disappearance of SF, Farm liquidation	3	
	Medium farms, Family farms	2	
	Stability of SF	1	
Production changes (farm profile, branches, products)	Beef cattle production	4	2 (11)
	Additional income seeking	1	
	Exiting dairy	1	
	Change of production	3	
	Diversification	1	
	Local products	1	
Marketing	Diversified marketing	1	3 (8)
	Direct marketing	3	
	Market integration	2	
	Price dependency	2	
Technology	Organic	2	4/5 (6)
	Investment in technologies	1	
	Technological modernisation	2	
	Precision farming	1	
Socio-demographic	Work satisfaction	1	4/5 (6)
	Labour shortage	1	
	Generational changes in farming	1	
	Ageing	1	
	Farm transmission	1	
	Own labour	1	
Business planning	Risk management	2	6 (4)
	Business planning	1	
	Prudence	1	
Knowledge	Learning, Knowledge	2	7 (3)
	Consumer education	1	
Self-provision	Self-supply	1	8/9 (2)
	Social networks	1	
Policy	Future of CAP	1	8/9 (2)
	Taxes	1	





3.3. Key product 3: Vegetables

- a. Nodes in the regional food system: production, processing, commercialization and retail



Vegetable production is comparatively developed and popular in the Pieriga region, mainly due to the presence of consumers from Riga. So, a considerable share of vegetables is sold outside the region - in Riga, but it is still geographically very close. Another notable fact is that vegetables are widely produced and consumed in Latvia, but vegetable production is one of the agricultural sectors in which producers face severe competition with cheaper products from countries with more favourable agro-climatic conditions for vegetable growing.

b. Flows connecting the different nodes in the regional food system

The agro-industrial model is well established in the region. There are two vegetable cooperatives - *Mūsmāju dārzeni* and *Baltijas dārzeni* - located in Pieriga, which unite several big vegetable growers from all over Latvia, including the Pieriga region. These cooperatives mostly serve supermarkets, but also smaller shops, schools and also export abroad. Several processing companies operate in the region. Smaller ones (*Nīsi, Rosība, Vokons*) buy vegetables from (bigger) Latvian producers, but they can also import when local vegetables are not available. Bigger processors (*Spilva*) import and export a considerable part of the vegetables they process. Wholesale traders import and trade vegetables to bigger and smaller retailers. Catering businesses have different practices of purchasing raw materials, but many of them are operating within this model. In turn, very few small vegetable farmers are serving the agro-industrial model.

c. Role of small farms and small food businesses within the food system

The proximity model is equally very solid and characterised by a range of short distribution chains. This model extends beyond the regional borders though, as many producers use the proximity to the capital city Riga to sell products on farmers' markets, via internet, specialised smaller shops or consumer groups (*Atvases, Kroniši*). Selling at local farmers' markets and on farms is also quite popular. The interviewed small vegetable farms often used these market channels. Comparatively fewer farms (*Gaiķi, Kroniši, Liepsalas S, Silpurmašas, Arāji*) have developed some processing and also sell processed vegetables. These products are also marketed through various short food chains. In addition, the proximity model is also supported by "the green procurement" which prescribes regional public institutions to buy the closest rather than the cheapest vegetables for their canteens. This measure provides considerable support for regional vegetable growers.

d. Importance of household self-provisioning in small farms and small food businesses

Several subsystems of vegetable production-consumption are present in Pieriga region. The domestic model is characterized by household plots, where vegetables are grown for family needs, as well as by small farms which consume a considerable share of the vegetables produced. All of the interviewed small farmers grew and also processed vegetables at least for self-consumption. These producers also deliver or sell vegetables to their extended families, neighbours, friends or other local consumers. Often these are non-monetary deliveries: products are offered for free or in exchange for some help on farms.

e. Other relevant information

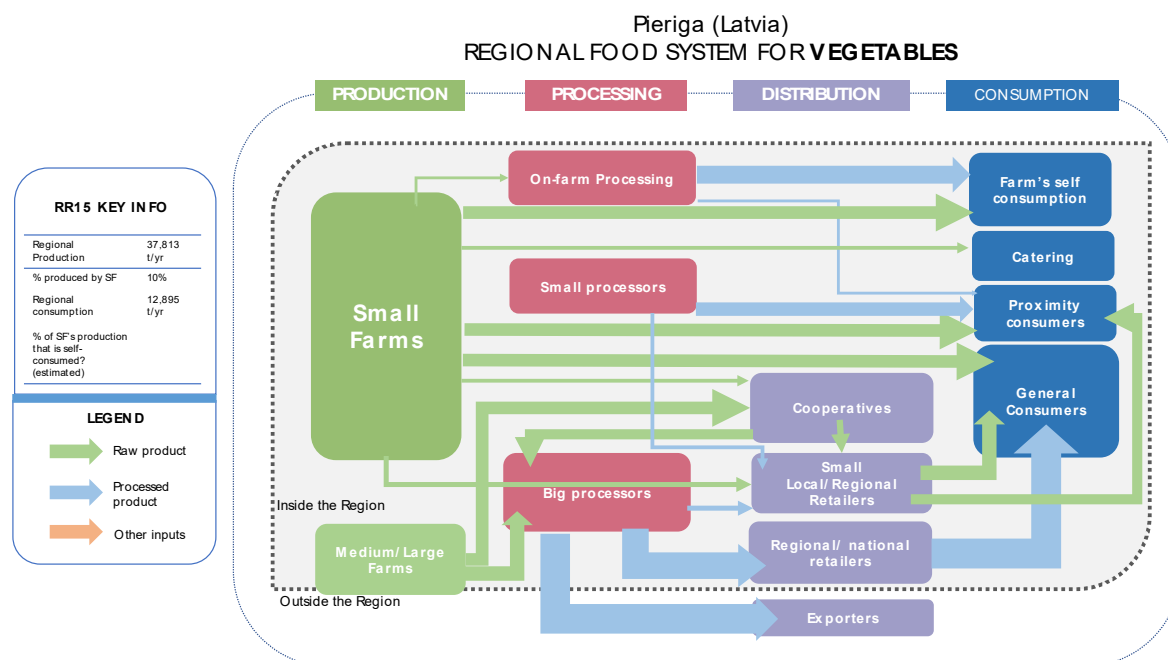
The focus group discussion pointed to the following factors that are likely to influence future of the regional vegetable food system:



Societal opinion: societal expectations towards agriculture and food are changing as more and more consumers demand traceable (preferably of local origin) and secure food. Farmers and other food system actors still have to adopt to this changing attitude.

Public recognition of small farms: the food system in general, and in particular the vegetable sector, will benefit if the contributions of small farms to food security is better recognised. Avoiding classification and ranking of farms accordingly to their size and usefulness would remove negative moral pressure on small farmers that implies underestimation of their work and pressure to increase scale. Such a recognition should also involve public financial support and a regulatory framework (e.g. progressive taxation, simplified book-keeping) better suited to small farms. Such measures would encourage a share of small farms to leave “the grey sector” or “the food system’s underground” in which they are currently operating.

New market solutions: small vegetable producers have big market potential, but they face difficulties in accessing market. Future solutions are seen in: ‘traditional’ cooperation or collaborative market platforms; joint initiatives with consumers (direct buying groups); digital tools (online selling platforms, social media). Support for training (to leaders and brokers) and the development of logistics will be key in order to implement such market solutions. The stakeholders pointed to the role of local municipalities in creating favourable conditions for the development and implementation of new market solutions within the proximity subsystem.



3.4. Key product 4: Apple

- a. Nodes in the regional food system: production, processing, commercialization and retail



In the regional apple food system, we can identify several co-existing subsystems: domestic, proximity, and agro-industrial are the principal ones, and a fraudulent proximity model, which is less visible but clearly present. For the apples produced in the region, the proximity and domestic subsystems are the most important ones. The prevalence of these models is also related to the fact that a considerable share of regional apples (50%) are grown in small farms in small volumes, and the total production volume is too limited to develop industrial production. For regional consumers the agro-industrial model is also very important: (1) in order to meet local consumer demand, a considerable share of apples is imported, and (2) supermarkets are the principal place for food purchasing.

The domestic model is predominantly informal, but very prominent. Apple trees are typical fruit trees in the so-called domestic non-commercial fruit gardens which primarily serve family needs. Often, apples are processed into simple artisanal apple products (juice, jam, dried fruit and others). Apples and apple products originating in domestic gardens can also be sold to local consumers in very productive years. The domestic model has quite a huge impact on the proximity model: many households producing their own apples turn to the market only when their own apples have been consumed.

The domestic and proximity models are the central apple subsystems in which regional small farms operate. According to the interviewed experts' estimation, small producers sell mostly fresh apples (80%). They sell apples directly to customers on farms, in farmers' markets, or deliver apples to their regular clients, or sell via cooperatives, smaller shops and retailers. On-farm processing of apples is quite popular in small farms. Often, apples are processed into traditional products, like, apple juice (*Eglāji*), sauce, jam (*Bērsgaļi*), dried apple, or apple wine (*Jokas*, *Pilādži*), or in more innovative ones, like apple powder (*Jaunstokas*, *Liepsalas S*). Similarly, these products are marketed primarily in short and local food chains.



According to experts' estimation, around 10% of regional apples are organic. Moreover, integrated production system is pervasive in apple growing. However, no specific nature-based or ecological food subsystem for apples has been identified so far: a considerable share of these fruit are not separated from conventional ones in the food distribution system.

A common problem for all the subsystems, and for the proximity model in particular, is the modest demand for apples due to general consumption habits with low fruit intake, low purchasing power of customers and depopulation trends in the region.

b. Flows connecting the different nodes in the regional food system

Some apple growers from the Pieriga region have joined fruit growers' cooperatives. Three of the cooperatives - *Augļu nams*, *Zelta ābele*, *VTT Dārzi* - are located in Pieriga; but they also include producers from other regions. Cooperatives help small farmers access the market by providing joint infrastructure (e.g. storage is crucial in order to prolong the selling period), joint contracts and supplies to bigger retailers, and market information (e.g. on consumer preferences).

The agro-industrial model in the region consists of a couple of big processing and retailing companies and inter-regional/inter-national apple flows. *PureFood* is a long-standing fruit processing company located in the "heart" of the apple growing region. It buys apples from regional producers, notably cooperatives, but taking into account the insufficient supply of local apples, the company also buys apples from abroad. End products of this company, aimed for consumers and processors, are sold both in the regional and national market and are also exported. Supermarkets also buy regional apples from bigger regional producers as well as from cooperatives. In various retail chains, the share of local apples varies between 10 and 40%. The local supply meets only half of the local demand, and the rest is imported (18 400 t in 2013). Imported apples, primarily from Poland, Italy, the Netherlands, also Lithuania, reach regional consumer through supermarkets, smaller shops and farmers' markets (via middlemen). Regional apple producers experience importers as a considerable threat to their businesses as their prices are lower.

c. Role of small farms and small food businesses within the food system

There is an inter-section between proximity and agro-industrial models. Many regional apple producers use the cheaper processing services of companies in neighbouring Lithuania to process their apple into juice, which is afterwards sold to local customers.

d. Importance of household self-provisioning in SF and SFB

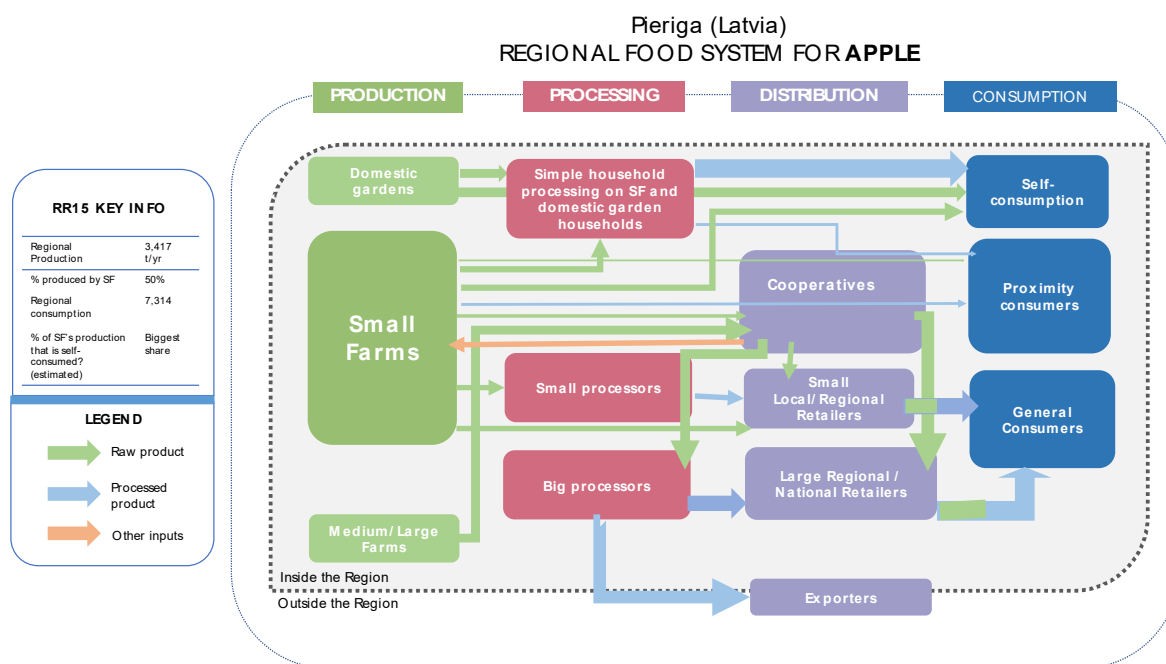
In addition to these subsystems, stakeholders, in particular farmers, pointed to the existence of fraudulent apple distribution. According to them, there is a number of farmers or other apple chain actors who, knowing the consumers' preference for fruit of local origin, buy



cheaper apples in Lithuania and sell them in the local market as Latvian apples. This creates unfair competition between local and “local” producers, and reduces consumer confidence in local apple growers.

e. Other relevant information

Stakeholders linked future developments in the apple sector with the strong depopulation trend - a declining number of consumers and a smaller regional and national market. They stressed the importance of cooperation among producers and public support for development projects aimed at improving production and distribution capacities. A general observation regarding small apple farms is that their number is declining. Diversification of on-farm economic activities (processing, tourism), joining cooperatives, and specialisation towards specific quality products (e.g., integrated apple production) were seen as development options for small farms.



Typology of small farms in the reference region

a. Small farm types in the region



Following the SALSA Analytical Framework, we base the small farm typology in Pieriga upon two criteria: (1) the level of a farm's market integration calculated as a proportion of production sold and (2) the degree of a farm's self-sufficiency measured as the share of the farms' produce in a household's food basket (See the Table 5). We use the threshold of 50% of sold and self-consumed production, as proposed in the Analytical Framework, to distinguish between the types of small farms.

Table 5. Small farm typology and distribution of the interviewed small farms

		Degree of self-sufficiency	
		< 50%	> 50%
Degree of market integration	< 50%	Type 1: 4 (13%)	Type 2: 11 (37%)
	> 50%	Type 3: 12 (40%)	Type 4: 3 (10%)

1. Low share of self-sufficiency and low degree of market integration are characteristics of hobby farms, recently established farms that are about to scale up and wish to expand and to farms who have recently switched to different agricultural branch. These farms produce some crops, in particular vegetables and fruit, and possibly smaller livestock for self-consumption. Poor market integration is explained by the fact that the principle aim of hobby farms is to produce food for self-consumption, but young farms and those which have switched to another branch do not yet produce enough surplus. Still, these

farms occasionally sell some products to individual clients in the neighbourhood, on the internet, farmers' market or use other direct sale's channels.

2. The category of high degree of self-sufficiency and poor or no formal market integration was one of two most represented in the sample. 11 out of 30 farms belong here. These are typically mixed farms growing food or cash crops (vegetables, potatoes, fruit etc), feed crops (cereals, clover etc), and some livestock (poultry, cows, meat cattle, pigs, rabbits etc.). Often these were farms were managed by older farmers: 8 out of 11 farmers in this category were older than 60, and farms which have been reducing their production volumes. But there was also a minority of young farms which are expanding and mature farms, which have stable selling channels but little surplus. Their current production capacity is insufficient to maintain regular supplies to bigger market actors. Occasionally these farms may sell to processors or middlemen (slaughtering houses, dry-houses). Therefore their principal marketing channels include private customers, also farmers' markets, and also informal sales. Still, these farmers contribute to local food security without using formal market mechanisms as they provide food to a considerable number of consumers, including relatives, friends, neighbours and other private clients. Many farms in this category were among those who offered the highest share of their products for free.
3. Low self-sufficiency but high market integration is characteristic of more specialised small farms. This was another category well represented in the sample. Among these farms there were many vegetable producers, a few specialised dairy farms with on-farm milk processing and a wheat farm. These farms market their products via a range of diverse individual market channels and often short food supply chains: local markets (up to 70-80% of products sold), farms and farm-shops, direct deliveries to clients. But we find here also cases of selling products via public procurement programs, to retailers, processors and catering businesses.
4. Similar to type 3, these highly self-sufficient and highly integrated farms are specialised ones. They still produce a considerable variety of crops, especially vegetables, and keep some livestock to ensure a solid self-provision of food. There were few farms in this category, but two out of three had developed on-farm processing and the third was considering this. Market integration is ensured by similar market channels to those of type 3 – solid individual and/or direct market channels and supplies to caterers and retailers.

b. Role of small farm types in the regional food and nutrition security

For a more complete assessment of contribution of small farms to food and nutrition security it is important to consider two other dimensions of their engagement in regional food systems - social embeddedness and territorial fitting. By social embeddedness we mean small farms' reliance on social relations in the process of food production and consumption. Small farms use and reinvest in local human and social resources (local and farmer knowledge, community ties), which contribute to local food security. By territorial fitting we



understand adapting small farms' practices to available local resources, territorial assets, ecological and natural conditions of a place. Both social embeddedness and territorial fitting contribute to SFs and local food system's resilience.

Regarding the small food business typology, the gathered data suggest the following types which are developed on the basis of two characteristics: 1) farm-base: SFB is/is not farm-based and 2) scale/scope and legal status of production: artisanal or small-scale industry:

1. Farm-based artisanal processing is the most common group of SFBs. These are small artisanal producers who process part of their produce and sell it directly on-farm or at farmers' markets.
2. Farm-based small food processing. The difference from the first type is legal and procedural as specific regulations apply to different kinds of processors: artisanal producers are allowed to sell their produce only directly; small-scale processors that have passed additional checks by the Food and Veterinary Service are allowed to sell up to 30% of their products in retail shops. These two types are very similar in terms of their production activities. Both of them involve processing farm products and sometimes buying some raw materials from other farmers.
3. Off-farm artisanal micro-enterprises: very small-scale food businesses which often originate from their owners' hobbies which are transformed into business ideas and projects. These SFB owners do not have a farming background or it has not been relevant for developing their business. They try to source locally and regionally, including from organic growers, and produce special quality and niche foodstuff (e.g. organic baby food).
4. Off-farm food business: 'bigger' and relatively well established regional food SMEs, some of them with a history dating back to Soviet times. Examples are small processing companies, catering businesses, shops. Off-farm SFBs often buy products from (local) farmers, but not necessarily small farmers.
5. Finally we can distinguish also the fifth group of the new pop-up type of micro-enterprises established by energetic and mostly young entrepreneurs who seek business opportunities in the food industry. These companies are usually urban-based and claim an environmental product orientation.



Governance



a. Main interactions of SF and SFB with governance structures in the region

There is a range of governance structures at different levels with which SF and SFB interact. There is a national framework of formal rules of food production and distribution that farmers and food businesses have to comply with (or rather pan-national, if we consider also EU and WTO regulations, but farmers often refer to these altogether as ‘the state’ or ‘policy’). These formal rules involve agricultural, labour, tax and other relevant policies, regulations and support measures. SF and SFB have different experiences and opinions about these formal rules. Most of the respondents have benefited from public support (subsidies, single area payments, excise tax exemption for fuel, funds for modernisation and other). But they also face difficulties (see the subsection on constraints below).

The food market is highly regulated by the formal regulatory framework, but it is organised also according to its own rules set by private market actors and “market laws”. The globalised open food market is a challenge for SF as they have to compete with much cheaper imports. In particular, supermarkets and retail chains that dominate food chain have set requirements that are not feasible for individual small farmers. Many SF are poorly integrated in formal market activities and conventional food chains. They have difficulties complying with the existing rules: their products might not correspond to certain standards (in terms of quantity, price and/or quality), and participation costs (like, certification or permits of selling) can be too high for them. Despite the poor integration of SFs in the formal market, they remain highly influenced by it.

Consumer habits and preferences represent another market force that influence SFs' position in the food system. Price is one of the decisive key factors when purchasing food, and it makes consumers prioritise certain products over others. SF and SFB products are often more expensive because of higher production costs, which makes these products less attractive for consumers. In addition, consumers purchase food predominantly in supermarkets. But supermarkets most likely do not distribute small farmers' products. On the other hand, there is growing demand for local products, healthy products and other distinctive quality products. These consumer preferences affect the decisions of other food chain actors and create new opportunities for SF and SFB market access.

b. Levels of governance and their relative importance for SFs and SFBs

As SF, and to a lesser extent SFB, have difficulties in entering conventional chains, they create and/or use alternative market channels to secure their position in food system. In particular, three market networks were found to be relevant for SF in the region:

- Small farmers' individual marketing networks: well established, trusted, long-lasting, often informal relations with individual clients. These individual clients being the principle and often only customers for small farmers are crucial for ensuring their market access. For customers, in turn, direct purchasing from farmers broadens their food access by providing access to fresh, local, organic, traditional and other special-quality products which are otherwise less/inaccessible in conventional chains.
- Consumer groups: there is a proliferation of urban consumer groups which for various reasons (healthy eating, tasty eating, environmental impact of food, solidarity with local producers) initiate direct links with local producers in order to purchase food. Most of these groups function on the basis of voluntary work; such a devotedness was found to be necessary, but it is also as a source of risk for consumer initiatives in the long term.
- Local farmers' markets: initiated and organised by NGOs, local municipalities or private actors, local farmer markets have become an important way to access markets for a number of SF and SFB.

These direct links between farmers and consumers allow to develop mutual trust, honesty and openness that make a solid foundation for their long-term relations. They also allow SFs greater flexibility and responsiveness to consumer demand, including new product development that strengthens their market position.

In relation to poor involvement in formal market structures, very few small farmers are involved in cooperatives or other formal collective market organisations. When this was the case, farmers witnessed that participation in cooperatives improved (i) their production capacity (through collaborative learning of good practices, shared equipment) and (ii) their market access by providing joint infrastructure (storage, which is crucial to postpone and prolong selling period), joint contracts and supplies to bigger retailers, and relevant market information (for instance, on consumers' preferences). Most of the research participants



agreed that some cooperation in marketing among small farmers and among bigger and smaller farmers is needed in order to improve small farmers' market access and to better use their potential to improve food security. It can be quite challenging for small farmers to establish formal cooperatives on their own because of the considerable initial investments (financial and human) needed. Therefore, a suggestion was made that other food system actors could provide their support for small farmers' cooperation. For instance, supermarkets can open local farmer stands (there are already initiatives at some shopping malls promoting local farmers' products), public support for cooperatives can be reorganised in order to better meet the needs of young and small cooperatives.

Despite weak formal engagement in cooperation, informal cooperation is widespread among small farmers (or more precisely between small farmers and their neighbours, which can also be bigger). They help each other with production inputs, advice, labour, machinery services, marketing products. A particular form of informal economic relation in small farms is barter. Around half of the interviewed small farmers were involved in all kind of non-monetary barter activities with neighbouring farmers and businesses. Examples include leasing farmland to a neighbour who, in turn, helps with machinery to cultivate and harvest the farmer's fields; using a neighbour's help and machinery for baling the grass, and paying back with sheep meat or vegetables; exchanging sheep meat for mash (a by-product in beer production) with a local brewery which is then used as fodder supplement for sheep; using a neighbour's machinery services at ploughing and harvesting periods and in return providing him with wheat for a mutually convenient price. In many cases barter is not accompanied by any kind of symmetrical economic activity - farmers perceive it as an element of local social relations based on approachability, responsiveness and reciprocity: „We are all neighbours here, we have to live together.” „I don't need to be in organisations. I can ask neighbours and get help if I need it - to plough, to saw.”

A kind of transversal governance level is territorial governance. SF and SFB operate within complex of local conditions. They are embedded in, use, maintain, and contribute to a range of local territorial resources: natural (local eco-system), human (knowledge, social relations, social norms, community), infrastructure (roads).

c. Constraints impairing full participation in the food system

We did not identify explicit formal factors that specifically prevent SFs or SFBs from participation in the food system. However, there are indications that agricultural policies and support measures, also dominant market rules are better tailored to the needs of bigger farms. There are some rules and norms which appear to be more difficult for SF and SFB to comply with and which therefore constrain their participation or contribution in the food system.

- Existing public support threshold levels in agricultural development projects are too high for SF and SFB: on average it is 70-150 k EUR per project, while small producers would suffice with 20 k projects.
- SFB which are registered as artisanal food producers have limited access to shops - they are allowed to sell only up to 30% of their products through shops.



- Some certificates (for production or selling) are costly for SF in view of to their turnover and income. In some cases the high price has prevented farmers from implementing their development plans.
- The level of public support (40%) in SF development projects can be insufficient for small farms.
- Several of the interviewees expressed willingness to develop some on-farm processing but were hampered by the costliness of such business projects (which means that there are no appropriate funding schemes for such development projects or the farmers are not aware of them).
- The regulation of certified slaughterhouses can be less advantageous for small farms as it is costly for them to deliver their livestock to certified slaughterhouses, especially if they are located far away.
- Bureaucracy in food production and distribution and the application procedure for public support is a burden, particularly for small farms.
- Various taxation regulations (VAT, personal income tax, taxable minimum of agricultural salaries) might be better tailored to the situation of small farms and rural areas more generally. WS participants provided several suggestions for improving existing taxation: differentiated personal income tax based on farm size, reduced VAT for all local food products, distribution of revenues from personal income tax between place of residence and place of work (in order to stimulate local municipalities to support business development more actively).
- Informants pointed to a lack of appropriate market infrastructure for SF: too few small processors and retailers, lack of collective collection and storage facilities.
- ‘Market logic’ according to which market actors are not willing to work with small farmers as it is easier to obtain supplies from a few big ones. Comparatively small, irregular production volumes of SF hamper them from establishing regular supply relations with bigger market actors (processors, retailers etc.) which demand a certain amount and quality of supplied products, and prefer to work with fewer bigger suppliers. However, we identified at least one case where the demand for a certain supply volume has urged producers to cooperate.
- Lower prices set by processors for small dairy producers were reported.

WS participants pointed out that there are insufficient policies and support measures specifically targeted at small farms (a support programme for small farms and a support programme for semi-substance farms seem to be the only ones specifically intended for small farms).

d. External policies, decisions and social norms affecting food systems



Food systems and SF are both benefitting and suffering from broader socio-economic processes and social norms. We discovered conflicting and complementary trends of urbanisation and food production in a peri-urban territory of Pieriga. Urbanisation - construction of living houses and expanding urban infrastructure - reduces the space for food production or pushes it away from its traditional place. For instance, a farmer who is living nearby a recently constructed district of houses and whose farm is literally squeezed between and divided by roads pointed to the increasing soil and water pollution, decreasing biological diversity and discouraging attitude of the local municipality, which, according to him, is more interested in urbanisation than agricultural development. On the other hand, urban expansion also brings some benefits. For instance, urban dwellers moving to or regularly residing in the countryside are important customers for local producers; they give value to local food. Development of local farmers' markets in cities and smaller rural towns is another positive example of mutually beneficial rural - urban linkages. These markets have become one of the principal market channels for small farmers and SFB.

Life-style changes and growing expectations regarding the quality of life have diverse impacts on the food system. Some farmers, especially older ones, stated that young people nowadays are not willing to work and they are not attracted to farming because of the comparatively difficult and low-income work. An ageing farming community, rural residents' outward migration to urban and peri-urban regions in search of better life opportunities (in terms of job, education, access to services etc.) confirm this trend. Farmers and food business owners experience rural depopulation as a lack of consumers and labour. But there is also an opposite trend, though much less pronounced, of urban dwellers moving (back) to the countryside and farming. They are attracted by the special quality of life in rural areas (the presence of nature, self-grown food, space, local cultural life). These new- or back-comers engage in food production as hobby farmers and also as commercial producers. In addition to population movement, life-style changes involve also proliferation of different food regimes (healthy, locavore, vegan etc.) that increase demand for specific food products.

There are also divergent agricultural goals, interests and practices that shape food systems. These do not concern small farms specifically, but point to some conflicts between different types of agriculture. Several interviewed farmers witnessed such conflicts between intensive and organic agriculture, or between food and energy production. For instance, a bee farmer was complaining about his neighbours' rape fields surrounding his farm that damage honey, and another bee farmer was happy that there was no rape field nearby and he could produce organic honey. Organic farmers in general expressed some worries about their neighbours' farming practices that are "poisoning and depleting land", a primary resource for producing food.

e. Gender issues intersecting governance issues

Regarding the intersection of gender issues with governance issues, we found there was a good gender balance in small farms, at least in terms of decision-making, farm management, and leadership. There was an equal number of men and women among the formal leaders of farms. Regardless of who was the farm's official manager, the leadership was shared in



practice. In few farms there was some division of responsibilities according to each person's interest, skills and capabilities, which indicated to some gender roles: for instance, cows are the wife's responsibility, while the husband takes care "of tractors and fields". But there were no specific jobs that were systematically associated with one of the sexes. Most of the decisions, in particular strategic ones, are made jointly in a farming couple or family. When deciding on a farm's successor, a farming family considers which of their children is willing and interested in farming and has already invested her/himself in the farm, regardless of gender. Several farmers confirmed the opinion of one of the interviewed experts that farming is physically hard and therefore there is a need for a male workforce. But this opinion did not derive from a belief in male superiority.

f. Other actors and processes important for the regional food system

When analysing and mapping regional food systems we have been focusing on market actors, their connections and the food products circulating between them. At the same time, a food system involves a more complex set of actors and processes. Notably there are interlinks between the food market, food policies and regulations, and broader societal issues and processes, as outlined above. There are also financial, agricultural education, environmental and broader socio-economic factors and actors that are directly involved in shaping food systems. In addition to food products, there are other important elements of the food system, such as information, knowledge, inputs, funds, rules and norms, machinery, equipment, infrastructure, which have a big impact on food security. In addition, some processes and elements of the food systems are more subtle, diverse or complex.

For instance:

- although many small farms produce mainstream products, many small farms also differ from other (bigger) producers within food systems by producing special-quality, niche products.
- small farmers' individual market channels in the proximity food sub-system include a great variety of individual selling practices.
- there are two parallel food systems that are interlinked: "formal" and "grey" system, which consists of informal and also illegal activities. Informal practices are particularly widespread among small farmers.

Small Farms and rural livelihoods

a. Importance of household labour in SFs

Farm household members form the principal labour force in SF and SFB. Their working hours at farms varied according to the farms' socio-economic profile (orientation towards market or self-provision), farm specialisation (for instance, livestock farms demand daily work) and between full-time and part-time farms. In one third of the farms at least one family member was working daily full time (365 days a year) on the farm. In a couple of the farms,



the reported working hours were even higher (10 hours per day). Working hours were slightly higher on market oriented farms.



Small farmers often use help from family members not living at the farm (e.g. children, grandchildren, brothers, sisters etc.). In some farms this happens on a more or less regular basis (monthly, on weekends), in other farms relatives are mobilised during more intensive periods of work, like seeding or harvesting. Neighbours, friends or other local residents provide occasional help to SF. SF and SFB pointed to the difficulties of recruiting additional workers when they were needed.

b. Farm and non-farm income in the SF's households

In the majority of farms agricultural production was the only or principal source of income. A couple of farms (2) had some income from non-agricultural activities (machinery renting or other). For farms that owned a forest, selling timber brought additional income. However, these revenues were often irregular. Around half of the SF had some off-farm jobs and several received retirement pensions which were additional or the principal sources of income of the household. The share of income from the farm varied greatly, between 0 to 100%, with an average of 36%. Public support often composed around half of the farm's income.

In addition to food production, provision of jobs and income to the farming family, the SFs reported many other ways of contributing to rural livelihoods. Maintaining and protecting agricultural and natural resources (soil, air, diverse crops) and rural landscape was one of the most often mentioned SF functions. Organic farmers and those using none or few pesticides and chemicals stressed the “green” or “clean” environment that they help maintain. In general, SF widely produce and/or use farm-based and locally available natural resources



(seeds, manure, traditional breeds and varieties etc.) in their less intensive agro-ecological production systems.

SF are strengthening local communities by maintaining community links (in particular in the surrounding area, but also links with other people in the community), local traditions (traditional celebrations like Midsummer festival, Christmas) and social life. Maintaining the practice of farming and farmers' way of life, and the associated knowledge and skills were also seen as SFs' contribution to local traditions. Several farmers expressed great attachment to their farms and life-styles ("I wouldn't move back to the city at any cost"; "I'll leave the place only upon death, 'feet first'"). For several small farmers their farm serves as a place for regular family gatherings. Many of them are farming with the idea that their children will take the farm or the place over after their retirement. On the other hand, several also reported that keeping the family together is difficult because of high migration, in particular among younger people. Farming can also create some tensions among family members - those living on and off the farm.

c. Shocks and coping mechanisms of SF households

In order to maintain farms and perform their various functions, farming households have to manoeuvre within dynamic contexts. Occasionally more sudden events appear that upset farms. The SF reported shocks caused by broader socio-economic processes: the financial crisis of 2008 and the dairy sector crisis of 2014 that made several farms reduce their farming activities or change their specialisation. Farms regularly suffer damage as a result of severe weather conditions (floods, excessive rainfall), wild animals, and animal diseases. There are various kinds of shocks that individual farms experience. They have affected family members and workers (a car accident, a death), production resources (fires, loss of livestock), market access (e.g. closed market access due to too high analysis for selling on a farmers' market; termination of a contract). In those cases when a shock has considerably undermined a farm's production capacity or profitability, farming activities have been reduced, ceased or the farm's specialisation has been changed. In other cases, the necessary investments are made to repair the damage.

Role of Small Food Businesses

a. Main insights and patterns

Recent years have seen a rise in the number and activity of SFB in the Pieriga region. This process has been driven by two key factors: (i) an increasing consumer demand for quality, healthy and farm based products, and (ii) public support measures and subsidies for the development of small-scale food processing.

The typical products of SFB in the Pieriga region are processed vegetables and fruit (canned vegetables, salads, dried fruit, juices, jams, wines, etc.) and dairy products (cheese, cottage cheese, cream, etc.). Some SFB specialise in baking and some other specialise in honey



products. In terms of product specification, many SFB mix the regional food traditions and recipes and simultaneously innovate new products that could appeal to the consumers, in particular the urban middle-class and health-conscious consumers. SFB are open to experimentation regarding production and marketing techniques. There are certain valuable contributions that SFB bring to themselves (e.g. income, employment, entrepreneur satisfaction), and to the regional food systems and consumers (traditional, organic, environmentally sound, local, nutritious products).



The main market channels for SFB are farmers' markets, food fairs, on-farm sales, small retail shops, and, increasingly, internet sales and selling via mobile parcel services. A new trend is selling products in gourmet shops, specialised shops, and to restaurants. Some SFB have had experience of cooperating with direct purchasing groups from cities, though this has been unsuccessful because of logistical difficulties (buying groups often expect the logistical issues to be resolved by SFB). The niche and quality products offered by SFB are demanding in terms of production and marketing, therefore many SFB are involved in intensive learning and networking.

b. Labour in SFB work

Most SFBs are family run businesses (or farms) and most of the daily work (growing, harvesting, sorting, processing, packaging, transporting, selling, book-keeping) is done by family members. On average there are 3 to 5 family members working on a SFB and the owner or the main manager is typically working the longest hours (40 to 90 hours a week). In many cases this has an effect on the health and personal well-being of entrepreneurs and deteriorating health was among the main concerns of interviewees regarding the future of small-scale food businesses. Most of SFB also employ additional or seasonal workers, in particular, during weeding and harvest seasons. However, entrepreneurs regularly complain about the difficulties to find reliable and skilled workers.



c. SFB income

The average income of SFB (in the sample of farm based home-processors and on-farm processors) was relatively modest - 6000 to 20 000 euros per year, including subsidies. Such a level of income does not differ much from the average income observed in the survey of small farms in the Pieriga region (one would expect that on-farm processing should bring more revenues). These figures may suggest that the SFB sector is still at an early phase of business development and incomes are relatively low.

d. Shocks and coping mechanisms of SFB households

The subsidy level among SFB is quite high - 25% to 80% of total income. The highest subsidies were recorded in the group of organically certified processors. SFB use various types of subsidies: project grants for the development of small-scale food processing (grants vary from 4000 to 15 000 euros), single area payments, subsidies for organic agriculture and others. Some SFB have participated in LEADER projects which helped to acquire equipment or build processing facilities. Personal savings and project grants are the main sources of financial investment whereas bank loans are seldom used by the SFB.

The Future

a. Main objectives and priorities of SF and SFB for the future

The interviewed small farmers and small food business owners expressed three kinds of future prospects for their farms/businesses:

1. To maintain farming/business at the status quo. Regarding SFs, there were two types of farms among these: (1) farms managed by elder farmers who wish to keep some production for self-consumption or are waiting till some successor takes over; and (2) farms which have reached a kind of optimum in production in terms of the available land and labour, and which generate sufficient income. Typically the second type of farms were comparatively better integrated in the market. Often these were commercial vegetable farms or mixed vegetable-livestock farms.





SFBs falling within this category hoped to maintain the existing scope and quality of business activities, as they have reached optimum in terms of labour and workload, and in the current conditions they did not see a margin for expansion. Only some major economic crisis in the sector or the country, or a change in their personal situation would urge them to diversify or develop new services.

2. To gradually reduce or stop farming/business activities. These were again farms managed by elder farmers, but the difference was that they did not have specific successors in mind (e.g. their children). There were several dairy farms among these farms – those that suffered from the crisis in the dairy sector in 2014 and from transformations in the food system and rural areas in general (concentration in food chains, competition with cheaper imported products, disappearance of small retailers, lack of consumers in the countryside because of depopulation). These dairy farms have been reducing their herds and considered quitting dairy farming and farming as such. These farms often were poorly integrated in the market. Only one interviewed SFB confirmed that he was considering downscaling his business activities.
3. To expand farming/business, including diversification, or, specifically for SFs, to develop other new on-farm economic activities (processing, tourism) so that the farm generates sufficient income. Often young farmers (both in terms of a farmer's age and/or a farm's age) mentioned expansion or diversification objectives. Some of them were experimenting in order to find the best specialisation for their farms to develop over the coming years. In some cases, the lack of funding, premises, labour were preventing farmers from expanding production or diversifying the farm's economic activities.

b. Main objectives and priorities of SFB for the future



Most of the interviewed SFBs were looking in the near and more distant future with some expansion plans for their businesses. These plans mainly concerned production and marketing. Regarding production, SFB owners considered improvements of the production process by cutting production costs, introducing mechanisation, renovating, expanding or building new premises, purchasing better equipment, as well as undergoing certification that would mean official approval of the production process. Some of them considered new products, like starting the production of ripened goat cheese or more generally diversifying their range of products. Others wished to increase production volumes (“to produce at least 10000 litres of juice”). In terms of marketing, the business people considered developing new sales channels, including export markets. One SFB was planning to start demonstrations, showing people how to make juice.

c. Risk perception by SF and SFB

A set of external and internal (risk) factors influenced the present situation and future prospects of SFs and SFBs. Farmers and entrepreneurs mentioned very similar kinds and sources of risk. As regards internal risks, the interviewees frequently referred to their own age and particular health conditions that influence their work capacity. These were often older farmers or businessmen, but not exclusively so. Health problems have an even more negative impact on the operation of farms located in more remote parts of the region where access to health services is limited. Many farmers and entrepreneurs reported long working days; in particular those SFB owners who produced raw material, processed and sold the end product themselves without employing technical solutions or mechanisation complained about work overload and its impact on their health (insomnia, burn-out). In some cases, the overload made them question the continuation of their business. The (non)existence of a successor in the family that could take over the farm or the business was another internal factor influencing farms’ and SFBs’ current operation and their future plans.

As regards external risks, small farmers and those SFBs linked to farmers (running own farms or purchasing raw materials directly from farmers) often invoked natural conditions as the most important threat. Severe weather conditions with an increasing number of extreme events (strong winds, cold, heavy rains, violent storms, floods), wild animals and pests ravaging crops and livestock, and soil (wet or clayey soil) were often mentioned among the risk factors which reduce yields, hinder regular supplies of raw material (for SFBs) and production volumes, and result in diminishing income and additional expenses.

Another crucial set of risks is related to market conditions. Small farmers and small businesses in particular (especially those producing niche products) expressed their worries about the lack of customers. They linked this to the depopulation of rural areas, as well as to the dominant purchasing habits - the vast majority of consumers shop in supermarkets, and only a small number of consumers prefer direct purchasing channels which are often used by SFBs and commercial SFs. Small farmers also pointed to the unequal and unfair competition with imported cheaper products which sometimes are fraudulently presented as local products. Both SFs and SFBs invoked unreliable business partners as a market risk:



some farmers said there was a lack of businesses willing to buy products from small farms or they had unreliable business partners (delayed payments, unkept promises); some small businessmen in turn were facing difficulties with unpredictable supply of goods from farmers.

The availability and quality of some inputs also expose farming and food business to several risks. In particular, farmers referred to expensive seeds or their bad quality which negatively impacts yield (if there is any). The high price of other inputs (petrol, machinery services) was creating a considerable financial burden. Both farmers and food entrepreneurs complained about the poor availability and poor quality of labour, which is, at least partly, linked to depopulation. (On the other hand, SFs and SFBs often offer irregular and low-paid jobs which are not attractive for potential employees, in particular qualified ones.) Several SFB owners pointed to an unstable supply of raw material (because of fluctuating prices, unstable suppliers) as another risk.

Some interviewees indicated regulations regarding food production and distribution and various control and support institutions as risk factors which hamper the planning and development of their business. In particular, some SFBs were very critical about various regulations, complicated and expensive certifications (organic, artisanal production), marketing authorisations and controlling bodies. At the same time, most of the farmers and entrepreneurs acknowledged that they have received some state support, and many of them reported constructive relations with control and administrative bodies. In small farms, public financial support was a considerable share of the farms' turnover. Lack of or limited public funding for development projects in farms was considered a risk for farm development in the future.

Finally, some farmers felt that the major risk is linked to the political system in the country, relating this to possible aggression from Russia or a war. Such a scenario would dramatically change the political and economic situation in the country.

d. Food system forecast in 5, 10 and 20 years

The research participants pointed to the following innovations that have occurred recently and that will presumably have an increasing role in food systems and will have an impact on the structure of the food system (including emergence of new and disappearance of actors and relations) and on relationships among food system actors already in the near future:

- Social innovations in organisation of (local) food chains: for example, proliferation of consumer driven initiatives to connect with local producers; opening supermarket chains to local farmers' products; establishing new farmer markets. Many of these innovations can provide opportunities for small farmers and create them new connections to the food market.
- Growing use of social media (blogs, YouTube, Facebook) among farmers to communicate with consumers, provide information, educate consumers and market their products. Especially younger small farmers are already quite active in using



these. These new ICT may increase the number of farmers selling directly to consumers and facilitate emergence of new digital market actors.

- New products, such as new special quality and niche products, added value products to manage food waste. In particular, the participants pointed to the potential of organic products and specific local products. These again were seen as new market opportunities for small farmers.
- Technological innovations, increasing mechanisation, robotisation of agricultural production. Small farms, however, were not seen as introducers of these innovations due their costliness. These processes seem to rather go in hand with increasing intensification and concentration in food production.

In addition to these more recent phenomena, there is a number of persisting trends, societal and agricultural, that will influence food system, food security and also small farms' situation:

- Concentration is expected to continue in all agricultural sectors. This involves reducing number of small farms and along that reduction of food, food production, selling and consumption practices characteristic to SF. Bigger farms are keener to engage in agro-industrial food system, including entering export markets, and this subsystem can be even more consolidated.
- Ongoing competition in food market, in particular in fruit and vegetable sector, with much cheaper imported products. Small farmers are less competitive as far as it regards price, and this makes their presence in the food system more vulnerable.
- Depopulation and decreasing number of customers will demand flexibility, adaptivity on the production side and the entire food chain.
- Rural depopulation and shortage of labour. Small farms are already experiencing difficulties in recruiting employees, which hampers their production capacity. Migrant labour or increased mechanisation were seen as solutions by some participants, but only in the long term.

(For specific future developments in the key products' food systems see the subchapters on the key products above).



Annex: List of resources

Several information sources were used to generate this report. Existing information and knowledge (statistical data, reports, literature, online materials, previous research) was combined with original information gathered from interviews and focus group discussions with various stakeholders – small farmers, small food businesses and other experts of regional food system and small farms. The source of the presented statistical data is Central Statistical Bureau of Latvia, if not mentioned otherwise. The tables below provides an overview of the participants in the expert interviews, SF and SFB interviews and the focus group discussions.

j. List of key experts interviewed

No.	Affiliation
1	Cooperative
2	Farmer NGO
3	Farmer NGO
4	Farmer NGO
5	Farmer NGO Local government
6	Research institute
7	Research institute
8	Research institute
9	Research institute
10	Agricultural advisory

k. SF and SFB interviews and focus groups information

Stakeholder typology*	N° of participants						How were they contacted?
	Interviews			Focus Groups			
	Men	Women	Total	Men	Women	Total	
Farmers	15	15	30	14	11	25	For individual interviews, the respondents were contacted by phone to arrange an interview, followed by face-to-face meeting for the interview.
Producers’ cooperatives		2	2	4	2	6	
Slaughtering facilities							
Processors (small/large)	4	4	8		1	1	
Wholesalers							
Retailers	1	1	2				
Caterers							



Other small food business							
Exporters							
Importers							
Farm inputs suppliers / service providers					3	3	
Advisory services		1	1	2	13	14	
Researchers	3	1	4	1		1	
Agricultural administration/ Ministry of Agriculture					2	2	
Consumers' groups/ organizations							
Local administrators and policy makers				1		1	
Political leaders and PMs							
Other programs/initiatives							
Nutritionist							
NGOs (including farmers)	3	1	4	1	7	8	
Traditional and religious leaders (for Africa)							
Total		51			61		

For focus group discussions, the participants were contacted either directly by phone or indirectly, addressed by a known respondents' peer.



4.16. RR16 Vilniaus Apskritis –Lithuania– Food System Regional Report



WP3

Vilniaus apskritis (RR 16) – Lithuania – Food System Regional Report

Author: Prof. Dr. Vilma Atkočiūnienė



Table of Contents: Food System Regional Report

1) Socio-economic and agricultural profile of the reference region.....	440
2) Key products and regional food balance sheet.....	443
3) Food system: Key nodes and flows and role of small farms and small food businesses.....	444
3.1. Key product 1: Cereals.....	444
3.2. Key product 2: Cow milk and dairy	447
3.3. Key product 3: Vegetables	452
3.4. Key product 4: Fruits and berries	456
4) Typology of small farms in the reference region.....	460
5) Governance	462
6) Small Farms and rural livelihoods	471
7) Role of Small Food Businesses.....	472
8) The Future	474
9) Annex: List of resources	480



Socio-economic and agricultural profile of the reference region

Vilnius region is the largest region of the country both by area and by population size. It covers 9,731 sqm, or 14.9 %, of the Lithuanian territory and accounts for more than the one fourth of the Lithuanian population (805.3 thousand residents in 2016) (Table 1). The region covers the territories of Vilnius city, Vilnius district, Elektrėnai municipality, Šalčininkai, Širvintos, Švenčionys, Trakai, Ukmergė district municipalities.

Vilnius region is the country's strongest region in terms of economy. Vilnius county accounted for 39.2 % of the national GDP in 2013, and in 2016 – for as many as 41.6 %. The county's GDP per capita was EUR 16,901 bln or 143.2 % of the national average, in 2013, and EUR 16,079 bln, or 148.1 % of the national average, in 2016. In 2016, the gap between Vilnius and other regions increased. Compared to the overall situation in Lithuania, the sector of productive and non-productive services was developed the most in Vilnius region. Agriculture, forestry and fishery accounts for only about 1 % of the region's GDP.

The county is characterised by high concentration of operating economic entities, appropriate infrastructure for development of modern business. Economic activity is concentrated in Vilnius city. The number of operating entities is significantly smaller in other municipalities. Considerable inner economic imbalances of the region pose certain risk to consistent and sustainable development of the region. Very good socio-economic development indicators demonstrated by Vilnius county have been determined by large investments and active economic development in Vilnius city and, partially, in Elektrėnai. Country's highest employment rate has been registered in Vilnius county. Unemployment rate is higher in rural areas than in cities. There is considerable contrast between urban (in particular, Vilnius city) and rural areas. For example, population density in Vilnius city is 1,377 residents per sqm; meanwhile, in Švenčionys district municipality – 17 residents per sqm. There are a lot of low-yield and abandoned lands around Vilnius. The region does not have clear agricultural specialisation, the average farm size is relatively smaller compared to the entire country.

Table 1: Basic data for the region

Indicators, 2016	Data per Region - Nuts 3
Land size (km2)	9,731
Population (thousands of people)	805.3
Density (people/km2)	82.8
GDP (thousand USD/inhabitant)	22.78 USD (1 percent from Agriculture, forestry)
Total labour force in AWU	19,318
Total number of holdings	19,977
Total Agricultural area (ha)	302,831
Total Utilized Agricultural Area (ha)	275,430



Agricultural Area in Mountain Area	-
% of UAA in the RR	28.3
Average Farm size	12.8
Number of farms by UAA farm size: 0-5, 5-20, 20-50, >50ha	0-5 ha – 12,037 farms; 5-20 ha – 5,819 farms, 20 -50 ha – 1,160 farms, >50ha - 962 farms
Average size of farms < 5ha of UAA	2.66 ha
Area of main crops (ha) (list the relevant crops below)	In farms and family farms: Cereals - 117 529 ha, leguminous crops - 22 100ha, rape - 7 720ha, potatoes - 2 385ha, Outdoor vegetables and strawberries - 894ha, flax- 41ha.
Area of main crops (ha) in farms < 5ha of UAA (list the relevant crops below)	Cereals – 28,207 ha, leguminous crops – 5,304 ha, rape – 1,853 ha, potatoes - 572 ha, Outdoor vegetables and strawberries - 539 ha, flax- 25 ha.
Livestock (LSU) per type (list the relevant types below)	Number of livestock in farmers' and family's farms at the beginning of the year: total cattle – 36,685; Dairy cows (2 years and older) -3,668; Pigs- 21,219; Sheep and goats – 24,824; Horses – 3,385.
Livestock (LSU) per type in farms < 5ha of UAA (list the relevant types below)	total cattle – 3,310; dairy cows (2 years and older) – 6,550; pigs- 1,824; sheep and goats – 12,400; horses - 391. (according expert opinion)
Annual work units (AWU) by UAA farm size: 0-5, 5-20, 20-50, >50ha	Number of persons employed in terms of annual work (agricultural censuses, in all farms larger than 1 ha) – 20,750; male – 10,698; female – 10,052.
Total family labour per farm size: 0-5, 5-20, 20-50, >50ha	Number of farm holders and their family members – 29,265

Vilnius county is located in the south-eastern border region of Lithuania featuring the EU and Belarus border; hence, there are a lot of factors that depend not only on our national, but also the common EU strategy and its development, needs and capacities of the neighbouring country. 4 territorial functional priorities have been identified for Vilnius county: intensive forestry; sustainable forestry; intensive agriculture; sustainable agriculture (other potential fields of use are not prioritized due to relatively small areas allocated to them).

In the areas of influence of the region's cities, in particular, Vilnius city, the “suburban landscape” has been developing and is characterised by degraded natural elements and absence of the elements characteristic of an urban landscape, such as infrastructure, public



spaces, green space management systems. The areas of agricultural use have been rapidly reducing in the areas of influence of Vilnius city due to use of the territory for placement of structures, afforestation and natural land renaturalization in the non-arable land plots. Areas of agricultural use nearby smaller towns, in particular, Ukmergė, Širvintos, Švenčionys and Šalčininkai have been reducing due to abandoned, fallow and degrading land areas in community gardens.

Major share of Vilnius region is located in the areas which are less favourable for farming. Conditions in Trakai, Šalčininkai, Švenčionys municipalities are unfavourable for intensive crop production. Development of animal production, in particular, grazing livestock keeping by development of mixed-type farms plays an important role in the economy of those areas in terms of maintaining at least the minimum volumes of farming which are prerequisite for preserving the landscape, as well as in terms of reduction of unfavourable trends of the population migration.

Farmer activity in diversification of operations and crop insurance was low, as the support granted to the farmers led to considerable reduction of revenue fluctuation and assured stable farm revenues, making the business profitable even in unsuccessful years. In 2016, the share of the farms participating in the process of diversification of operations accounted for just 1.1 % (in the EU countries, this indicator was 16.8 % on average).

The region features favourable natural, geographic and cultural conditions for development of the tourist sector. Travels and tourism are an important part of the region's economic development. Vilnius and Trakai are characterised by the most developed sector of tourist services in Lithuania. SFs and enterprises have the opportunity to serve the tourist, participate in supply of food products to tourists more actively.

Vilnius county is one of the leading (65-66 %) counties by households which have a personal computer, internet access. The fibre-optic broadband internet connection is well developed, and the operating wide network of public internet access points is present. There are wide opportunities for organisation of trade in food products and communication with the clients online.

Low entrepreneurship potential, lack of labour force. In the recent decade, considerable differences between urban (in particular, Vilnius) and rural (in particular, peripheral) areas have become increasingly evident in the county. The peripheral areas attract less investments, and it is more difficult to find a job there. Revenues of residents in peripheral areas are substantially lower than in Vilnius. These areas are characterised by more inferior social services, poorer leisure time possibilities. Rural area residents who are capable for working move to the cities, emigrate abroad. Demographic composition of the rural residents has been changing considerably – the countryside is increasingly ageing relatively.



Key products and regional food balance sheet

a. Key products produced and consumed in the region

The volumes of agricultural and food products consumed by the region exceed the volumes produced by it, and certain share of the food products are imported into the region from other regions or abroad. The region exports excessive dairy and grain products. For a long time, region's agricultural and food product export has been concentrated on the markets of the EU countries and Russia, and export diversification processes were slow. Reduction of the rural population affects the volumes of agricultural products. In Švenčionys municipality characterised by the lowest population density generates the smallest output of standard agricultural products. Region's plant products comprised the largest share of the total agricultural production (65 %). Crop structure is similar to conventional Lithuanian farms and is predominated by grass crops and pulses. Cereals, predominantly wheat and rape, account for the largest production and consumption volumes, while the areas of pulses have been increasing.

The key products in Vilnius region are: cereals, milk and milk products, vegetables (potatoes), fruit and berries (Annex 1- 4). The largest quantities of milk, cereals and products thereof are produced at SFs; the region consumes a lot of vegetables, berries and fruit, but does not produce sufficient quantities.

b. Balance of production and consumption of key products in the region

The volume of cereals produced by the region is higher than the volume consumed by the region by 2.7 times. Similar situation has been observed in relation to the oil crop – rape. Volumes of vegetables and potatoes, fruit and berries consumed by the region exceed the volumes produced. About 60 % of vegetables, about 47 % of potatoes, about 88 % of fruit and vegetables are imported from other regions of Lithuania or foreign countries. Milk is an important position in the production structure and its production in the region is lower than the consumption by 72 %; meanwhile, in Lithuania, milk production is almost double the milk consumption. Volume of meat produced in the region is somewhat lower than the volume consumed (by 3.5 %).

c. Official statistics and key products in the region

The official statistics provide data on the foodstuff consumption per capita on the level of Lithuania. For Vilnius county, only average quantities of the foodstuff consumed could be calculated. Moreover, not all key products have been measured for consumption fund of population, for example, there is no information on the production and consumption volumes of oil crops, which are grown mostly by SFs – flax, hemp, gold of pleasure.

In the case of Vilnius region, there is no statistics on very small farms. The official statistics (Results of the Farm Structure Survey, 2016) do not provide the data, which cannot even be calculated for SFs, i.e. farms up to 5 ha. Farms are classified into 2 groups: up to 1 ha and



larger than 1 ha. The survey questionnaire had to be filled in by the farms with the utilised agricultural area of one or more hectares or those with the utilised agricultural area of less than one hectare and annual agricultural income of at least EUR 1520.

The SFs in Vilnius region (and Lithuania) do not perform any particular data collection, analysis and calculation activities. Specialists, consultancy specialists and owners of the family farms at the municipalities do not know much about the state of SFs.

Food system: Key nodes and flows and role of small farms and small food businesses

3.1. Key product 1: Cereals

- a. Nodes in the regional food system: production, processing, commercialization and retail

Major share of the SFs cultivates cereals, employ the three-field crop rotation system, use chemical fertilizers, seek greater yield of the cereals. The equipment used for soil cultivation and harvesting is usually old and characterised by low efficiency. Certain share of the farmers outsources agricultural services which are in shortage in the countryside, are very expensive and often belated. Large farms operating heavy-duty equipment cultivate their fields in the first place, and only afterwards extend their assistance to the small neighbouring farms. This could be illustrated by the following examples: *“...Last year I suffered losses – 50 %. The grain was not rolled. The fields were left open for winter grains, I sow spring crops. I did not remove cereals because I did not have a combine harvester myself. The prices of the services were very high, first of all, the farmers harvested their own crops, and then there were no longer able to harvest because the fields were covered with water. It is difficult to buy agro-services, they are very expensive, I do not have sufficient financial resources...”; “...In 2017, 30 % of the cereal harvest remained in the fields. Everyone was threshing their own cereals in the first place, and there was no one to hire. Then, it was raining without any breaks, and the harvest was flooded...”*. For sustainable treatment of the soil, the organic and biodynamic farms use only light-duty equipment and cultivate fairly diversified crops.

After the cereals are harvested, they are cleaned, dried (usually, sun-dried), milled to produce flour for feed and food by the farmers themselves. The farms considerate of higher added value of their products or health friendly products perform primary processing of cereals – milling of spelt cereals, production of oat flakes, three cereal grains. Traditional black rye bread is baked. The processed products are usually certified as National Heritage or Organic products. The biodynamic farm (Širvintos district) is characterised by the principles of natural balance, harmony between humans, animals and plants. Certain share of the grown



plant products labelled as Demeter²⁶ is exported, abroad (while organic livestock meat is sold in Lithuania).

Small share of cereals and their products are produced for own household needs, while the major share of primary products is sold by the farms to the commercial cereal buyers who arrive at the farms. Commercial cereal buyers then sell the cereals to the major processors in Lithuania or abroad. Some farmers have long-term, informal agreements with small mills. Bread products are sold at mobile farmer markets, during educational programs. Groats, flour are sold from the farm at the major supermarkets through sections “Linkėjimai iš kaimo” (Greetings from the Countryside) or “Ekologinė produkcija” (Organic Products).

Farmers who grow cereals organise educational programmes (for example, “Lino kelias” (The Road of Flax), “Duonos kelias” (The Road of Bread), organise or eagerly participate at harvest festivals at farms or on the local community squares.

b. Flows connecting the different nodes in the regional food system

In light of the cereal and rape specialisation, the large share of the region’s agricultural sector is at risk of incurring losses due to unfavourable weather conditions, price drop, wild animals (for example, reindeer flock) which devastate the crops and fields, at the same time. Growing of cereal crops and sale of the raw materials have negative effect on biodiversity, lead to increased need in mineral fertilizers, intensive soil use, etc.

There is shortage of agro-services, cereal growing SFs are subject to unreasonable discrimination for lower prices on raw materials, long-term agreements are rather an exception than a rule-of-thumb, etc.

The biodynamic farm follows considerably more stringent standards than those within the organic farming system. As a result, the products are fairly expensive. A share of the harvest grown at the farm is exported abroad, and another share remains within the farm for production of feedstuff. Owner of the farm has shared that he has entered into a contract with a foreign company producing quality baby food and gluten-free products. The farmer who grows wheat, buck-wheat, spelt wheat, peas and naked oats has noted that “...in Europe, the market of organic products is limited, and customers in the West who have the capacity to purchase more expensive products require them to be healthy and safe ...”. The Lithuanian consumer still does not have the capacity to purchase and does not prioritize local products, which usually have higher biological value than the imported products.

²⁶ Demeter is the global association of certification organizations for biodynamic farms, uniting over 5 thousand biodynamic farms in 40 countries around the globe. A farm seeking *Demeter* certification shall be primarily certified as a *farm* of organic production (*at least three years of organic farming is required*). The system implies certification of the entire farm rather than an individual crop or territory, and the farm is viewed as a single live organism which aims at maintaining balance in the nature, destroying it to the lowest possible degree, maintaining harmony in human mutual relationships.



c. Role of small farms and small food businesses within the food system

SFs participate only in the cereal production process, unless they cooperate and sell the cereals to small mills and bakeries, sell the raw material (Annex 1). Only a very small share of cereal growing SF participates in processing. The products of milling industry comprise a very small share in the export structure of the products of milling industry (e.g., accounted for just 18 % in 2017 in Lithuania). This reveals the unused potential of the cereal sector in terms of product processing, creation of products of higher added value. SF owners have repeatedly claimed that processing and direct sales are limited by, i.e. they mostly fear the “high hygiene requirements”, while SFBs lack labour force. The farmers themselves are hesitant to undertake processing and sales, referring to the lack of time, financial resources and transport for carriage of the products as the main causes.

SF which cooperate with SFB, organizations of public catering (e.g. daycare, schools), maintain more possibilities to sell flour and various grains directly, have more consistent sales and revenues. They sell bread products of higher added value (black rye bread, wheat-bread pie, pies, buns) mostly baked under artisanal and/or traditional baking techniques, 2-5 times a week at Vilnius city farmer markets, regularly – at city festivals, agricultural exhibitions and fairs.

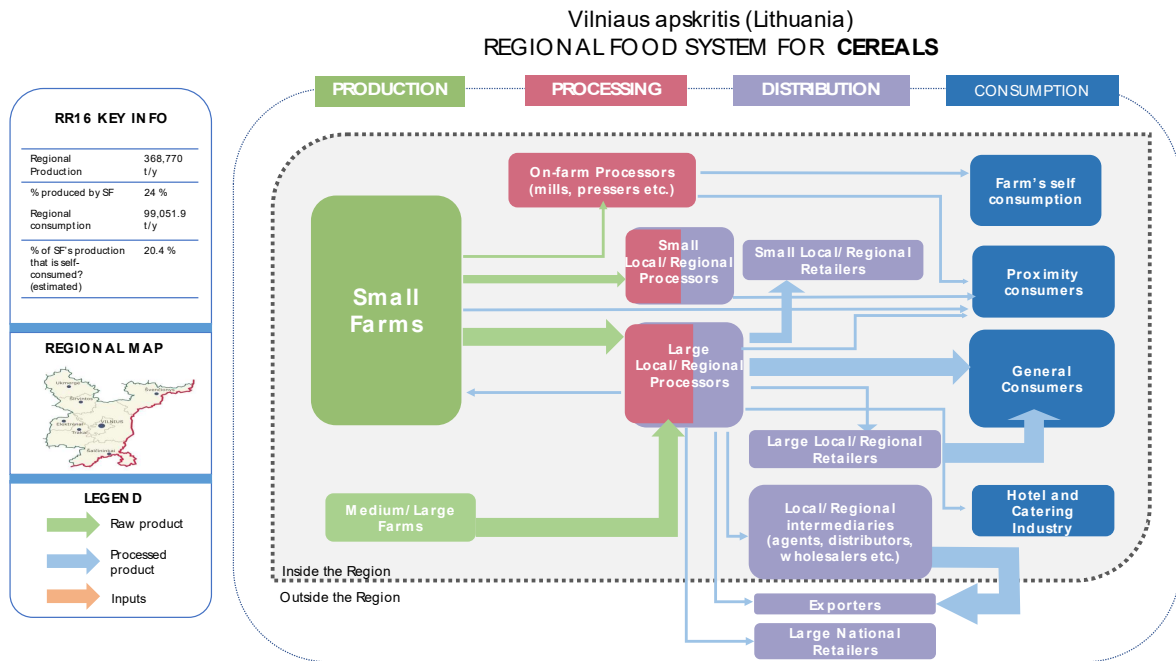
d. Importance of household self-provisioning in small farms and small food businesses

Majority of the SF and SFB (about 75 %) provide themselves with cereals of own production. Grain growing SF also conventionally grow chicken (for eggs and meat), 1-3 cows for milk, rabbits and sheep for meat, and feed them with feed of own production. Straws of cereals are used for feed and fertilization. SFs and SFBs managed by family members or relatives demonstrate successful operations. For example, grain grown at a farm is sprouted at a family member's business, and green sprouts are sold directly to the consumers, restaurants; wheat and rye are grown at the parents' farm, and children's enterprise bakes bread, holds educational programmes for children, tourists.

e. Other relevant information

Climate change has been strongly affecting cultivation of cereals. Although the average yield of 2017 was slightly higher than the yield of 2016, individual farmers were in need for compensations after they had lost a share of the harvest. Majority of the cereal and rape farms have remained highly specialised. They are cultivated by the rural residents whose earnings usually come from other labour / work. In view of the sensitivity of this sector towards weather conditions, *“...it is necessary that the farmers assess their readiness to accept the changes in farming related to climate change and opt for the solutions enabling them to maintain stability of revenues of the family farm ...”*.





3.2. Key product 2: Cow milk and dairy

- Nodes in the regional food system: production, processing, commercialization and retail

Same as Lithuania, the region is lagging behind all the EU countries by the structure of milk farms, the number of SFs has been decreasing rapidly. Small milk farms would be operating at loss, if not for the subsidies and EU payments. Cow milk producers who have failed to produce enough feed due to the drought have been forecasting even greater reduction of the milk production sector in autumn and development of the goat milk sector.

At SFs, cows and goats graze in the meadows (cows – tethered, goats – in enclosures) in summer, and housed in sheds in winter. The sheds are usually outdated and limit the number of cows and goats kept. The farms keeping more than 3 cows have acquired cow milking equipment, set up cheese production facilities. Farmers keeping 1-2 cows milk the cows manually. Farmers take care of quality feed themselves, often do not feed with combined feed. “...*She can bet about the quality of milk produced at the farm. In summer, the cow herd grazes in own meadows where selected grasses have been sown only to make sure that the milk tastes good...*”.

Majority of SF produce and sell raw milk, and its purchase price is very low.

Milk production is labour- and investment-intensive, and SFs lack both. Only a small share of SF applies modern milk production technologies.

SF process about 33 % of milk themselves, and sell about 50 % to collectors. Farms which are not distant from the district centres and capital city produce natural milk products, do



not use any preservatives, additives extending the shelf life of products, or vegetable fats. Short shelf life products are produced: real butter, curd, sour cream, cream, cheeses, milk, kefir, yogurts, milk drinks, buttermilk. Only family members usually work at farms which perform milk processing. Livestock maintenance, preparation for feed are usually male duties, while women are occupied in production of milk products.

According to the experts, the level of entrepreneurship is remaining low – farms which conduct sales comprise only 58 % of milk farms, which is the reason why only 83 % of the produced amount of milk enter the milk collection market.

Milk farms which process milk respond flexibly to the constantly changing demand *“...Separates milk, squeezes the cheeses that are baked and smoked (seasonally), makes sour cream and yogurt. All the cheeses and the products are packed. The assortment depends on what people are buying. The cheeses that consumers buy more are produced in greater quantities by their producers...”*.

Goats are grown in the region. Small goat milk producers are more active and autonomous. About 12 types of various cheeses are produced at the goat farm. The cheeses can be used in salads as well as consumed with honey. There are desert cheeses, cheeses with mould, hemp. A very rare type of Lithuanian sweat milk cheese is also produced. Some of these cheeses have been certified as the National Heritage products. The farmer has revealed that *“...the very first recipes of the cheeses have been inherited from my grandmother. My mother also taught me to make cheeses. Later, I developed individual approach and style ...”*.

Commercialization and retail trade of processed milk products is organized individually, each farmer sells own products directly from farm and at city markets. Milk producers and processors rarely cooperate for transportation of the products. They usually perform individual marketing, and only a small share of farmers has become members of agricultural cooperative “Lietuviško ūkio kokybė” (Lithuanian Farm Quality) and are assisted by the cooperative in organisation of sales. Farmers deliver the products to the consumers who have placed larger orders. Orders are also accepted via online platform for cooperative consumption “kaimasinas.lt”. Minimum order amount for delivery at the consumer’s door is 30 €.

b. Flows connecting the different nodes in the regional food system

Livestock productivity at the region’s municipalities has been one of the lowest, and they consume more milk and milk products than produce. The key issue of the production node is the milk prices and farm revenues, which are subject to considerable fluctuations due to the supply and demand trends, seasonality, increasingly evident cyclical trend (e.g., reduction of the milk fats and proteins due to the spring and summer drought). High instability in the milk sector is supported by the farmers who have participated in the study *“...The problem is that there is no clear price, the collectors pay bonuses, which they manipulate, and it is becoming unclear why they reduce or increase them. The prices become better for some 3-4 months, and then they drop, and fairly sharply...”*. The farmers who process and sell milk directly to the consumers face the issue of



milk prices less often. The milk and milk products sold directly to the consumers are usually organic.

The region does not specialise in milk production (in particular, on the processing level). The sector provides the local market with the necessary products, uses local raw materials, and is important in social and economic terms. Production and processing nodes are interrelated very closely, and success on the sector depends on competitive ability of the both. Both the production and the processing node require considerable manual work. Cheese production tradition is passed from generation to generation within the family of farmers. Long-standing experience is what guarantees the best result. There are the cases where mistakes have led to new discoveries. *“... She once did not manage to sell considerable amount of butter and had to melt it down. Now, melted butter is the farmer’s one of the most demanded products. Then there is the salty, somewhat hotter bryndža cheese...”*; *“...the recipe was revealed to the farmer from Širvintos by one Greek who lives in Vilnius. He was her regular customer and praised her milk products, and once he offered that he came to the dairy to reveal the bryndža production technology ...”*.

The region is facing the shortage of quality raw material as a result of growing processing, consumption capacities and less developed milk production. The number of milk product selling points in the capital city and district centres has been growing. In February 2018, modern Benedikto market was opened in Vilnius²⁷.

c. Role of small farms and small food businesses within the food system

SF and SFB account for a small share of milk products and are more important on the local (region’s) rather than export markets (Annex 2). Only 6 % of the total milk produced are processed at small dairies, which do not have much to complain about in terms of their survival – they continue operating having found their niche on the market. Small milk processing enterprises have kept the old milk product production traditions. According to the experts, small milk processing enterprises collect milk from the nearest milk manufacturers and are highly considerate about the quality of raw milk, as its quality directly determines the quality of the products they produce and their safety for the consumers. Maintaining consistent quality, taste properties of milk products is difficult for them (they lack knowledge on milk technology), and they occasionally receive negative feedback from the consumers.

Goat milk producers are more active in Vilnius region and process about 90 % of own milk themselves. Goat milk producers cooperate more actively, consult each other, hold cheese production workshops, participate more actively in environmental safety and health friendly food production activities. *“...I never stopped thinking about the consequences. What happens when a*

²⁷ 1500 sqm marketplace with the interior resembling the South Italian classical style and eclectic style of XIX century. Benedikto market unites representatives of over 50 Lithuanian farms and dealers of global gourmet products. This is a fair market with clear prices indicated, open every single day morning to evening (9 a.m to 9 p.m), where buyers can pay by cards, or even by cryptocurrency at some counters! Wednesday to Sunday, the indoor market square is occupied by small entrepreneurs who do not have enough capacities to maintain regular shops but have a lot of fresh products to offer.



human is drinking milk, eating cheese, meat coming from the livestock that have received antibiotics? Medicine no longer works, when the human is ill...".

SFs and processors usually focus on the region's consumers, sell their products in district shops, kiosks, markets.

Efficiency of the small dairy farms is low, while milk production and collection costs are high. Long-term contracts are not concluded with small milk suppliers, milk quality is lower. Moreover, when milk is collected from SF, milk quality tests must be carried out additionally and milk collection point maintenance and collection costs add up. All of this determines low final gate price of milk from the SF and dependence on the EU support.

Nonetheless, small dairy farms have created a lot of jobs for family members and other rural residents. The farms have a positive role in terms of maintaining the gastronomic heritage, traditions and enriching the landscape. *"...Vilnius city residents stand in queues at the farmer markets to purchase her cheeses produced according to the old family traditions...", "...she is the farmer known and respected across the Vilnija lands ...".* Farmers share their experience and do not keep their recipes a secret *"...I tell everyone who is interested. It is not just the recipe that determines the special taste of the cheese. It must be produced of good fresh milk. And no preservatives! ...".*

d. Importance of household self-provisioning in small farms and small food businesses

Milk production traditions date back to very old times, and this is one of the major and mostly developed food production industries in the region. Nonetheless, the region does not fully satisfy its demand in milk and milk products. About 72 % of milk and milk products are imported from other regions or abroad. SFs use 10 to 20 % milk for self-consumption. A share of milk is used by the farmers for calve feeding *"...They feed milk to calves grown to the weight of 90 kg for one month. If they do not sell, but the calve weighs over 100 kg, the purchasers still pay for 90 kg ...".* A share (about 7 %) of milk and milk products are given away by the farmers to families in need or as remuneration for the works performed, for example, for mowing, hay tedding or assistance in hay collection. About 30 % of raw milk is purchased from members of cooperatives. Cooperatives accumulate greater amounts of milk and enjoy greater bargaining power. Bargaining power of SFs which are not members of cooperatives and do not cooperate with small milk processing enterprises is very low. Greater amounts of milk at disposal leads to greater bargaining power of milk producers in arrangement of the milk gate prices.

Small milk producers and processors use natural spices usually grown by themselves. They also cooperate with small importers of spices and purchase spices from them.

Although milk processing enterprises are short of the local raw material, major milk processing enterprises are reluctant to work with SF. Processing enterprises import about 20-25 % of processed milk from Latvia, Estonia on a regular basis. Nonetheless, they continue increasing the volumes of processed milk and, for example, volumes of processed



milk in 2017 grew by up to 5 %. “...The price paid for high quality imported milk is about 10 % lower than milk of the same quality and in the same quantities purchased in Lithuania...”.

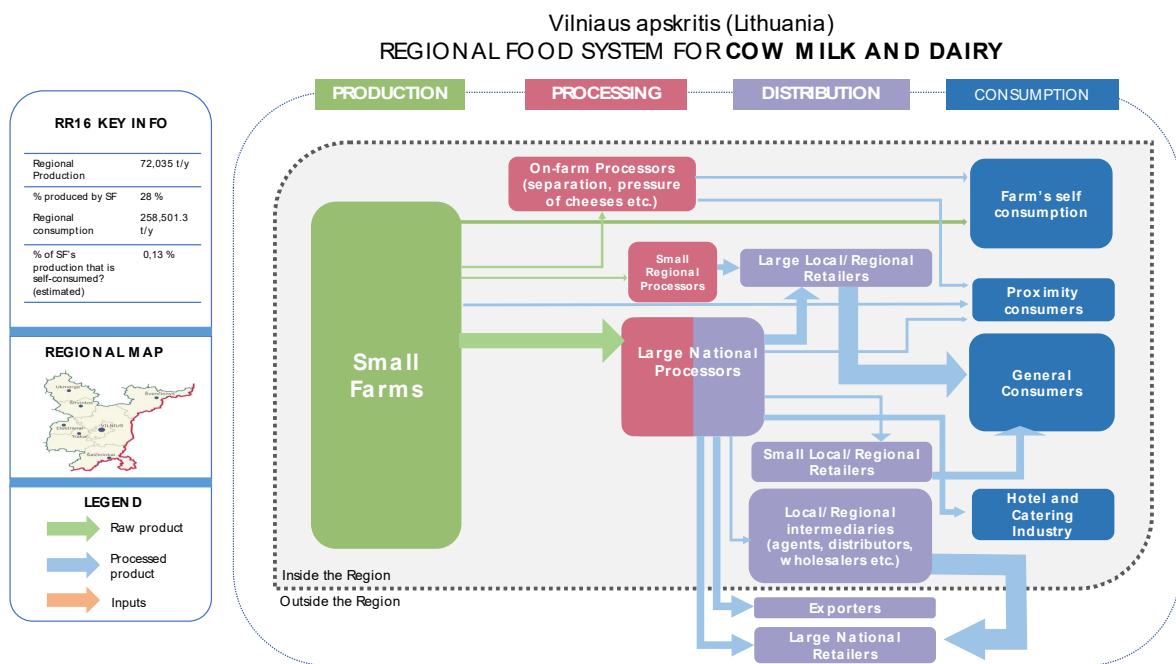
Administrations of district municipalities, the Lithuanian Family Farm Union promote formation of the farmer markets.

Administration of Ukmergė district municipality²⁸, in charge of children catering and kindergartens, Food and Veterinary Service offer supply of organic milk to the kindergartens. “...This, however, is more relevant to new farms, because our market of milk products has already been formed, which took considerable efforts...”.

e. Other relevant information

Milk sector is not stable, it is difficult for SFs to manage risks, milk collectors' pricing is not transparent, there is lack of long-term contracts between milk producers and processors.

In terms of the use of the common market organisation measures for milk and milk products in 2013–2017, intervention, skimmed milk powder, butter and cheese storage, and support to consumption of milk products at educational institutions under the framework “Pienas vaikams” (Milk for Children) were used.



²⁸ In 2018, two Ukmergė kindergartens at Ukmergė district are to launch a unique experimental project: food for the children will be supplied by local organic farms.



3.3. Key product 3: Vegetables

- a. Nodes in the regional food system: production, processing, commercialization and retail

Open field and greenhouse horticulture are being developed²⁹. Potato growers are reducing crop areas and have been increasing the areas of other vegetables each year. Potatoes are one of the most favoured, widely cultivated and consumed agricultural crops, also referred to as the 'second bread'.

Farmers who sell the vegetables grown by them directly to the consumers grow a wide variety of vegetables, which is updated on an annual basis. Seeds of unconventional vegetables are purchased from abroad, and they try to monitor vegetable vegetation processes themselves. *"...The farmer closely monitors the vegetables grown for the first time that season and makes records of how the vegetables have adapted to our climate conditions, how the harvest succeeded to endure the winter ..."*

SF usually undertake conventional techniques for growing the vegetables. However, farms holding smaller land areas apply the strategies and principles of organic farming, non-commodity horticulture. Vegetables are usually of exceptional quality, contain more biologically valuable substances than those grown conventionally. *"...manage to harvest two times – first, they sow salad, afterwards – various vegetables ..."* Non-commodity farms do not use any chemical substances for fertilization or crop protection.

There is considerable manual labour invested into vegetable growing. There are no automated irrigation systems set up. Besides the irrigation systems, farms that seek to sell their products need to have washing facilities as well. No chain supermarket will accept soiled vegetables eagerly. *"...The consumer also is cautious at first, the appearance is what makes him decide whether to purchase or not. In fact, there are also the consumers who are critical about washed vegetables ..."* Nonetheless, specialists claim that there is no reason to be afraid of vegetables washed using water. Moreover, the quality of washed vegetables is more evident. Such goods are more appealing. *"...Washing facilities are owned by major trading farms only ..."*

SF serve local markets exclusively and usually sell fresh vegetables, with the unsold vegetables used for processing. There also are the farms which grow, process and sell vegetables themselves, directly to the consumers. One of the most popular methods to do so is vegetable pickling under one of the oldest and simplest food preservation methods used to date. *"...I have started pickling vegetables having realized that the tomatoes purchased in supermarkets have no taste ..."*; *"...Pickled vegetables are not only tastier, but, in some cases, even healthier when consumed in cold season ..."*; *"...just three ingredients are needed: the vegetables, salt and fresh well or spring water..."*

Natural pickling method is the most widespread in the region. Dried vegetables, candied vegetables are also growing in popularity, but they are more expensive for the consumers. Vegetable freezing requires considerable investments. Preserving of vegetables is applied by

²⁹ Key field vegetables: potatoes, cabbage, carrots, red beet, cauliflower, black radish, onions, garlic. Tomatoes, cucumbers, sweet bell peppers, leek, spring onions, salads, radish and other vegetables are grown in greenhouses.



the major processing enterprises which purchase vegetables in large quantities. The latest technology applied by medium-sized vegetable farms is vegetable freeze drying (lyophilisation).

Medium-sized farms sell vegetables to wholesalers or vegetable processors. There are very few farmers who would be selling vegetables to the organisations that organise or perform public catering. SF sell vegetables directly: at farmer markets, on the roadside, in vegetable baskets, as delivery at the door, sale at the farms, online. Farmers who sell their products directly to the consumers apply discounts online in a very creative manner, employing various techniques to promote purchase of vegetables, for example, *“...orders of one bag of potatoes are accompanied by tasty apples and max. 12-hour delivery free of charge ...”*.³⁰

b. Flows connecting the different nodes in the regional food system

It is enough to have just 1 ha of vegetables to make the farm cost-effective. The profit is guaranteed by the farming method chosen: from field to plate, or wide range of fresh and processed products. Nonetheless, vegetables need to be prepared for sale in order to be able to participate actively on the market, i.e. considerable manual labour in vegetable washing, sorting, packaging is required.

Vegetable growers and sellers maintain direct contact with consumers by selling vegetables at farms and markets. Long-term, official contracts are not yet concluded with households, but regular customers place orders for vegetables for the following year. *“...We have a lot of Lithuanian vegetables that can be eaten all year round, and, most importantly – in winter. This is much better than imported fresh vegetables in winter...”*. Pickling is one of the most popular traditional processing methods brought back to life. Entities that are engaged in vegetable pickling make attempts to tame Vilnius market. *“...The taste of a pickled product is not only something you discover, but also something you need to like. In our entire history in trade, we had only one customer who did not find anything she liked out of probably all products...”*. Representatives of the niche vegetable business are considering online commerce as well. *“...Online commerce, however, requires that we have an employee for that, and we do not have the funds to hire, while me and my wife do not have enough time to take care of everything ...”*.

Small horticultural grows are still waiting to implement innovations, as these require considerable costs.

³⁰ Discounts may apply to bigger purchases as well as to persons who assist in farm works (for example, 8 hours of assistance equals to EUR 1.5 discount per basket). Farmers who sell vegetables at the farm or offer deliveries at the door or agreed locations provide publicly accessible information on the prices of vegetables and vegetable products, explain their cost structure. For example, the basis of 45 % of vegetable price is the farm-stead, the garden established under the principles of eco-system, farmer's know-how, experience, planning of works, formation of variety, purchase of seeds, growing of sprouts; 40 % are the growing costs – daily maintenance of crops from sowing to harvesting, mulch preparation, mulching, weeding, covering at frost, collection of pests, and similar manual work requiring utmost care. Use of machinery is impossible, and even lawn-mowers are not used, as they destroy useful insects and other animals; 15 % - delivery, basket delivery trip and time costs.



New trends of farming and agricultural product sales, aiming to bring together farmers and consumers, could be noted. It goes under the idea that consumer "subscribes" a vegetable basket from the farmer, and the farmer cultivates vegetables specifically for the consumer³¹.

Online sales via "kaimasinamus.lt"³² platform have been developed the most. Vegetables can be purchased by subscribing³³ a seasonal vegetable basket (e.g. small basket – EUR 7, standard basket – EUR 10, family basket – EUR 15). Vegetable basket is a selection of farm grown vegetables, berries and herbs as well as edible wild plants, delivered on a weekly basis. The season usually starts in April and ends in November. After the start of herb and vegetable season, the subscribers are sent a weekly email with a list of products available for the basket, and the subscribers are expected to send in the requests by the agreed time. The products are then collected and delivered at the agreed time to the agreed place. The sellers try to address the customers' needs in a flexible manner.

Customers have the chance to visit the farms upon agreement. Vegetable growers also provide consultations at their farms and visit customers' farms.

c. Role of small farms and small food businesses within the food system

Small vegetable growers, processors and sellers play an important role in the food system, as they grow and supply the market with the major share of local fresh vegetables (Annex 3).

Certain share of vegetable growing farms are members of cooperatives. Cooperatives seek to help their members sell the grown produce, promote production of high quality vegetables under market conditions, marketability and marketing, help meet the economic and social needs in provision of production facilities to members of cooperatives.

There are already several online platforms ("Kaimas į namus"³⁴, "Gilės kromelis"³⁵, "EkoMarket"³⁶), where produce can be ordered by a customer or customer community online, and all the produce are delivered from farmer's farms. Online platform "Kaimas į namus" covers 312 SFs. The platform was created by researchers. The project was funded from public funds. The platform is administered by The Centre for LEADER Programme and Agricultural Training Methodology.

SFBs usually undertake vegetable trade or organisation thereof. They do not own any warehouses, and the vegetables are stored by the farmers who sell them in small quantities and assume the storage and transportation losses.

As soon as Tymo market launched its operations in Vilnius, there was the possibility to sell organic produce directly to consumers, and the trade spot fee was minimal. In 2014, growers of organic vegetables, berries and fruit, together with other farmers, founded association

³¹ <https://www.kitoksdarzas.lt/>

³² <http://www.kaimasinamus.lt/puslapis/kaip-tai-veikia.62/>

³³ Subscription form - <https://www.kitoksdarzas.lt/prenumeratos-forma/>

³⁴ Kaimas į namus. 2018. [online] [visited on 15 August 2018] Online access: <<http://www.kaimasinamus.lt/>>.

³⁵ Gilės kromelis. 2018. [online] [visited on 15 August 2018] Online access <<http://www.gileskromelis.lt/>>.

³⁶ EkoMarket. 2018. [online] [visited on 15 August 2018] Online access <<https://www.ekomarket.lt/>>.



Lithuanian Healthy Food Producer and Consumer Association TYMAS covering 44 farmers engaged in organic farming.

Nevertheless, business company offer vegetable deliveries at the door in Vilnius and other major cities, while farmers deliver to yards of blocks of flats in centres of districts, to the markets or other places agreed with the customers.

The marketing system is weak. Majority of SFs perform sales of their produce individually, autonomously. Orientation on larger trade chains and international market is insufficient. Larger batches of homogeneous produce are not formed. Trade chains have stronger bargaining power, and can therefore dictate produce purchasing prices.

SFB and SF cooperate in organisation of information dissemination events, open door days. *“...our aim is to educate the locals about healthy nutrition, we participate at various events, where we share our experience, organise degustation. For wider dissemination of information, we expect the Ministries and other authorities to contribute to promotion of local products ...”.*

d. Importance of household self-provisioning in small farms and small food businesses

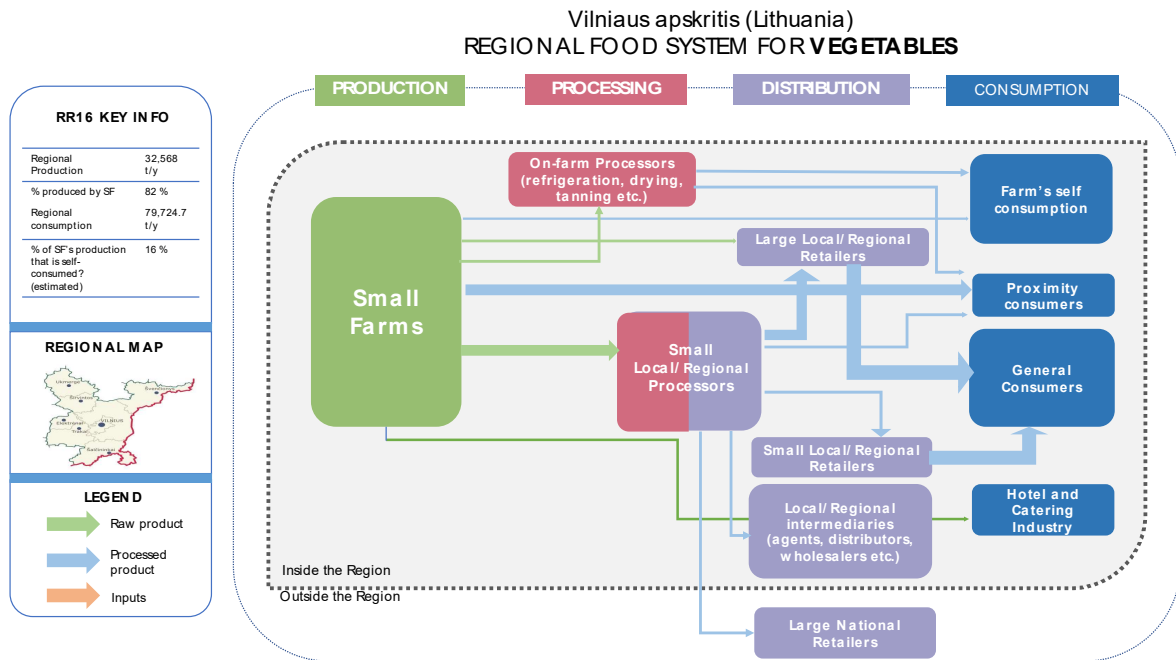
Vegetables for self-consumption are usually grown by families living both in the city and in the countryside. Families living in the city (conventionally – parents whose children are no longer of minor age) have small (about 6 acres) land plots (in community gardens), where they grow vegetables, fruit and berries for self-consumption. Families living in the countryside also grow almost all vegetables (about 78 %) and consume them within their households. These are non-commodity or semi-commodity farms. Certain gardeners sell vegetables that the family or relatives have not consumed at the market or give away. The volumes of vegetables consumed in the region exceed the volumes grown. Considerable share of vegetables is imported from abroad, in particular, in winter. Stronger cooperation links have developed between horticultural farm owners and rural tourism farmsteads. There are real examples, where local community organisations accept non-standard vegetables and use them to produce spices, candied products, and sell them. The generated revenues are allocated to their salaries and development of community activities.

SFs offer vegetables and fruits close to major shopping centres and other places in cities of the region. Agricultural cooperative "Lietuviško ūkio kokybė" (Lithuanian Farm Quality) unites two and a half hundreds of farmers and SFBs that grow, process and sell a range of products for farmers' markets in Lithuania. Farmers' Markets, promoting consumption of local products, are becoming more and more popular in Lithuania since 2006.

Small and medium-sized horticultural farms do not have sufficient capacities to ensure timely supply of produce in the required quantities and of the required quality. Due to the fragmented and underdeveloped produce storage infrastructure, it is difficult to ensure consistent supply of the produce throughout the year (necessity to mitigate the seasonality).



There is no actual possibility to offer the volumes of homogeneous horticultural produce to major trade chains or foreign markets.



3.4. Key product 4: Fruits and berries

- a. Nodes in the regional food system: production, processing, commercialization and retail

The region's fruit and berry sector is not large. The area of plantations has not expanded, and the yield has remained among the EU's lowest. This has been partially due to the climate conditions. The harvested area of fruit and berry orchards covers about 16.2 %. Fruit and berry growing is one of the most profitable agricultural branches. Main fruit crops: apples, pears, cherries, chokeberries; main berry crops: strawberries, currants, raspberries. The most common garden crop grown in the region's fruit and berry orchards is the apple trees. Commercial orchards do not grow any other fruit trees but apple trees. This has been determined partially by the traditions, existing infrastructure (storage facilities, types of containers); climate factors also have considerable influence on this structure: following the recent three winters, the reported areas of pears and sweet cherries, which do not occupy large areas, are expected to decrease.

Vilnius county is the leader by commercial strawberry and raspberry orchards, same as in the previous years. "...The farmer has established a wide variety – almost 10 sorts of strawberries – from the early-growing that are picked starting from May to the late-growing that ripen at the end of summer – in August...". The farmers usually maintain the berry orchards themselves. Assistance from neighbours, family, grandchildren is usually required in peak periods. "...A share of the plants are planted on special gardening film, while others grow naturally. The farmer has lain hay in the pathways



between the beds and removes the emerging grasses with a special knife...”; “...you could walk wearing socks only in my strawberry orchard, because it is clean...”.

Growing berries and fruit requires considerable knowledge in agronomy and entrepreneurship. The fruit and berry market is very dynamic, SFs “mimic” each other, the mass media (TV, newspapers spread the information about the best practices) contribute to formation of specific “trends”, for example, planting black-currant, sea-buckthorn, blueberries on large areas. *“...There is a lot that can be grown in the countryside, but isn’t it also important that someone buys those berries and fruit? Black-currant berries are falling down naturally, because picking them does not pay off (1 kg berries costs EUR 0.10-0.12), we cannot consume such quantities ourselves, and noone wants to buy....”.*

Households still have old and high-yield species of fruit trees. Every year, a share of the harvest is sold at minimum price to the collectors, processors, and a share of the harvest is simply left to rot. There are some old gardens without any clear ownership, but digging the trees out is investment- and labour-intensive. These are the privatized gardens of former specialized companies or collective farms. New owners are sometimes not gardeners at all, and the fruit trees that have remained in their gardens serve the purpose of just occupying the land. Nonetheless, those who hold larger areas supply the fruit grown on those areas to the market – farmer markets or for processing at least.

At commodity farms which grow berries and fruit usually produce jams, squeeze juices, dry or freeze berries. Berry freezing is a much faster and simpler method, but selling them is more difficult. Berry thawing is performed in late autumn or winter, and the berries are used to make jams. The demand for all produced jams grows in September after the fresh berry season has come to an end. *“...8 years ago, the customers favoured the first conventional jams of just a few types. Hence, as the demand has been growing, they have set up the berry processing shop that produces over 35 kinds of products: jam, sweetmeat, paste, juice, syrup, dried chips, candies, etc....”.*

Majority of the raw materials used in the production are grown by the farmers at their farms. They also use rarer forest berries: viburnum, rowan berries and other berry carrying plants. A share of the berries and fruit are grown organically, and the products maintain the natural taste.

SFs serve local markets exclusively, selling fresh, boiled, dried fruit and berries, juices. 68.5 % of juice was squeezed from the region’s most widespread fruit and berry crop – apples.

Processing enterprises and wholesalers purchased only 69.7 % of the harvest in 2016, and only about 45.7 % in 2017. Fruit and berries from SFs are purchased for consumption in the fresh state and processing. The major share of the fruit and berries purchased was comprised of apples, which are used to produce juice and wine. Direct sales to consumers usually include strawberries, raspberries, blueberries at farmers’ markets, according to orders from farms or by delivery at the door.



b. Flows connecting the different nodes in the regional food system

Reduction of the areas of conventional berry crops is compensated by other berry plantations established. In the category of other berry crops, sea buckthorn account for the largest share, and the peak of planting of this berry was in 2012. Quinces account for a much smaller share, followed by blueberries and other less widespread berries. More diverse products have appeared on the market as a result of larger areas of new plants, but the demand for the products does not grow at the same high pace. As a result, it is difficult for small producers to find stable sales niches and develop processing.

The range of berries and fruit grown by small farmers at regular markets is very wide. Strawberries, raspberries, sweet cherries, bilberries, blueberries, blackberries, black-currant, etc. are demanded the most. At regular markets, there also are a lot of imported products sold by resellers. It is sometimes difficult for the consumer to identify and decide which berries and fruit are grown locally, and which have been imported. The country of origin is not always indicated, there are cases of unfair trade both at regular markets and on the roadside. Control over fruit and berries is insufficient. *“...the market has already been established – the demand for Lithuanian berries is slightly higher than the supply, and the price fluctuations in individual seasons are less evident compared to earlier periods ...”*.

“...Customers’ requirements to quality have increased in the recent decade, and the growing processes have changed accordingly: almost all larger berry orchards are now being irrigated, grown on foil covered beds, considerable investments are made to make sure that the berry season starts earlier and ends later. Not everyone have managed to keep up with this kind of race and more severe competition on the market...”. The situation with the strawberry and raspberry orchards could be described as follows: *“...Only the strongest and most persistent remain ...”*. *“...Currant growers have gone through the most changes – from the absolute downfall to sky rocketing prices in 2011, and then, in 2018, the downfall again ...”*; *“...small growers are disappointed the most in currant growing ...”*.

The farmers assert that low prices on fruit depend directly on the prices in Poland. It is not important whether the annual harvest of Lithuanian apples or currants is large or small, the prices on the local market are proportionate to prices in Poland, where the supply of fruit and berries and high, and their cost is small as a result of low VAT and wide range of fertilizers and pesticides.

At majority of farms, fruit and berry growing is controlled in the process of growing, as the farms are certified as NQP (*Lithuanian – NKP*) (National Quality Product) or organic produce growers.

There are no official horticultural business consultants in Lithuania. Only the researchers at the Institute of Gardening and Horticulture provide consultations.

Changing climate influences the quality of fruit and berries. With long droughty periods, hail becoming more frequent, fruit growing is becoming riskier and requires additional investments into irrigation systems or protective nets against hail.



c. Role of small farms and small food businesses within the food system

Fruit and berry growing plays an important role in the food system, when fresh produce is sold directly to the consumer, and the farmer participates in the entire food supply chain (Annex 4). If a farmer only grows the fruit and berries, sells them fresh to the purchasers or processors, he sells at a low price, cares about the quality of produce only formally.

Currant growing is the most mechanized compared to other orchard crops, and large farms are the most efficient, as they are capable of enduring temporary crises. This is similar to the apple tree gardens. Berry and fruit processors, in particular, large enterprises, hire or lease equipment to farmers. Cooperation usually takes place between medium-sized and large farms, while SFs sell relatively small volumes of fruit and berries of varying quality to the processors and are even grateful that the latter purchase the produce, for the former would otherwise have nowhere to use it.

Individual marketing which takes place in this branch suits direct sales only. Larger batches of homogeneous produce are not formed, because each farm conducts individual sales of fruit produce, and trade chains often impose discriminatory conditions.

Small and medium-sized farms which focus on direct sales are developing the infrastructure for storage of fruit and berries.

d. Importance of household self-provisioning in SF and SFB

The region does not satisfy its demand in berries and fruit on its own (berry provision rate in 2016 accounted for about 13 %), while Lithuania grown fruit and berries satisfy about the third of the national needs. This is determined by seasonality, climate changes, when the crops are harvested later than in the countries with warmer climate. In order to satisfy the inner demands, a lot of berries and fruit are imported.

There is a large share of fruit tree species which are in low demand, the orchards are old, and a large share of orchards (about 30 %) are old orchards with the species that are in low demand and growing cheap raw produce for processing.

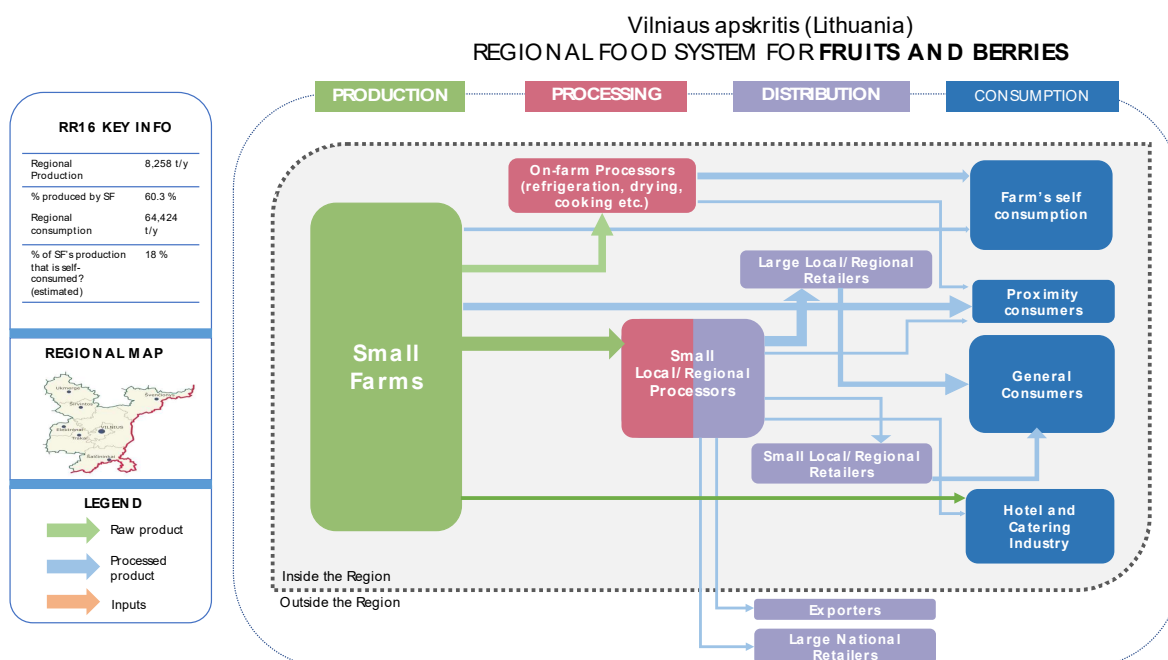
Due to low prices and traders' preferences, only quality class II Lithuanian fruit are available for sale, and are often of poorer marketable appearance and not sorted. On the other hand, SFs have almost no infrastructure for preparation of fruit for marketability.

Fruit and berry growers and processors care about stability. If prices rise, fruit and berry growers are happy, when the prices drop, processors win. They say that they do not need the entire raw material, or are ready to purchase it for lower price. Hence, it is important to use the respective pricing methodology which would ensure greater stability for everyone.



e. Other relevant information

Hardly would any berry grower resolve to undertake a project and use the EU support. The support is not flexible. “...If a farmer makes a mistake, there are strict sanctions to be faced. And noone tells the people how those mistakes could be avoided...”.



Typology of small farms in the reference region

a. Small farm types in the region

The SFs were divided into four types by three attributes: degree of market integration (i.e. % of farm production directed for sale to the market, as opposed to self-consumption) and degree of self-sufficiency (i.e. degree to which household consumption is satisfied with own production); main production (Table 2).

		Degree of self-sufficiency	
		< 50%	> 50%
Degree of market integration	< 50%	Type 1 Fruit and berry farms	Type 2 Vegetable farms
	> 50%	Type 3 Meat farms	Type 4 Cereals and Milk farms



Type 1 and type 2 are SF with very low specialization, diversified farms. Type 3 and type 4 are SF with high specialization, and they grow other kind of produce for household needs only.

Type 1. Total area of apple trees, sea buckthorn and black-currant covers about 70 % of the entire area of all fruit and berry orchards. About 27 % of the total area of berry and fruit trees are SF areas. Over 50 % of the total area of all strawberry orchards and 44 % of the total area of all raspberry orchards in the region are SF areas. Berry yields are very high, because *“...put effort in maintaining them properly, weeding manually, do not use any chemical to remove weed, the berry orchard is in service for 6 years...”*, *“...we have already learnt how to fight the winter colds – we cover the berry bushes with the foil...”*.

Type 2. Vegetables are usually grown and sold fresh. The farmers themselves process a small share of field vegetables. *“...they do not cultivate cereal crops, and, where crop rotation is applied, they exchange fields with growers of cereal crops. They return to the same field to grow vegetables only in four years...”*.

Type 3. Semi-commodity and SFs usually undertake dairy farming. The herds are grown by the farmers themselves. *“...about 40 % of milk herd cows are cross-bred with bulls of meat breeds...”*. They leave the heifers at the farms to renew the herd, and usually sell 90 kg calves for meat. Mixed-breed livestock was usually triple the other breeds at the meat farms, but the farmers have been refocusing on the Belgian Blue breeds, which are more preferred by collectors due to higher quality of meat.

Type 4. The number of farms holding 1-2 cows has decreased by 41.3 % in the period from 2013 to end of 2017. Milk farms have led to considerable increase in the herd of beef cattle in the region. Poultry flocks and sheep herds have been growing as well. SF milk composition indicators have been improving annually. Average fatness of milk collected in 2017 was 4.19 %, protein content – 3.32 %. 96.7 % of the total milk collected met the EU veterinary and hygiene requirements in 2017. In 2015 and 2016, the yield of cows decreased. This was due to the considerable drop of the milk gate price as a result of the global milk crisis. With the price so low, milk producers did not have any funds to maintain and increase the milk yield.

b. Role of small farm types in the regional food and nutrition security

Farms run by owners whose main source of earnings is the farm are more independent and better integrated into the market. Where revenues generated by the farm are extra earnings, the farmers' degree of independence is lower, their provision for self-consumption is lower.

Type 1 and 2 farms are more active participants of the food system, usually sell their produce directly to the consumers, play more important role in the food supply chain. Type 3 and 4 farms are rather producers of primary agricultural produce, suppliers of raw materials to processors, have less significant role in the food supply chain.



Type 1 and 2 farms are managed by young families with adolescent children, while type 3 and 4 farms are managed by older families with adult children.

The balance sheet and small farms contribution for each staple group production in Vilnius region presented in Figure 1.

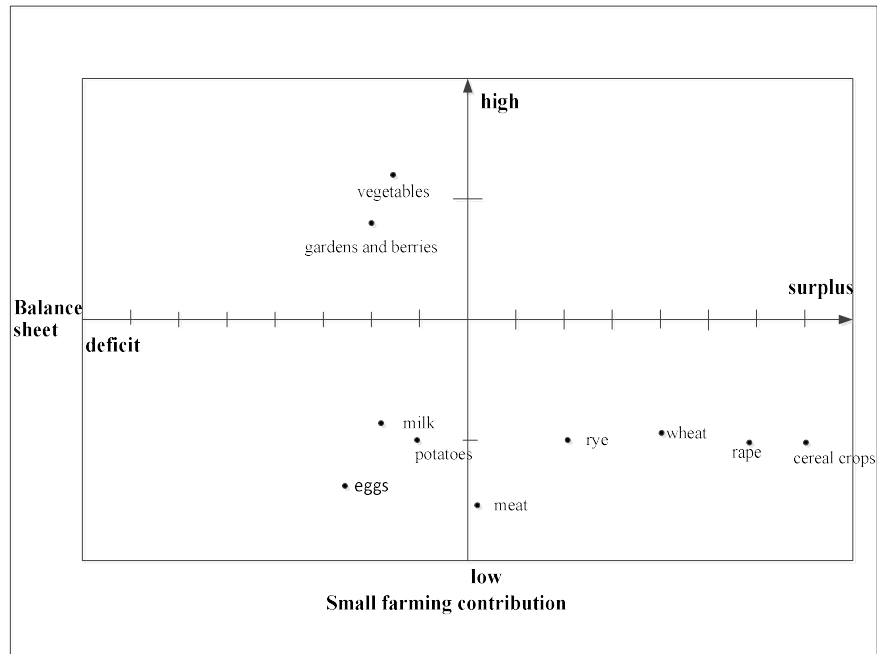


Figure 1. Balance sheet and small farms contribution for each staple group production in Vilnius region, Lithuania

Governance

a. Main interactions of SF and SFB with governance structures in the region

Financial and associated structure support is very important for SF and SFB. All small commodity farms receive subsidies and also have access to financial support from the structural funds. *“...If not for the EU support to maintain the revenues, majority would have gone bankrupt...”*. A lot of initiatives come into the food chain from the association. For example, the Asparagus Festival is organised by a vegetable and fruit grower in cooperation with the Lithuanian Association of Environmental Experts (provides financial support to the Festival), journalists (they invite the grower at the culinary shows on the national television, spread the information in the press); Lithuanian Vegetable Producers Association (LVPA) uniting 70 commodity growers of potatoes and vegetables, organizes field days, workshops, provides consultations, provides information on own website about the produce grown, updates price information on a weekly basis³⁷. *“...It is important that we are active ourselves*

³⁷ <http://www.ldaa.lt/en>



...”. About 4000 members across Lithuania are brought together by the Lithuanian Union of Family Farms, which has initiated and organized the operations of mobile farmers’ markets³⁸. Nonetheless, there are no mobile farmers’ markets in Vilnius county, and only 5 farmers from Ukmergė district, 7 – from Vilnius district, 11 – from Širvintos district, 5 – from Kaišiadorys district, and 3 – from Trakai district sell their products at the mobile markets. It is easier to sell products at mobile farmers’ markets rather than by trading alone *“... such places where other farmers trade in a variety of products attract a lot more buyers who buy more...”*. Moreover, *“...if a person comes to buy vegetables, this does not mean he will not opt to buy our milk products as soon as he sees them...”*.

SFB consider competition to be a negative factor, but they put too little effort in trading where no one else is trading yet and selling what no one else is selling. *“...Small entrepreneurs have the chance to maintain their presence only if they additionally offer something specific and custom-made, something that large trade chains simply cannot offer because of their large scale...”*. In region exist different types of short Food supply chains (Annex 5, Figure 1 and 2) direct selling and with one intermediary.

The criterion of appearance is very widespread in the market culture when quality and healthy product is concerned, and appearance is usually the main aspect of bargaining, which can take the person to more expensive imported apples without even noticing aesthetically less appealing, but cheaper and organic Lithuanian apples.

SF and SFB usually employ family members and are assisted by neighbours. Those engaged in farming seem to form two groups: families with children who have opted for agriculture related professions and with successors of farms; and families with children who have opted for other professions not related to agriculture and food technologies and with no successors of farms. SF are happy to have raised decent, honest children through work at the farm. The parents sometimes feel as if they have not had any opportunity to provide for their children more than they have provided: the children do not hold any exclusive degrees, but, as their parents were their role models, they have worked together and know how tiresome this occupation is. *“Both my daughter and my son are very hardworking, they enjoy working, and they are good at it. I know they will never move abroad, even though they see that some of their friends have left the country and find it easier there”*. SF and SFB consider the values passed on to their children or relatives as an important result of their life. However, it would now be difficult to find a farmer in Vilnius region who could be proud of his/her family farm tradition as a result of the interrupted natural course of history.

“...Trade chains have occupied up to 70 % of the market...”. Farmer market is one of the potential competitors of the trade chains, but will never outweigh the latter. The competition would be much more significant, if majority of SFs holding several cows started production and were selling their products directly. However, such farms are low in numbers at present, and *“...the processors, in turn, also seek to terminate their cooperation with such small producers...”*, *“...the outlook of a business run by a farmer or processor who is at odds with a trade chain would be rather bleak...”*.

³⁸ <http://seimosukiai.lt/ukininku-turgeliai>



SF and SFB do invest into innovations, but still are incapable of flexibly responding to changes in consumer and other market participants' behaviour because of the entrepreneurship, financial resources and marketing costs. For example, *"...several years ago, farmers were encouraged to set up automatic milk vending machines in chain supermarkets, produce and sell products at the market..."*. Automatic milk vending machines operated in major supermarkets for 4 years. This movement soon lost its momentum. *"...These milk vending machines cost EUR 10,000–17,000. They might have paid off in several years of trade. However, they generate almost no revenue from trade in raw milk in the cities..."*. The milk vending machines were rent out, but SF and SFB did not replace them with cold milk-shake vending machines. *"...I cannot assert that natural milk from a farm would not be appealing to anyone. In fact, a lot of people value and buy it, but not in the quantities that would provide much profit to the farmers..."*.

The never-ending discourse about uselessness of SFs and the time for them to step away is devastating to people. They are losing any desire to make effort to maintain the farms. *"...The overall depressing atmosphere, psychological pressure on the milk producers to abandon the milk sector is a big problem..."*, *"...it is allowed to disparage labour and people in the countryside..."*. *"... If small farmers are no longer important, we should consider animal welfare and food quality. It is obvious that cows grazing in the meadows is a benefit to everyone..."*.

There is a shortage of specialized consultants (in dairy farming, horticulture, and berry cultivation) and systematic trainings for SF owners. A network of professional consultants³⁹, which would be providing consultations to SFs, has not been developed, and trainings are held on random topics. There is no coordinating authority. Only researchers at university, college institutes dealing with horticulture and gardening provide professional consultations. *"...They do not address the Advisory Service, but cooperate with researchers, specialists at the Chamber of Agriculture, participate in experiments, research projects..."*.

b. Levels of governance and their relative importance for SFs and SFBs

Strong cooperation among governance institutions of the same level has developed for greater food safety for the consumers. Cooperation between public and private, business organisations is weak. Local municipality administrations do not feel responsible for development of local economy. When holding public procurement of food products for children, pupils, hospitals, the specialists at city and district municipalities of the region list the food supply criteria in the tender conditions, which can be met by large farms or business enterprises only. The region has not developed a regional system based on local food. Different food supply chain participants (farmers and processors, traders, consumers, local community, authorities, etc.) hold different interests. It is difficult to find common grounds, and there is still no answer to the question – Who should make the first step? No

³⁹ The public institution Lithuanian Agriculture Advisory Service work with medium and big farms. The mission is to help all farming people to develop their businesses profitably without causing damage to environment, produce competitive production, survive and be leaders under the conditions of market economy. The Advisory Service's founders are: The Lithuanian Ministry of Agriculture; The Lithuanian Farmers' Union; The Lithuanian Association of Agricultural Companies.



arrangements have been made yet, there is considerable lack of the determination to intensively develop short food supply chains. Interest in the financial support intended for development of short food supply chains, establishment of producer organisations in the region is weak.

National authorities are constantly trying to maintain balance between the national and municipal budget deficit. Major farmers and entrepreneurs pay more in taxes into the budget. Public administration institutions both on the national and state level do not have clear understanding and professional solutions regarding SF and SFB. Vilnius municipality and other municipalities of the region “...are collecting less and less taxes...”, public sector institutions are concerned⁴⁰. There is also certain polarisation between SF or farmer community and the remaining part of the community caused by insufficient contributions paid by farmers and agricultural companies to the state in the form of taxes.

Processors of agricultural products are exerting pressure on SF and are claiming that “...they do not need SF...”. The growing demand for fresh, natural high-quality food, produced in the consumers’ places of residence, encourage farmers, especially small and medium-sized, to produce higher added-value agricultural and food products, sell them directly to the consumers, and thereby to increase their income.

There a lot of isolated informal cooperation connections between the producers and consumers. Few initiatives exist where producers develop formal relationships with customers through direct communication in short food supply chains (Annex 5, Figure 4). Food at mobile markets and Tymas market in Capital city associated with the Lithuanian countryside, particular rural areas, or even farms where the products produced.

Since 2004, the State Enterprise Lithuanian Agricultural and Food Market Regulation Agency has been implementing two programmes of support to consumption of milk products and fruit at daycare and educational institutions: “Pienas vaikams” (Milk for Children), “Vaisiai mokykloms” (Fruit for Schools). However, SFs do not participate in the product supply.

Requirements by the Food and Veterinary Service are very strict, and competences of the food control specialists in relation to the changing food technologies are insufficient. “...Even the Service is not particularly familiar with certain aspects, nor does have a clear understanding, because these are copied from the EU requirements, e.g. frozen berries can be stored and consumed for 2 months only. 2 months are not enough to process the berries, if deep freezing is used...”.

⁴⁰ Also, Vilnius region (or, more specifically, Vilnius city) creates 109 % of the gross domestic product (GDP) per capita compared to other regions, and the total GDP per capita of the Central and Western Lithuania is 62 %. In the new program period, Lithuania could be divided into regions of two levels, and intensiveness of the support to the Capital region would be lower compared to that for the region of Central and Western Lithuania.



c. Constraints impairing full participation in the food system

Very small farms are not eligible for the financial support. The smallest utilised agricultural area is to be comprised of at least 0.1 ha fields, and the minimum area that is eligible for direct payments is 1 ha.

In support to the SF, the Ministry of Agriculture has been providing payments for the first 30 ha since 2014, and has been allocating 15 % (10 % in 2014) of the total amount of direct payments of the EU. This additional payment of about EUR 50-60 (the payment was 56.25 EUR/ha in 2017) per 1 ha paid to all the applicants without any exceptions helps ensure stability of SF revenues, enhances their potential to develop own activity, thereby contributing to viability of the countryside.

Another limitation faced by the SF is the scope of production, processing and sales. Farmers selling their grown vegetables or milk in cities one by one cannot boast good income. High product transportation costs, difficulties in ensuring consistent quality of products and updating the offered range regularly. Customers often rush to buy natural products, if they are new on the market. Eventually, they are becoming less excited about them, and searches for lower price outweigh the benefit of natural products, and consumers end up returning to the cheaper foreign products sold by major hypermarkets. Open hours of the hypermarkets are very long, and some of them are open 24/7.

The utilised agricultural area is becoming smaller “...the pressure is coming from everywhere. Agricultural concerns are buying lands, taking over (buying) agricultural companies. Construction companies are raising buildings, changing the use of the area...”. It is difficult for young farmers who own small areas of land or would be willing to engage in farming to purchase land, as “...the right of priority is granted to the farmers whose land is adjacent to the land offered to purchase...”.

Members of cooperative “Lietuviško ūkio kokybė” (Lithuanian Farm Quality) are required to have certified products: the farm shall be certified under the national agricultural and food product quality (NQP) scheme; organic production farm; products of national heritage scheme.

The fact that organic farms are surrounded by the farms which use chemicals is the greatest headache to the former. Hence, just small amounts of chemical substances entering the organic fields cause damage to the harvest of the organic farm.

d. External policies, decisions and social norms affecting food systems

The state policy is rather liberal, functions of market regulation and control are weak; although declared, the support to SF and SFB is less effective than the support to major farms and business. High concentration of SF utilised agricultural areas and agricultural product processing entities. “...the only path to take in order to mitigate concentration is increasing the competition, because all major food product processing and trade chains have become similar to each other...”, “...the concentration of processing enterprises in certain sectors (for example, milk, cereals) is huge and could already be viewed as oligopoly. When such structures are running the market, there is no competition”.



Experts and researchers continue proposing support to the farmer market and small and medium-sized business as one of the ways to mitigate the concentration. However, as soon as these proposals reach various committees of the Seimas, agricultural associations and structures of other sectors, they remain unapproved or, if approved, are not implemented with effect.

Trade spots at Šačininkai, Švenčionys, Elektrėnai markets continue reducing in numbers due to the reducing population. Farmer market fails to compete successfully with the trade chains, which are usually built next to the existing markets. *“...If a chain supermarket opens next to a farmer market, the latter is soon to disappear...”*. In the centres of rural districts *“...simply no traders are left at the market. People of older age who used to be the main category leave the villages and towns to live in cities with their children, closer to hospitals, or retire...”*. A new category of market traders which is still growing is farmers’ children. Some of them sell the products grown at their parents’ farm during weekends. People are familiar with the farmers and buy their products even if the price is slightly higher than in the supermarkets. *“...It may very well be that the markets open 7 days a week will continue operating in major cities only. Only the prohibition by the state and self-governance authorities to open new hypermarkets in town centres can save us...”*.

For now, little attention is paid at the marketplaces to components of the healthy food programme, integrated approach towards food safety is applied and traceability of meat, milk or other products “from field to plate” is considered in a limited manner. Little does one take interest in *“...what feed – high or not so high quality – was given to the animal, what conditions it used to be kept in, and so on. Monitoring of meat, milk quality from feed to the counter is insufficient...”*.

e. Gender issues intersecting governance issues

Local community, consumers, local authorities traditionally tend to appreciate more the farms and businesses which could be characterized as follows: *“...If this family is up to something, it comes from their hearts. Sincerity and love – that’s what has opened a lot of doors to them...”*. *“...Very radiant people...”*.

A working day at a farm lasts for 18 hours. At the first glance, there would seem to be less work in winter, as livestock provides less milk, and plants are in the vegetative phase. This period, however, is the time to service the equipment; livestock start having calves, and these need to be cared of. Works never stop in the countryside. Farmers are joking that farmers do not have any holidays and days off, and works are not classified as female or male works.

Men at farms are usually responsible for more labour-intensive works that require greater endurance – livestock, preparation of feed; while women – for processing of agricultural produce (cheese production, pickling, etc.). Taste and quality of the food depend on *“...the charge of positive emotions contributed by the housekeeper into cheese production, vegetable pickling, jam making, or juice squeezing...”*. *“...A housekeeper reveals her creativity through cheese production, and if her creations are highly appreciated by the Italians, French or Swiss, this is the greatest appraisal to her...”*.



“...The farmer even says a prayer when pressing cheeses, wishing health to everyone who would be buying them...”.

f. Other actors and processes important for the regional food system

There is no developed region's (local) food system in Vilnius region. Participants of the food supply chain hold different interests:

- Farmers' interest – to easily sell everything they grow at the lowest cost;
- Traders' interest – to have the products preferred by the consumers, meeting the type preferred by the hypermarket, timely supply, competitive price;
- Consumer's desire – wide selection of goods, stable access, appealing appearance, low price;
- Community – quality of life; safety and security as well as loyalty and certain commitments to the residential area;
- Public institutions (municipal administration, Public Health Bureau, Business and Tourism Information Centre, etc.) – enhancement of the local economy, strengthening of the region, its traditions by attracting as many residents and tourists as possible, popularization, provision of conditions for farming and trading own grown or produced products, improvement of public health.

The attitude and values of all the stakeholders is very important in organisation of the region's food system. The principles of organisation of the region's (local) food system are the matter of mutual agreement. The following principles of organisation of a food system have been identified in the study: transparency and fair trade; environmentally friendly approach; biological value of the food; mutual exchange; competitive ability; meeting consumer needs and farmer expectations; geographic proximity; horizontal partnership and cooperation.

g. Forms of collaboration and organization between small farms

SFs do not make use of the opportunities provided by cooperation in terms of strengthening own positions (efficiency, bargaining power). Only few actual cooperatives operate in the region, and the majority of cooperatives are only formal, the foundation of which was prompted by the financial support. Nonetheless, the emerging examples of success and pressure on the market are likely to stimulate the process of cooperation.

As a result of mutual competition, orchard and horticultural farmers are incapable of receiving the maximum price for their produce. Owners of smaller orchards sell their products at farmer markets or smaller supermarkets, most of which belong to the large trade chains. There is also no coordinated sale of currants, sea buckthorn and other berries. Strawberry and raspberry growers sell their produce at farms or markets due to berry storage specifics. Uniting growers of agricultural produce into *producer organisations* (PO) would



enable forming larger quantities of homogeneous produce, bargaining for higher price, and having greater bargaining power.

As majority of the small orchard farms do not have appropriate conditions for fruit storage, facilities for appropriate preparation of the fruit for marketing, the tasks for the PO would be setting up a modern fruit storage facility with lines for preparation for marketing. Additional freezers could also be set up, and one centre could have a line for berry washing and preparation for marketing. PO members would be storing their produce in a single centre, and the sales would be executed from this centre, where the produce would be brought.

h. Forms of collaboration and organization between small farms and consumers

Informal sales of agricultural products exist in the region on the basis of personal contacts, trust and communication. So far, the relationship between small-scale agricultural producers and individual consumers is not formalized, and the issues related to sales of agricultural products are often addressed individually. There is no strong need to cooperate for selling and transporting products to sales outlets, but there are cases where organic producers and sellers have come together and established an organizational structure: i.e., Tymas Food Market is an organized organic products market in the capital.

Good practice experience of formal international networks is applied in the development of the networks between agricultural production sellers and users in Vilnius region. Such movements became especially active since 2008: close cooperation in development and implementation of joint projects, communication, and learning from each other. For example, under the initiative of food lovers, farmers and chefs, the assignee of international organization Slow Food - Slow Food Vilnius convivium, association of growers, producers and eaters VivaSol (13 farmers and 400 eaters) uniting the informal union “Cheesemakers House” (4 families), Cheese Making School have been established, and visitors of the web page <http://www.surininkai.lt> have access to professional cheese producers (Annex 5, Figure 3). A network of small farmers is in the process of creation (the official name of this activity is “Distribution of Goats and Sheep by Combining Innovation and Tradition”), natural farming ideas are coming from internet and other sorts of communication.

i. Relationship between small and large farms, and between small and large businesses

Relations between small and larger farms and between small and large businesses are similar, but not equal. Large farms and businesses which hold greater power often impose their rules and seldom do they agree to compromise with SF and SFB.

The Ministry of Agriculture regulates relations between milk producers and collectors or processors. The legal regulation is used to make sure that price ratios are established under the principles of fair treatment. The Ministry acts as an intermediary in negotiations between



the processors and farmers; however, relations between processors and farmers are still not based on trust and fairness, and gate prices may differ by more than 5 %.

“...The situation of small milk farms is made worse by the mistreatment by raw milk collectors towards them, as the collectors resell the milk to the processors, and the greater share of farmers’ revenues settle in the collectors’ pockets...”⁴¹.

“...Family farms are burdened by expensive power, expensive equipment, pressure by trade chains to reduce the prices. There is an unfair reallocation of consumer’s money, as the consumers are paying high prices, while only a small share of those reach the farmers...”.

Farms, which cooperate with larger farms, or business enterprises have the possibility to generate additional revenues, which are always a benefit for a farm. *“...I am often contacted by tourist companies that inquire my willingness to welcome their guests from Nordic countries...”.*

j. Other governance issues

One of the places to sell SF and SFB produce in the region is a market. In earlier days, market used to give people much more than just satisfy the goal of buying food products or other goods, as it performed other functions as well, for example, socialization, entertainment or tourism. It is obvious that, in light of the development of market economy and consumerist culture, and with the shopping malls turning into entertainment centres, consciously implementing the approach of “shopping as an entertainment”, certain functions of the market moved to the shopping malls, along with the major share of the consumers. According to the statistics, 32 % of buyers shop at the markets, while 84 % shop at the major shopping malls. Statistics of the region show that 2 new marketplaces have been opened, and the turnover of organic products at the markets has been increasing. Farmers trading at the markets often present their produce as organic, but only about 20 % of the vendors hold the respective certificates. Thus, there are fewer of those <...who search for the organic produce at the markets...> and those who <...purchase the organic produce at the markets...> in the region.

The only solution for the customer, who truly searches for organic and cheaper products at the markets which are still trying to balance between the legal and illegal trade, is usually to get to know the traders, and the success in trade for the latter is the deserved trust from the customer. This situation creates strong limitations in terms of the circle of customers of the markets and prevents the consumers who are not well familiar with the market world or simply have no time to invest into learning about the markets from purchasing organic food.

⁴¹ This has been supported by the data by the Ministry of Agriculture of the Republic of Lithuania, as, in 2017, milk processors paid the average of 356 EUR/tonne of natural milk to the large farms in Lithuania, and 337 EUR/tonne to the dealers who collected and resold the milk. Meanwhile, the average price paid to small farms, in particular, individual farmsteads, was only 256 EUR/tonne due to higher collection costs and lower milk composition and quality indicators. The processors pay the producers who supply over 40 t/months the EU’s average price, companies and intermediaries – 75 % of the EU’s average, small entities – 53 % of the EU’s average (September, 2016).



Small Farms and rural livelihoods

a. Importance of household labour in SFs

Finding the workers, for seasonal work at least, is one of the greatest challenges in the countryside. While farms have been undertaking direct sales and marketing themselves, there are older farmers who reside at greater distances from the region's centre and cannot do without the hired labour force, and it is not easy to find an appropriate employee, as *"...seldom is someone sent in by the labour exchange willing to work..."*.

Finding appropriate helpers and maintaining them throughout the season is a real issue. The farmers pay the minimum wage to unqualified employees. Those who are capable of operating the equipment are offered twice as much. As a bonus to the wage, there is also full maintenance and, if needed, accommodation. This, however, seems not to be enough for the locals. Residents of the region seem to have split into two groups: there are those who are disappointed in work and find it easier to live off social benefits, and there are those who are more ambitious, seek higher wages and leave the countryside to work abroad or in Vilnius.

An SF owner has shared her thoughts: *"...I am worrying that my husband might have a stroke each time we need to hire. He goes through immense pressure each time when works need to be done urgently and we need hired workers..."*. *"...I remember us, as kids, spending all days working. Now, it is simply impossible to attract the youth to weed gardens or work with cows, even though their families might be struggling and are short of earnings. There is simply no trend to work nowadays..."*.

Farmers and SFB owners have been anxiously considering the prospects of regional and Lithuanian agriculture: *"...the youth is reluctant to work in agriculture, the tradition of agricultural and labour education is in decline, there will be no one to work, and we are already short of milkers..."*.

For example, a farmer who was repeatedly deceived by workers has learnt to trust own efforts only: she works at the cheese facilities herself and transports the products to Kaunas and Vilnius two times a week herself.

The entire farmer's day at the milk farms follows a strict plan. *"...There are a lot of works waiting as soon as the weather has warmed. You need to feed the livestock, milk the cows, water the calves, then rush to the fields for ploughing and sowing. A farm owner works at the farms in the mornings and evenings and then he works in the fields from 10 a.m. to 6 p.m. ..."*. *"...I do not manage to do everything on time, and the crops on the fields suffer. I do not manage to fertilize, spray them on time. Cultivating the soil without any assistance is difficult. If not for the livestock, I would have more time ..."*. Clock change, shifting to the summer or winter time affects the yield of cows and farmers' efficiency. It takes almost two weeks for everything to get back to normal after the clock has been changed.

b. Farm and non-farm income in the SF's households

The farmers do not hesitate in claiming that the market economy must respect family farms for the mere reason of them capable of maintaining themselves, caring for the children and family, responsible farming. The farmers who participate in the entire food supply chain and



produce added value products do not complain about the revenues, but they are reluctant to speak too much about the revenues and profit.

In SF, 85% of total farm earnings were generated by agricultural activities, just half of the SF generated earnings from non-agricultural activities, comprising 28% of total farm income.

Ratio of household income generated by the farm, considering both agricultural and non-agricultural activities in total, are 73 %.

c. Shocks and coping mechanisms of SF households

Developments which have influenced the SF. Accession to the EU. The market was not protected against food imports and residents' shopping in Poland. As a result, there was overproduction of agricultural products, product prices were dropping, while the prices on seed, fertilizers, fuel were growing.

Introduction of the euro. Before introduction of the euro, the monetary unit value dropped, resulting in changes and growth of prices *"... everything has become considerably more expensive after the euro has been introduced..."*.

The EU support to farms and rural areas. Until the support was extended, there had been considerable shortage of money. We had to calculate a lot and very carefully. *"...The financial support has enabled us to purchase agricultural machinery, cow milking equipment, we have set up the cheese production facilities. This has facilitated our work considerably. The EU support is sufficient, and its absorption depends on how active the person is ..."*, *"...I lack finances..."*; *"...thanks to the support, the semi-commodity berry and fruit farm is now living its dream – I have set up a park ..."*.

Excess and shortage of precipitations. *"...Last year, I incurred losses – 50 % of the grain remained unthreshed. Winter cereals remained unsown, and I sowed summer cereals... I did not harvest the cereals, because I did not have a combine harvester ..."*.

SF make attempts to perform all the calculations thoroughly, invest all their earnings generated by other sources, e.g., hired work, into the farm. They purchase own machinery because there is a shortage of agro-services and they are very expensive. Because of the low earnings, the farmers were abroad to earn money. SF have started developing and diversifying the farm *"...they started growing strawberries so that they could earn more money from their sale to maintain the pigs and piglets ..."*.

Role of Small Food Businesses

a. Main insights and patterns

Compared to other regions in Lithuania, there are more SFB in Vilnius region. This indicates that the factors limiting development of SFB, in particular, insufficient inner market and consumer purchasing power, lack of qualified work force, manifest themselves more frequently and intensively in more distant regions. Meanwhile, in Vilnius region, which is not



a rural region⁴², large inner market and higher consumer purchasing power have developed in Vilnius city. This promotes development of SFB. Majority of SFB operate around Vilnius and provide food production and catering services. SFB process products of SFs, package and produce cereals, package imported spices and teas, and also produce teas, refreshing drinks, juices, bake bread and pie products using local raw materials.

The SFB production volumes are low, but, if they supply natural, fresh products to the markets, they do not directly face, nor do they directly compete with the major meat and other product manufacturers. *“...If we had been using meat substitutes, taste enhancers, noone would have been interested in us...”*. SFB products are more expensive, but the price meets the quality. The food products are usually premium *“...having seen the list of ingredients, people are starting to opt for the true, pure meat without any additives more often...”*.

At present, the full range of products produced by SFB could be found only at the enterprises, private shops, other trade places – marketplaces in Vilnius, Ukmergė. The region's SFB sell their products in the district of their respective enterprise and in the capital city. Certain SF and SFB products are sold through the specialized sections (e.g., “Linkėjimai iš kaimo” (Greetings from the Village), “Ekologiniai produktai” (Organic Products) at the major chain hypermarkets, as well as organic food corner shops.

Another trend that has been developing for the recent 3 years is establishment of small food (vegetable, berry, cereal) processing enterprises producing food powder at Business Incubators or Business-Science Valleys. For example, family enterprise “Urban Food” operates in Vilnius, but sells across Lithuania and abroad⁴³. SFB lack current and investment funds, for example, *“...If you have invested into marketing, then you have no prospects of profit. The national market is very small, the product is niche product, and foreign sales are still not high enough. For example, our sales at the agricultural and food industry fair AgroBalt have covered only the fair display fee we have paid ...”*.

b. Labour in SFB work

There are 3 to 20 workers on average per SFB. SFB as employers play an important role in the districts. SFB employ residents of the area of registration of the enterprise. One of the issues faced by SFB is shortage of qualified workers, but the most common advantage of SFB that has been referred to are team work, family harmony and listening to and hearing each other. SFB hire young students and persons of a retirement age, but these persons have to be paid more *“...It is prohibited to pay the minimum wage to the students and persons of a retirement age...”*.

⁴² Region types (according to the Eurostat classification): rural region – 50 % and more residents live in rural communities; intermediate region – 20 to 50 % of residents live in rural communities; urban region – 80 % and more residents live in urban communities.

⁴³ They offer quality and healthy food that enriches the diet with natural vitamins of vegetable origin and minerals. Products are suitable for everyone, but are particularly recommended to those who are always in rush, physically active, and busy. Products which can be referred to as super-food or food with functional components have been cultivated (species have been selected in view of respective properties) and developed according to researchers' recommendations. The enterprise closely cooperates with farmers, purchases local vegetables, berries, cereals and other raw materials from small farms, and offers more than 50 different products.



c. SFB income

The income from SFB plays an important role. The households generate about 67% of the total income of SFB. New SFBs continue investing the entire income fewer variable expenses for about 2 years, and wages to the workers are paid using saved funds. They usually pay lower wages to themselves compared to hired workers. Majority of SFB have received certain type of financial support.

d. Shocks and coping mechanisms of SFB households

Very complex and difficult start of business. A lot of various rules and regulations which must be met in working with foodstuffs. Fairly large fees, “...*It was very difficult to pay the VAT at the start of business, they impose a really big...*”. It is however also very difficult to find the specialists, consultants who would be capable of providing appropriate consultations and helping to develop the business.

Growth of input costs and shortage of labour resources. The factors related to growth of input costs and their shortage have negative effect on competitive advantage of SFB. SFB owners have noted the following key obstacles: growth of labour force prices – 80.7 %; growth of prices on power resources – 77.3 %; growth of prices on raw materials – 76.0 %; shortage of qualified workers – 72.0 %.

Low output volumes and difficulties in selling the products. At the very beginning, the enterprises are planning relatively small output and sales volumes, but, eventually, as they start applying the latest production technologies, this results in the premium quality products. Information on the produce spreads fairly fast. Nonetheless, it is difficult for a small enterprise that “produces manually” to produce the quantities which would enable them to find the position in chain supermarkets easily and confidently.

As a result of the shortage of workers, SFB have to develop by increasing efficiency – automation of production – rather than by increasing the number of workers. In light of the shortage of workers in the residential area of operation of SFBs, the entrepreneurs have turned to the persons with limited capability for work, those who have already abandoned or have not yet entered the labour market. To stimulate such persons’ willingness and capability to work, the entrepreneurs have undertaken the initiative to personally help each person in offering the job appropriate to that person. Nonetheless, it is still very important that “...*the state or municipal institutions offer incentives for such employers ...*”.

The Future

a. Main objectives and priorities of SF for the future

SF experts believe that the greatest power of family farms lies in their unity, and cooperation is the solution. It could contribute to survival and development of family farms.



SF future priorities could be classified into 7 groups:

- Successful survival every year: continued operations and gradual automation of production.
- Greater output, higher quality produce, shifting to organic farming.
- Farm diversification and bringing variety into the economic activity: growing unconventional animals – fallow deer, ornamental chickens and geese, more interesting, or even wild, animals, more rabbits; cultivating organic herbal remedies, cultivating blueberries only, because the soil is suitable, the berries are expensive, and there are possibilities to generate easier and more revenues having abandoned animal growing.
- Processing of the produce produced at the farm and selling it directly, purchasing the freezing and processing, transportation equipment and machinery.
- Living here and now: allocating time for oneself and nature, cultivating what the consumers need, ensuring wide range of the produce.
- Production of health friendly products: promotion of healthy nutrition, cultivation of oil carrying crops and oil pressing, production of healthy gluten-free, spelt, healthy gluten products.
- Foundation of a park to support healthy lifestyle and enrichment of the landscape.

b. Main objectives and priorities of SFB for the future

Future priorities of SFB could be classified into 4 groups:

- Farm diversification and bringing variety into the economic activity: less manual labour, but more advice and consultations to others, complete change of the business direction or launch of something new, e.g. provision of hospitality services. *“...If a large producer steps in, we would be incapable of competing and would start providing services – educational programmes, health tourism ...”.*
- Successful survival every year: maintaining similar output volumes and preserving what has already been created *“...is not difficult, but this requires that the head and hands work day by day...”, “...I would like to expand the range of products and bake more, but I have only one furnace, and it has to cool down, and after it does, I can create and bake again ...”.*
- Greater output, higher quality produce: maintaining high quality and preserving the traditions, developing the enterprise, purchasing new equipment. Developing trade and expanding the market by entering foreign markets, without forgetting about local consumers’ needs *“...it is very important that the consumers do not get disappointed ...”.* Obtaining national heritage certificates, selling at farmers’ markets.
- Improvement of production infrastructure and facilities, formation of the environment *“...I want the customers to come from the cities by bicycles, take a rest next to the*



homestead, water pond. This would attract more people ...". Automation of the production process, so that people could produce more and earn more.

c. Risk perception by SF

SF see more external risks than internal.

- One of the biggest sources of risk, which does not depend on the farm type, is **natural conditions and climate change**. Climate changes in the form of considerable temperature fluctuations, uneven distribution of precipitations and droughts affect the sowing, harvesting processes. *"...whirlwinds, hay are devastating the apples, the berries become soaked in the rain or dry out during the drought ..."*. The farmers lack locally adapted cereal, vegetable crops. The service land improvement facilities, cut the hay and clean drainage trenches by themselves, without any assistance from specialists and without using any special equipment.
- **Not all farmers follow environmental requirements and maintain their fields in proper condition**. More forward-looking farmers cut the hay in the adjacent unmaintained field to make sure that the weeds do not drop seeds on their fields, risking to infringe the owners' interests.
- **Stress and losses incurred** due to the losses caused by wild animals (for example, a fox killed the chickens, a deer herd trampled down the crops, wolves killed the sheep, mice and marten devastate the bee-hives in autumn and winter).
- Farmers have bank loans. Vegetable, fruit and berry farms are better at managing the **financial risk**. Grain, milk producers, who are less efficient in managing the financial risk, have more loans.
- **Political risk**. This type of risk is determined by growing social inequality, social dissatisfaction, increasing security risk. *"...The politics is favourable for a small farm on paper, but is unfavourable in practice, the system of payments is unfavourable and not flexible. Major farmers impose their conditions and influence decisions by the Ministry for own good ..."*.
- **Social risk**. Farmers are getting older, their health is deteriorating, work using the machinery and equipment, chemical substances require care, compliance with the occupational safety requirements. Then there are bee, livestock and plant diseases. For example, *"...If a neighbour does not apply treatment to bees, the bees are capable of passing certain diseases, and if the veterinary service identifies these diseases, the entire colonies must be destroyed ..."*.

d. Risk perception by SFB

SFB see more internal risks than external.

Social risk. The contracting food market, slowly changing consumption culture, consumers are not prioritizing health favourable local produce. SFB hold degustation, participate at



agricultural fairs, popularize the produce themselves, but local promotions have little effect <...people do not read, do not look deeper into what they are eating and drinking ...>. SFB point at the lack of assistance, positive, professional information about local products, farmers, countryside from the mass media, national institutions.

Factors of natural and social environment have effect, for example, if someone is spraying nearby fields with chemicals, this increases the risk to organic produce, leads to propagation of cucumber diseases, *“...birds clog the chimney, you have to interrupt the ongoing educational programme, and then cannot take money for the service...”*.

Economic risk. Fluctuating prices of agricultural products, power, raw materials, highly indefinite earnings.

Technological risk. Considerable knowledge and competences are required to understand the food technologies, market, and marketing principles. Microbiological tests are very expensive, but must be performed very frequently at the stage of introduction of a product to the market (at the start).

Food safety. The main risk lies in purchase of quality raw materials, process, occupational and food safety during work with foodstuffs.

To manage risks, SFB must cooperate very closely with the farmers who supply the raw materials, consult with them, plan the production, because the raw material largely determines the end-product quality.

e. Food system forecast in 5, 10 and 20 years

SF owners predict that work efficiency and the quantities of organic, health friendly products of exceptional quality will increase and will provide equal opportunities for all residents to purchase food products.

SF will participate more actively in the region's food system, cooperate more with each other and with SFB. SF will develop their farms by consulting with other farmers, the consultancy network for SFs will be developed.

The image of SF will be improving, farmers' families will be larger (3-5 children), family farm traditions will become deeper, farming will be passed on from generation to generation.

Zero waste production will be developed better and food wasting will be reduced.

SFB owners have noted that despite the reducing population in Lithuania, the population in the region has remained stable and has even been increasing in Vilnius. People *“...will always be eating, the range of products and sales will remain similar to the present. There will be fluctuations, but the situation will remain similar ...”*.



The society will clearly realize that quality wins over quantity, and will start acting with a view towards quality.

Food businesses and services will be developing and will be better integrated into other industries (for example, tourism, arts). More people will be buying food products at farmers' markets, the farmers market will be expanding.

Consumption will increase due to changes in consumer behaviour, as the consumers will be prioritizing small shops, purchases directly from farms, consumption via public catering services will grow, the produce of local farmers will be purchased by local restaurants, cafeterias, kindergartens, schools, and hospitals. Great future is ahead – diversified business (bread baking and education) is a guarantee as a source of livelihood, this is a fairly stable business.

The supply will expand, same as the season, more consumers will appear, and it will become financially easier. Certain crops (e.g., grass as a super-food, salads) can be grown in small quantities throughout the year, irrespective of the weather conditions. We will be producing customized food (for vegans, vegetarians), people will have more money to buy and eat more appropriate natural, organic food.

Farms and enterprises should be cooperating to develop a wider range of products. Logistics costs of product deliveries at the door are expected to decrease as a result of use of the old-new technologies (e.g., bicycles, plug-in vehicles) and formation of food consumer communities (pre-orders, larger orders).

An organization which would unite and organize the system of distribution of local food products should develop.

f. Other future related issues

Consumer online shopping habit will be creating increasingly bigger pressure on famous international brand stores which are currently occupying vast areas of the shopping malls. Population ageing is expected to have positive effect on the added value created by the agricultural and food, healthcare sectors, but negative effect on the wholesale and retail sectors.

Society ageing is particularly fast in rural areas and has negative effect on the local economy, resulting in reduction of the labour force resources and decrease of labour efficiency. In the long-term perspective, in light of growth of global population, the demand for certain products (e.g. milk) will be growing. The main driver of growth is the growing population and improving cost of living in developing countries. Nonetheless, small milk producers are integrated into the milk market very poorly. The sector will eventually face challenges related to considerable increase of the demand for milk products.



Viability of small, medium-sized and large farms is not the same across the region. State institutions should be more professional in planning the investment support funds, development of individual funds by farm size. One fund should be established for small and medium-sized farms, another – for large farms. It is important that these two groups of farms do not compete with each other. Another way is to differentiate the intensity of investment support in view of the farm size (the smaller the farm, the higher the intensity of support). The attention to families would be reflected in the support mechanism adapted to farms run by two-three generations, so that the farmers do not feel any urge to dissolve the farms to accommodate young farmers.



Annex: List of resources**1. List of key experts interviewed**

During the organization of the survey, specialists from the agricultural departments of Vilnius district municipalities were consulted. They even sometimes helped to arrange an interview. The survey was conducted on an individual basis, going to SF and SFB. 10 SF interviews were conducted. Five men and five women were interviewed, the average age of respondents was 58 years (women 55 years and men 61 years). Average farming experience 23 years. Also perform 5 SFB interviews. One male and 4 female respondents were interviewed, the average age of the respondent was 50 years, they business develop about 14 years.

In order to determine the role of SF and SFB in the food system, 14 experts (8 men and 6 women) who have a lot of knowledge, expertise and experience on the development of agriculture and rural development, and the organization of the markets for farmers, were interviewed. The experts represented the following institutions:

- The Lithuanian Farmers' Union;
- The Lithuanian Association of Agricultural Companies; Lithuanian Agriculture Advisory Service (2);
- Aleksandras Stulginskis University in Kaunas (2);
- Department of Agriculture and Education and Sport of the Administration of Ukmergė District Municipality (2);
- Asociation Tymas market;
- Lithuanian Dairy Goat Breeders Association;
- cooperative “Lietuviško ūkio kokybė” (Lithuanian Farm Quality) (2);
- Lithuanian Rural Tourism Farm Association;
- Family Farmers' Union.

3 focus groups were organized in which 5 to 7 respondents participated. A total of 19 respondents (11 males and 8 females) with an average age of 44 years were present. Respondents represented Young Farmers, Family Farmers and Farmers' Unions, the Cooperative PienaLT; the Association of Vegetable Growers, the Association of Cereal Growers, the Association of Forest Owners and organic farms.



m. SF and SFB interviews and focus groups information

Stakeholder typology	N° of participants						How were they contacted?
	Interviews			Focus Groups			
	Men	Women	Total	Men	Women	Total	
Farmers	5	5	10	2		2	By individual contact
Producers' cooperatives				2	2	4	By individual contact
Slaughtering facilities		1	1				By individual contact
Processors (small/large)	1	3	4	3	1	4	By individual contact
Wholesalers							
Retailers		1	1				By individual contact
Caterers		2	2				By individual contact
Other small food business	1		1				By individual contact
Exporters							
Importers							
Farm inputs suppliers							
Advisory services		2	2				By individual contact
Agricultural administration/Ministry of Agriculture	1		1	1		1	By individual contact and phone
Consumers' groups/organizations	3		3				
Local administrators and policy makers	2	2	4				
Political leaders and PMs							
Other programs/initiatives					2	2	By individual contact
Nutritionist					1	1	By individual contact
NGOs	1		1	3	2	5	By individual contact
Traditional and religious leaders (for Africa)							
Total	29			19			



4.17. RR17 Balaka District –Malawi– Food System Regional Report



WP3

Balaka (RR 17) –Malawi– Food System Regional Report

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Table of Contents: Food System Regional Report

1) Socio-economic and agricultural profile of the reference region.....	484
2) Key products and regional food balance sheet.....	485
3) Food system: Key nodes and flows and role of small farms and small food businesses.....	487
3.1. Key product 1: Maize	487
3.2. Key product 2: Groundnut	489
3.3. Key product 3: Cabbage.....	491
3.4. Key product 4: Goat meat	492
4) Typology of small farms in the reference region.....	494
5) Governance	495
6) Small Farms and rural livelihoods	499
7) Role of Small Food Businesses.....	500
8) The Future	501
9) Annex: List of resources	503



Socio-economic and agricultural profile of the reference region

Balaka District is located in the southern part of Malawi with the current population of 450,126 thousand people. Balaka has a land size of 211716 km² with 80 percent of the land allocated to agricultural production. Agricultural production plays a vital role in economic growth with a GDP of 720 USD/inhabitant and have an average farm land size of 0.8 hectares. Major agricultural products in the area are cereals (maize and sorghum), Cash crops (Tobacco and cotton), oil seed crop (ground nut) pulses (cow pea and pigeon pea), horticultural crops (leaf vegetables, cabbage, tomatoes and onion) and livestock (goat, cattle, pig and chicken). Agricultural production in the district has decline drastically as the area is affected by continuous climate change (dry spell and floods) and pest attack over the last 5 years. This has affected production of staple food (maize) that has calls for food support from Government and Non-governmental organizations. Despite the poor climate conditions, Small farmers still play an important role in production of Cereal crop (Maize) as they contribute to about 84 percent of the total food produced. Processing and export of cereal crop remains a challenge in the area as only 4 percent of the total produce is exported outside the district while only 40 percent of the total produce is processed by small food businesses. Major processing activities done by small food business on cereal crop (Maize) is processing into maize flour and packaging.

Table 1: Basic data for the region

Indicators	Data per Region - Nuts 3
Land size (km2)	2,193
Population (thousands of people)	450,126
Density (people/km2)	205.3
GDP (thousand USD/inhabitant)	720
Total labour force in AWU	247,569
Total number of holdings	131,037
Total Agricultural area (ha)	211,716
Total Utilized Agricultural Area (ha)	169,372
Agricultural Area in Mountain Area	28,288
% of UAA in the RR	77.2
Average Farm size	0.8 ha
Number of farms by UAA farm size: 0-5, 5-20,20-50, >50ha	111,992; 0; 0; 2
Average size of farms < 5ha of UAA	0.8
Area of main crops (ha) (list the relevant crops below)	53,543
Area of main crops (ha) in farms < 5ha of UAA (list the relevant crops below)	Maize, Pigeon pea, Cow pea, Groundnuts, Sorghum, Cotton and Tobacco
Livestock (LSU) per type (list the relevant types below)	Goats, Chickens, Cattle, Pigs and Sheep
Livestock (LSU) per type in farms < 5ha of UAA (list the relevant types below)	Goats, Cattle, Pigs and Chicken
Annual work units (AWU) by UAA farm size:0-5, 5-20, 20-50, >50ha	1,080; 0; 0; 2,304



Total family labour per farm size: 0-5, 5-20,20-50,>50ha

3; 5; 10; 15

Prolong dry spell coupled with floods have affected agricultural production in Balaka district. Decline in the rainfall patterns has affected production especially for small farmers who have a large production share. The reduction in production has also affected the availability of food in the area that has resulted in the government and non-governmental organisations providing food aid. This food aid is mostly on cereals and legumes to help the affected farmers. Apart from prolonged dry spell, pest attack in the field is another problem that is affecting agricultural production in Balaka. Some of the pest that have affected cereal crops are fall army worms and stalk borer. Insufficient help from the government has resulted in small farmers using traditional means to reduce the damage. Amongst so many traditional means, some activities that small farmers are doing to reduce the problem are spraying soap water, spraying fish water or adding soil to the affected plant. However, such indigenous pest control processes are short lived due to the growing resistant strain of the pests. In the long terms, the become ineffective towards improving agronomic point. It is because of such failed traditional pest combating means that is attributed to low production of agricultural crops in the area. It is also worth noting that lack of collective actions by the farmers, in their quest of combating the pest in their field, is among another factor affecting yield levels. One farmer reported that “even if one applies pesticide in her field but if the neighbouring field is not treated then the pests will still affect the treated field”.

Government of Malawi and other non-governmental organisations have provided support to ensure food is available in the area. Some of the interventions provided to small farms are provision of livestock through livestock pass on program and training on climate smart agriculture. On climate smart agriculture, some of the interventions that are promotion in the region are, increase in the use of inorganic fertilizer (compost manure), creating box ridges with the aim of retaining water to support the crops and the promotion of crop varieties that are prone to sustain dry spell. Such dry spell resistant crops have the capacity of reaching up to maturation period, hence, promoting not only production among the farmers but also food security. Despite all the interventions done in the region (Balaka), climate change still poses the risk of insufficient food

Key products and regional food balance sheet

a. Key products produced and consumed in the region

In the study area, Balaka district, the staples that were selected such as maize, groundnuts, cabbages and goat meat have been noted to be reflected during the key informant interviews that was conducted with the stakeholders, namely, the government officials that are responsible to manage all agricultural practices in the area and the producers themselves, in this case the farmers. The interviews posit that most of the farmers are growing maize and that it is the staple food which is largely grown in the district. One of the stakeholder had to say:



“The district major crop that is largely grown is the maize. Other than the maize, sorghum is second grown in the district. However, the per capita production rate is on the decreasing pattern due to the persistence levels of dry spell in the district” (Government Official).

However, the study found out that most of the small farms are in maize production, it was also noted that other crops such as millet, tubers and roots are dominant crops that are also cultivated by most small farms in the district. This is what another small holder farmer had to say:

“You see in this district, it’s not only maize that we are produced. Like in my case, I prefer growing millet and pigeon peas which can survive the changing environmental variability. For instance, I have bags of pigeon peas in my storage which I will sell when the season is off. Unlike my cousin who cultivated maize. At present, he has nothing left as his maize that was promising got burnt with dry spelt weather.” (farmers-Balaka KII).

Considering this development, it was noted that in Malawi, Balaka in particular farmer’s propensity to grow a wide array of crops which maize is the principal crop. However, it is also noted that a proportion of some farmers are more willing to continue farming as a traditional way of survival. However, most of their effort is affected due to unexpected weather patterns.

b. Balance of production and consumption of key products in the region

Production and consumption in Balaka district is not balanced but skewed toward an increase in demand for the food products. With an increase in population, demand for food products is more than the production. Maize being a staple food in Balaka, prolong dry spell, pest and disease attack and weather changes has affected production resulting in Government and non-Governmental organisations providing food aid and also creating an opportunity for small business to import maize from neighbouring districts. One farmer indicated that “the maize that is produced in Balaka contributes to about 60 percent of the Maize that is consumed” meaning to say the other 40 percent of the maize that is consumed is produced from other districts and sold in Balaka.

c. Official statistics and key products in the region

However, it was also noted that the proportion yields that was reported by the expert at the district office was not parallel with what the small farmers presented. For instance, aggregately, the study found that the farmers are harvesting less per farm which is reflected in low annual production yield of approximated for about 1.3 ton/ha per year.



Food system: Key nodes and flows and role of small farms and small food businesses

3.1. Key product 1: Maize

- a. Nodes in the regional food system: production, processing, commercialization and retail

In this study, it was found that key nodes that Small farms (SF) and Small Food Business (SFB) that were identified were large farms, small farms, on farm processors, local cooperatives, local retailers, local intermediaries such as vendors, exporters from within Balaka district and vendors from the other neighbouring districts. On the consumption aspect, the major nodes were farmers' self-consumptions, proximity consumers, general consumers within the districts and hawkers/local restaurants. The above presented a significant role played by nodes in supporting both small farms and small food businesses within Balaka district.

- b. Flows connecting the different nodes in the regional food system

In terms of non-market sales. The study found that amount of products that were produced had little yields per hectare yearly. For instance, the yield of maize constituted about 0.2 tonnes/ha per year, ground nuts was 0.15 tonnes/ha per year, vegetables (cabbage) stood at 0.75 tonnes/ha per year whereas fruits stood at 0.19 tonnes per year and goat meat was at 0.15 tonnes per year. This represented proportions of 18% for total non-small farms produced for maize, 37.5% for groundnuts, 147% for cabbage, 26.7% for fruits and 3.75 % for animal products such as goat meat in this case. Maize exchange flow is particularly vulnerable to external shocks.

- c. Role of small farms and small food businesses within the food system

Maize is the major staple cereal crop for producers and consumers in Balaka. On production side, an average of about 1.3 tonnes/ha is produced by the small farms in the district. This low production is attributed to prolonged dry spells which in the long term affect quality and quantity of the harvest. However, some small farms still continue growing the crop despite calls from the ministry of agriculture upon the farmers to implement mixed cropping with legumes requiring less volume of water. As such, most of the maize that is meant to balance up the production is imported from other districts and sold to farmers for consumption. Farmers indicated that maize imported from neighbouring district is slightly less expensive than maize produced and sold within the area.

The current study found that majority of the small farmer used the maize mill to process their maize and groundnuts into flour which is later used for either consumption or sales. For instance, it was noted that small, food businesses that women were doing in processing maize grain into flour were creating two products, namely, refined flour and un-refined flour. These two different products of maize flour gave the small farmers competitive advantage



at the market as they were able to offer competitive pricing. Illustratively, upon maize harvesting, small food business women vendors could buy a 50 kg bag of maize at approximately 7,000 Malawi Kwacha (10 USD). The bag is later processed into either refined or raw- flour products and sold to their customers at a higher price. Although it is practiced in small scale and few selected women vendors, the sales turnover of at least 15,000 Malawi Kwacha (20 USD) per 50 bag is realised. However, this business disadvantageous to a small farmer who sale the a 50kg bag of maize to women vendors at 10 USD, yet after processing, the women are realising a 100% profit. This implies that small farmers who are vulnerable continuous to be marginalised by the vendors who buy and sell at the highest prices. This is what one small food business vendor lady had to say:

“...This is very profitable business. For instance, you go to the farmers and buy the maize at 7000 Malawi Kwacha. But, after sells, I always get net income of more than 15,000 kwacha”... (Small Food Business farmer).

Considering the margins, it was noted that small foods business vendors were earning more from the business relative to their counterparts (small farmers) who were selling maize acquired from their farms without further refinement processes. Likewise, it is sufficing to say that there were a number of SFB that the communities were implementing in Balaka district. About 95% of these SFB are predominantly owned by small-scale business entrepreneurs with only 5% owned by the small farmers.

However, there is little difference in terms of profit making among the small farmers who are growing and sell directly to the consumers after adding a little value to their produce relative to their counterparts who reported that they were selling their produce raw on the farm. For instance, as earlier reiterated, Maize flour which was processed in either refined or raw form was able to give profits to both small farmers who had taken a step further in value addition of the maize and sell to food business vendors (non-farmers) who depend on this business for a living.

d. Importance of household self-provisioning in small farms and small food businesses

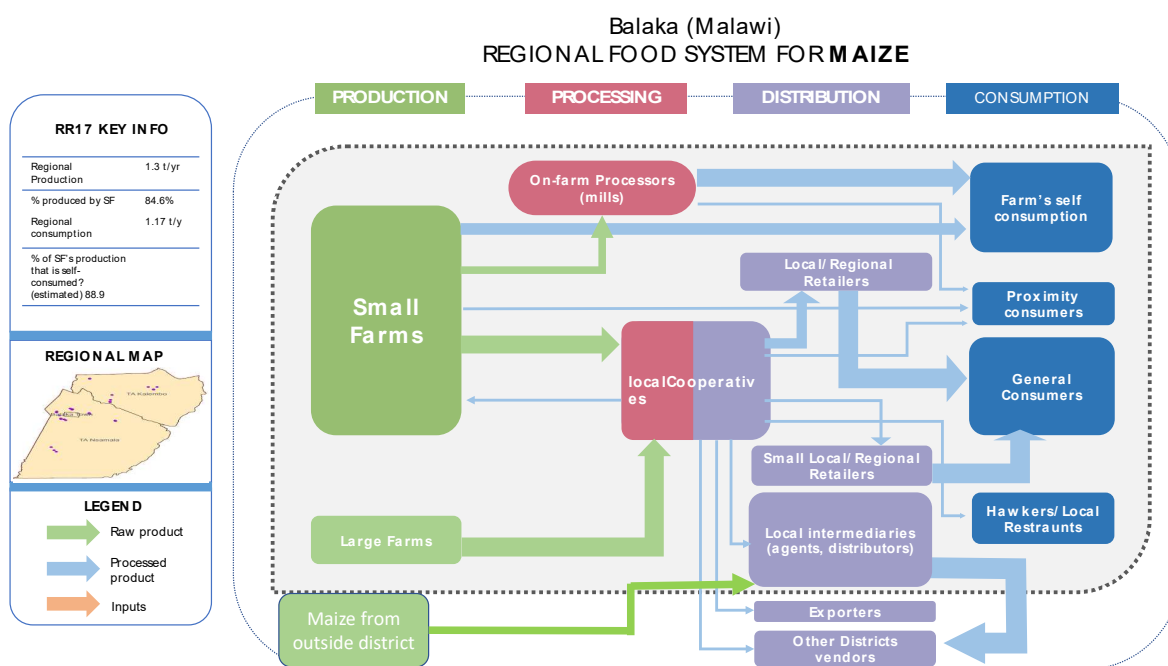
It is important to note that despite low production, the low tonnage of maize that is produced in the district is either sold as raw grain on the market to vendors or processed into flours and related flour products (local beer) for both consumption and sale. Highest percentage of the maize produced by small farms is sold directly to consumers with some partial processing (cleaning and grading). Second biggest market for the small farmers is local cooperatives that process the maize in flour and sell both inside and outside the district. Distribution is mostly through retail and wholesale with little export. Export takes a small percentage because of mostly government restrictions. As for consumption, Maize is consumed in form of pap after processing maize into maize flour. Apart from own production and outside production, food aid also sustains the communities that have been affected by climate risks. In terms of the small farms consumption, there was an increased level of surplus among the small farms in Balaka despite the decline in production of the cereals per year due to barriers



such as climatic factors. For instance, it was observed that, there was about 11.1% surplus on total consumption among the small farms on cereals.

e. Other relevant information

The government of Malawi through the Ministry of Agriculture and Food Security introduced a tractorisation programme with an aim of mechanising agriculture in the region and across Malawi. The expectation was that production of maize and other crops would increase. In this program farmers are supposed to be hiring the tractors at a fee of MK22, 000.00 (US\$30.00) per hectare. However, smallholder farmers are failing to access that tractors because they fail to pay for the rental charges which they said was too high.



3.2. Key product 2: Groundnut

a. Nodes in the regional food system: production, processing, commercialization and retail

In this study, it was found that key nodes that Small farms (SF) and Small Food Business (SFB) that were identified were large farms, small farms, on farm processors, local cooperatives, local retailers, local intermediaries such as vendors, exporters from within Balaka district, vendors from the other neighbouring districts. On the consumption aspect, the major nodes were farmers' self-consumptions, proximity consumers, general consumers within the districts and hawkers/local restaurants. The above presented a significant role played by nodes in supporting both small farms and small food businesses within Balaka district.



b. Flows connecting the different nodes in the regional food system

Groundnuts are the major oil seed crop in Balaka and like maize, ground nuts are mostly produced by small farms. An average of 0.55 ton/ha of the ground nuts are produced by small farms. One of the major reasons why there is low production is limited land size. This limited land size result in farmers intercropping groundnut with mostly maize. Groundnut is also promoted by the Government as a diversified food crop that does not require alot of farm inputs (especially fertilizer). But also groundnut is also considered as cash crop as small farmers are able to sell some to acquire income for day to day household activities. On farm processing that is done by small farms is milling the ground nut into flour or making peanut butter locally known as **chiponde** while processing into oil is usually done by big processing companies like sun seed oil company. Due to small quantities produced by small farms, distribution of ground nuts is from farm to consumer with a small percentage to institutions or processing companies. World health regulations on aflatoxins have reduced the export percentage of groundnut to outside regions.

c. Role of small farms and small food businesses within the food system

Low production of ground nuts in the district has created an opportunity of retailers to import the product from outside the district of Balaka, in a guest of managing this shock. This development cause most small farmer to acquire the products such as ground nuts for consumption from the retailers, a factor which erode the farmers farming capital base as they try to cover their households from such production shocks.

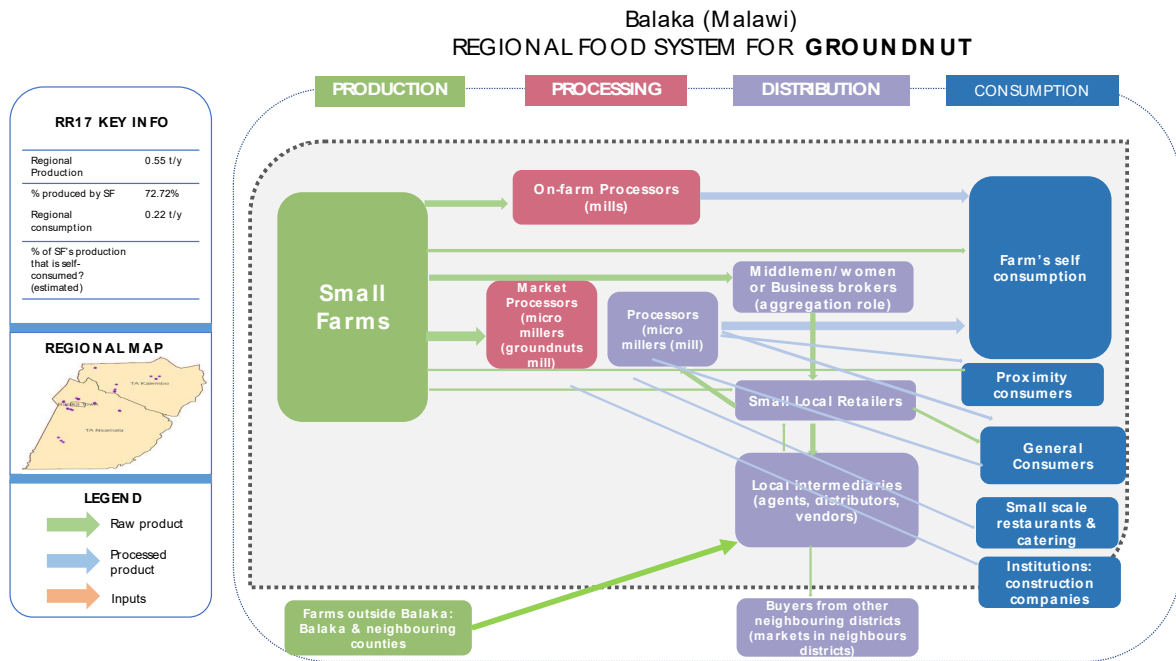
d. Importance of household self-provisioning in small farms and small food businesses

In terms of the oil plants, the current study found that when groundnuts after harvest, were milled into groundnuts flour by majority of the small food businesses and used it to spice up vegetables. Such businesses gave a considerable turn over to the food businesses.

e. Other relevant information

It was observed that groundnut production is mostly grown by female small farmers due to low cost production. Most of the female farmers indicated that as most male farmers concentrate of cash crop (tobacco) they (female farmers) promote groundnut production so to have cash after harvest. Most female farmers also indicated that groundnut production is easy and cost effective as it groundnuts does not require fertilizer and they can intercrop with maize and reduce labor.





3.3. Key product 3: Cabbage

- a. Nodes in the regional food system: production, processing, commercialization and retail

Apart from production of cereal and cash crops, vegetable production is also practised by small farms in Balaka. Amongst many vegetables grown, Cabbage is the major vegetable in the district followed by leafy vegetables both indigenous and improved varieties. As much as these vegetables are produced for food most of female farmers produce for sale. Cabbage being the major vegetable, is used for so many purposes. Cabbage is mostly grown in wet land areas with an average of 0.75 ton/ha per year.

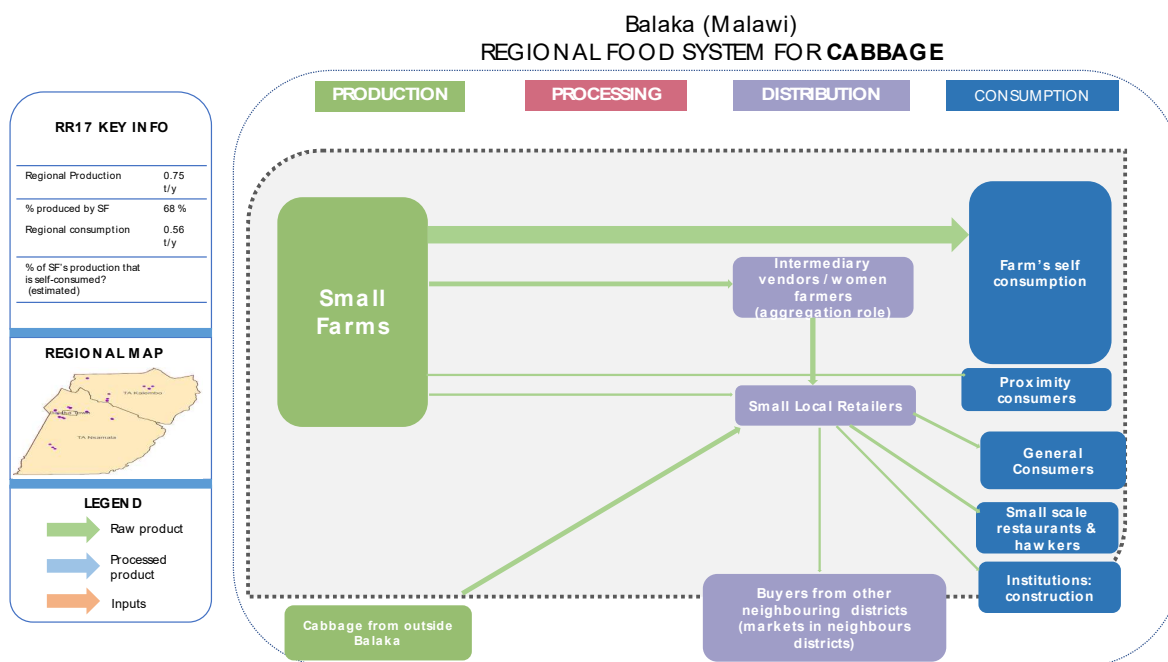
- b. Role of small farms and small food businesses within the food system

On-farm processing is partial as most farmers wash the cabbage and sell to final consumers. Some of the small farms supply to restaurants, or hotels. The reason why figure 3 have no processing for cabbage is that most of these small farms do very little processing to cabbage before selling to either final consumer, or distributor.

- c. Importance of household self-provisioning in small farms and small food businesses

Small farmers indicated that, the uses of cabbage are mainly for consumption, used as feed to livestock and also very few farmers have reported to make wine from cabbage.





3.4. Key product 4: Goat meat

- a. Nodes in the regional food system: production, processing, commercialization and retail

As for livestock production most of the small farms in Balaka keep goats as source of Meat (protein) but at the same time a source of income. Per year, about 455 tonnes of goats' meat is produced with an average of 0.15 tonnes per farmer among those that are practising goat farming in the district. The benefits of small farms keeping goats is they are resistance to most diseases (foot and mouth diseases) at the same time provides higher turnover as cost of production is lower than the profits. Most small farms indicated that about 90 of the goat that they keep is sold to cover for household expenses like for school fees, purchasing farm inputs and for security while only 10 percent is consumed at household level. One young small farmer who keeps goat in his farm said that;

"keeping goats helps him when he gets in to trouble with the law (e.g. impregnate a lady) or when he wants to settle a debt" (voice of a young small farmer).

- b. Flows connecting the different nodes in the regional food system

One of the major by-product of goat production is the use of goat manure for other crops. Goat manure is mixed with other crop residuals to form compost manure. Since small farms keep few goats (an average of 4 goats per farmer) the manure from these goat is not enough to cover their plots (average of 2 acres). As a result, the compost manure is applied on the planting station for the maximum use of the crop. On marketing part, distribution of the meat in the district is mostly through retail where most butchery sale cooked and uncooked



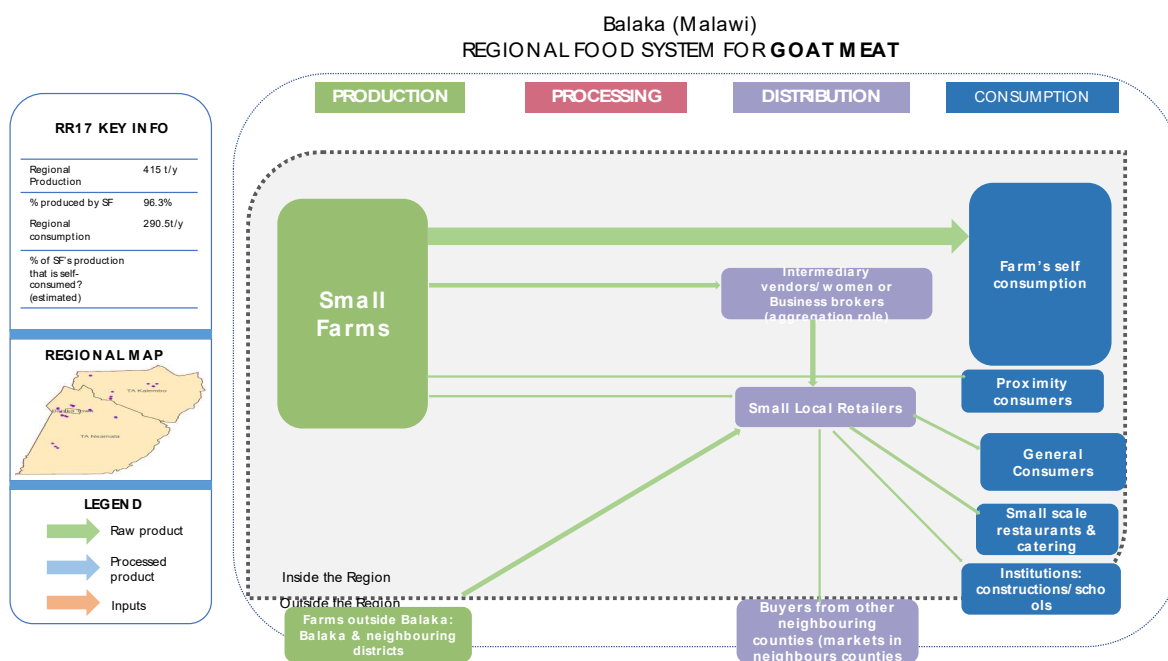
meat. To ensure health and quality of meat, Government and religious leaders inspect animals before they are on the market. This is to ensure food that is sold at the market is not harmful to the population.

c. Role of small farms and small food businesses within the food system

Furthermore, goats were found to be predominantly reared by majority of the farmers in Balaka. The study noted that majority of small farmers, sale their goats to fast food businesses. However, it was noted that the value addition process such as cooking and serve the processed meat in their restaurants served them better. This is despite of low existence of small food business vendors in the district.

d. Importance of household self-provisioning in SF and SFB

The importance of goat rearing to the small farms is mainly for sale inorder to acquire money for household expense. Despite low in own consumption, small farms indicated that the goats help them to solve most monetary household problems after they sell the goat.



Typology of small farms in the reference region

a. Small farm types in the region

In terms of explaining the typology in Balaka, the originally proposed 4 types, namely, maize, ground nuts, cabbage, and animal product such as goat meat, were the best useful small farms products that helps to describe the small farms in the region. This is the case because majority of the typologies proposed were the same ones that were emphatically pointed out by the farmers in the district.

It is important to note that the best criteria that can be suggested in developing the best typology is to understand the small farms product mix and what is the emergent demand required by the consumers and vendors of their produce. In this way, the best fit typology could be generated which could provide a significant gain to the small farms which could result in beneficial turn-over in the long term that could sustain small farm operations and productivity in the long term.

b. Role of small farm types in the regional food and nutrition security

In Balaka districts, the small farms business that exist are characterised by the following:

- i. Small farming area with an average 0.8 of a hectare.
- ii. Having a small number of family members available to support the farming activities
- iii. Most of them still dominated by women as farming implementers with men acting as market integration agents.
- iv. Relatively affected by changing weather patterns which result discontinued food and nutritional sustenance annually.
- v. Having low power to contribute to the national food basket due to inability to consume continued food and nutritional safety yearly because of uncertain weather condition.
- vi. Having men who act as order agent while women taking the role of sellers of the fetched product.
- vii. Having men act as product market seekers while women taking production side, which in this case, created an outlier scenario.



Governance

a. Main interactions of SF and SFB with governance structures in the region

The small farms in the region reported about effects of various governance structures. To begin with, the farm Input Subsidies (FISP). The government is currently implementing FISP across the country including in Balaka. In this program, farmers receive coupons that enable them to purchase subsidised improved varieties of cereal and legumes seeds as well as chemical fertilizer. The farmers said that the program is good but it is limited to a few lucky beneficiaries. The communities end up sharing the subsidised inputs. For example, subsidised fertilizer allocated to one household is shared among five households. As such, the program is not producing tangible results. The small farmers in the suggested that international donors should support the Malawi government with finances so that the Farm Input Subsidy Program becomes universal. The farmers are of the view that a universal farm input subsidy program would enable all farmers to produce adequate food.

In addition, the small farmers observed that export bans on food commodities has both positive and negative effects. On the positive effects, the farmers said, a government policy that restricts or prevent exports of a food product especially maize helps to lower food process in Balaka especially when production is below annual food requirements in Balaka. Considering that their Balaka is prone to drought and floods, such policies are good. However, the small farmers explained that such export restrictions are also applied in times of good harvest whereby the food production is higher that required food quantities for annual consumption. In such cases, output prices are too low to encourage commercial producers. This is usually followed by low production because those who produce in large quantities for sale do not have enough motivation to do so.

Furthermore, the small farms reported that they have limited access to agricultural loans. For example, livestock farmers suggested that they could be provided with improved breeds of goats and cattle or pigs for them to raise with the guidance of extension workers. They expressed optimism that such loans could be easy to pay back because livestock farmers is less vulnerable to drought and floods than crop production and there are many buyers of livestock from urban areas.

b. Levels of governance and their relative importance for SFs and SFBs

Balaka is one of the districts in Malawi with diversity of cultural and religious values as well as public administrative mechanisms. The public service is a means through which the government deliver agricultural services in Balaka. FISP is implemented through the District Agricultural Office in Balaka. Originally, the program was targeting vulnerable smallholder farmers. Of late, the small farmers observed that vulnerable or ultra-poor farmers are being left out and better off farmers are being included as beneficiaries of FISP. This is said to contribute to an increase in poverty and food insecurity in Balaka.



There are also private and public structures that affect the Small Farms and Small Farm Businesses. Due to lack of proper market of agricultural products, most agricultural output is purchased by vendors who sell to consumers in urban centres or other good markets known to themselves. The liberalisation of trade has reduced the role of the state marketing board called Agricultural Development and Marketing Cooperation (ADMARC). This marketing board used to buy output from farmers across Balaka and all parts of Malawi. The small farmers would like to start seeing benefits of a liberalised marketing system through completion of buyers that raises output prices.

The Small Farm Businesses noted that the food markets do not have adequate demand for their products possibly because of high transportation costs that when factored into the selling price, make food products expensive to the consumers. They reported that the transportation costs could be reduced by purchasing food products in bulk. Another governance issue raised by SFB was about licences. One of the maize traders at Balaka main market said that a trader is required by law to have a licence from the Ministry of Agriculture and food Security of operate as a trader in agricultural output in Balaka. He alleged that it takes time for one to finalise the licencing process. This affect their business especially when the previous license expires.

At national level, there is also National Agriculture Policy (NAP). One of the key issues is on commercialisation of agriculture in Malawi. Through this NAP the government has recruited Farm Business Management Officers who encourage farmers to establish cooperatives and associations for purposes of collective marketing. However, the leadership of some cooperatives fail to find markets for the products and this frustrates the producers.

In terms of the governance structure, there are both formal and informal institutions that are in operational to support SF and SBF in the district. However, their operational framework is highly challenged. In cases of the formal governance structure, the government instituted extension structures within an agriculture extension Area (EPA) with the aim of supporting agricultural activities within the district. However, due to low number of the extension workers, most of the farmers do use other informal traditional governance structure. For instance, due to strict rules that the formal sector provides to the farmers, most of them do by-pass and do not involve the district office whenever they are doing their businesses, such as selling goats and other livestock's. In terms of the informal governance structure, the village head committee, village farmer groups are responsible for coordinating selected farm businesses and activities. Such structure, although not well instituted have an impetus of partial coordination of SF and SFB activities within Balaka district.

c. Constraints impairing full participation in the food system

Governance put small farms at a disadvantage in several ways. The farmers observed that there was no legal restriction to participation in food crop or livestock production, but the constraints are mainly technical, climatic and economic. To begin with, many SFBs are small and sole proprietorships. Traditionally, formation of co-operations among small SFBs in



Balaka are rare due to grid, jealousy and perceived succession challenges. Lack of cooperation limit accumulation of financial and technical capital that is key to business growth.

There are other markets that are harder to penetrate. Supermarkets in the urban centres do not purchase food products from local farmers but prefer to import from other countries. For example, tomatoes are ordered from South Africa while many farmers in Balaka produce the same product. This can partly be explained by the small size of capital and operation of the local farmers. The supermarkets are said to have been frustrated to inconsistencies in supply of food products as well as low quality from Small Farms. In the first place, small farms do not have resources to invest in irrigation. There needed to be a deliberate initiative by the government aimed at promoting irrigation so that SFs could be producing horticultural products throughout the year and supply to the supermarkets. The quality could be improved through enhancement of extension and increasing access to improved seed and other inputs. The Small Food Businesses fail to secure lucrative markets due to low volumes of food products that they trade in. the low volumes are a result of lack of adequate capital. Microfinance institutions demand a lot in form of collateral before offering a loan. This limits access to loans that would help their businesses to increase in size.

Scale of firms also affect livestock farmers to engage into good markets. For example, individual dairy farmers can hardly find contracts with milk processing companies due to low volumes that make milk collection to be costly. When small farms operate as individual entities, none of them would procure modern storage facilities for perishable food products like milk. Organising farmers into cooperatives may be a solution to this problem. In a cooperative, refrigerated storage facilities for milk could be installed and milk bulking groups may be formed where milk could be aggregated into large volumes that dairy companies from urban centres can easily collect from the farmers.

d. External policies, decisions and social norms affecting food systems

Food system in Balaka are partly affected by social norms especially religion. For example, piggery is a profitable livestock enterprise, but it is constrained by religious beliefs. Balaka is one of the districts in Malawi that has a large population of Muslims and the Islamic religion does not accept by production and consumption of pigs. This means that many potential small farms do not produce pings and for the few SFs who engage in piggery, they face marketing challenges and mainly rely on buyers from distant areas like Blantyre. Religious values in Balaka.

Urbanisations also poses a challenge on food production and consumption. Balaka was declared as a township and it has been steadily expanding. As it expands, some areas that were used foe food production have been used for settlement. This has in turn reduced land for food production. In terms of food consumption by the small farms, urbanisation has reduced consumption of some food products because farmers opt for food sales at the expense of consumption. There is need for extension officers and other stakeholders to sensitise communities on the importance of keeping adequate food before determining marketable surplus.



Recently, the government has intensified conservation agriculture including organic farming where by inorganic fertilizers are discouraged. Much as this is a good initiative, conservation is labour intensive and output level are lower in the short run. Farmers in the Balaka, face labour shortages during peak periods of the food production process and they need high output to overcome food shortages. As a result, such policies leave small farms in a dilemma of whether to concentrate on conservation agriculture or high output. This trade-off is counterproductive to performance of food systems in Balaka.

Finally, communities are encouraged to participate in various development projects including construction of roads, school blocks, bridges and many more. Participation in such projects takes away vital labour that could be used in food production. Perhaps it would be reasonable for government development officers to schedule development project during off peak periods in food production because during that period farmers tend to have excess labour.

e. Gender issues intersecting governance issues

In terms of gender, the study found that majority of the women at the household level are participating in agricultural such as farming, and dominating compared to their male counterparts. For instance, in terms of the small food business, almost 99 percent of the women are in flour selling businesses and were responsible for processing of maize into different product items. Similarly, on groundnuts processing women took the central role in the process. This implies that women given more opportunities and competencies have the propensity of converting doing more innovative food businesses products which will increase levels of uptake of the either cereals or oil plants products. This in the long terms will have an impetus of increasing not only uptake of the foods to serve nutritive gains but also promote women in extensive production thus improved security position in the long term. However, have reaped more if men were doing better. This is what one woman indicated:

“... farming could have been yielded more if my husband take the leading role on the farm. For instance, in terms of attending to the farming activities in the field, I am the one who is responsible. My husband only fetches markets for me. Most of the times, I just see him bring vendors to buy the produces at a price which I don't even negotiate. This cause me to have low negotiation power...”
(women Small farmer 3, Balaka)

Such practices result in most women being discouraging to put more effort in agricultural practices thereby create diseconomies of scale in as far as farming participation in the subsequent farming is concerned. This in the long term have a decreasing effect on nutritive and food stability condition at household level in terms of both food availability and conduct of food related enterprises from their farm produce.

Further, there are some laws that burden specifically women. In the patrilineal system for example, where a woman lives at the husband's place, there comes a time when a woman is told to go back to her parent's place when the husband dies. In this respect, a challenge exists



in terms of accessing the land for farming which can enable her to be self-reliant in food production or financially. As part of the solution, one senior group chief said that it's possible to deal away with such traditions because it creates a lot on injustice on the part of the woman. As part of the solution the chief retorted that in as far as he lives, he makes sure that nobody delineates the widows and as such they should live freely in the husband's village. However, the chief hinted that this being a personal initiative on his part, some chiefs are bound to refuse to adopt the same. At a country level though, such laws are difficult to change due to different traditions as per different cultural groups in Malawi.

Small Farms and rural livelihoods

a. Importance of household labour in SFs

In Balaka, small farms experience both excess labour and shortage of labour in the course of carrying out various husbandry practices related to crop production as well as livestock production. Small farms use a combination of household labour and hired labour. However, hired labour is usually very minimal and it is only used during peak periods of crop production. Furthermore, a lot of small farms do not afford to pay for the hired labour due to financial constraints. As such, the main source of labour is household labour.

Small Farm Businesses are mainly sole proprietorships with limited financial capital. This makes it difficult for the SFBs in Balaka to employ people. Only very few of them hire one or two labours and if it happens it is temporary basis or piece work. One of the respondents reported that as a family the share responsibilities in their SFB in such a way that the husband normally goes for orders in other regions while the wife is mainly responsible for sales in Balaka market. This shows that household labour is very important for operation of SFBs in this region.

b. Farm and non-farm income in the SF's households

Like any other members of the community, SFs and SFBs need income for their daily livelihoods and to support farm enterprises. Part of the income comes from sales of crops and livestock while the other part comes from other sources not related to farming. However, non-farm income forms a very small part of household income contributing less than ten percent (10%). For example, some respondents reported that, their children are working in town and the children send financial assistance to their parents. The mains source of income sales of farm products especially vegetables and livestock. Cereals are rarely sold because production level are usually low and sometimes not enough to meet annual food requirement of the household.

Currently, the Malawi government is implementing safety net programs mainly under Malawi Social Action Fund (MASAF) which is currently in the fourth phase. One of the interventions is Public Works Programs (PWP). In PWP, community members are offered an opportunity to work in development projects for two weeks for cash. In most cases the



government plans in such a way that the payments are made when farmers are purchasing farm inputs in order to help them access fertilizer and improved seed.

c. Shocks and coping mechanisms of SF households

Balaka is one of the region in Malawi that is frequently hit by shocks arising from climate change. These shocks negatively affect production in Small Farms and operation of Small Farm Businesses. The main shock is prolonged dry spells and drought. In Balaka agriculture is mainly rain fed. When rainfall is normal, harvest is bumper. With drought, there are severe food shortages.

One of the coping mechanisms is irrigation. Where irrigation is practiced, it is at very small scale that takes the form of use of watering canes, treadle pumps and rarely small motorised pumps. The Malawi government has an irrigation plan called Green Belt Initiative that may benefit small farms in the region because one of the big rivers passes through the region. However, the political will is not that hire for small farms to start benefiting from this initiative.

In years of heavy rains, the region also experiences floods. Floods occur for a short period of time but they have severe effects as many crops and livestock are washed away. To counter the effects of floods, farmers are usually encouraged to replant their crops especially those that mature early. However, such mechanisms do not provide adequate relief because of limited irrigation systems.

Role of Small Food Businesses

a. Main insights and patterns

Most businesses in Balaka are dominated by small enterprises compared to large scale enterprises. Most of these businesses are managed by men with women and youths only managing 40% of the businesses. Yet, women are taking over 70% of the small farming activities on the other hand. In terms of the business, there are very fewer idems in as far as small farms is concerned in terms of productivity. This is because majority of the women indicated that much as they have potential to produce more crops, they are limited in terms of the weather variability in the choices of the businesses that they could create from the farming produce due to low span of produce to unsupportive weather variations.

For instance, if people have adequate water in the upland, areas, it was noted that people were willing to try as many crops as possible such as leaf vegetables or all kinds which could fetch more on the market depending on their demand. Yet, in the current scenario, their production level and volume is relatively very low. This limitation is not only affecting their production potential but also affect their willingness to use small farms extensively to their maximum potential.



b. Labour in SFB work

Most of these small farm business are family businesses with little creation of employment. Due to limitation of capital and high transportation cost to get raw materials, employing more laborers is costly hence they prefer to have their own family labor. Most of these small farm business in Balaka operate using own income or income borrowed from friends or income saved from other jobs. It was observed that these small farm businesses don't get support from credit institutions or contracts because of small scale business and fear of defaulting. This reduces the potential of the small businesses to grow.

c. Shocks and coping mechanisms of SFB households

The biggest shock with the small food businesses is the variation of production due to climate change, pest and disease attack. Since most of these food businesses don't produce the food they sell, they rely on small farm's production. If the small farms did not produce well that season, then there will be low supply of the food item at the market. This in turn is translated to high prices of the food item to the consumer. As a coping strategy some small businesses also produce the food items but also import the food items from other districts.

The Future

a. Main objectives and priorities of SF for the future

In Balaka, farming is the major practiced activities among most households. About 87.6% of the population use farming to support their socio-economic welfare at the household's level. It is important to note that SFs constitute most of farming community in the District of Balaka. In general, the main objectives for most SFs is to either produce enough food for the household or sell the surplus of their harvest for income that would be important to support household needs. As such, farmers do involve in implementing diversity in their SF to meet different prospects. For instance, while majority of SFs intends to continue food business and farming, only few have the prospect to stop.

The factors explaining this difference is because of either low annual turnover which is associated with high cost of production or high cost price which results into low profit or loss. For instance, those SFs that are beneficiaries of FISP are motivated to produce more relative to their counterpart non-beneficiaries with no incentives to produce due to constrained input costs. At the same time, those who intends to remain into the SFs cited that it's the only source of food and income for the household hence have no any other alternative to support their households. Majority of SFs in Balaka prioritize to use the income realized from the sells to pay school fees to their children, buy land and build houses as household's assets. In terms of the nutritive gains, most small farms do have better nutritive gains during the harvest period as majority of the farmers have little food from their farms. However, this is short lived due to low yield per capita. This development causes a lot of farmer's experience challenges due to sustainable food availability and consumption which become more prevalent among the women and children.



b. Risk perception by SF

Risk refers to a probability of an adverse outcome, a hazard or peril, or a potential loss of production. Most of the SFs in Balaka recognize risks as the major challenge to production. These risks are categorized into production risk, market risk, financial risk, human relation risk and climate risk. Both crop and livestock producers, cited the negative effects of climate change, pests and diseases and theft as their main sources of risks. The region is prone to dry spells and floods that affects crop production. On market risk, price fluctuation and rising costs of input are the main risks in this category. For instance, some of these price fluctuations are perpetrated by low yields which increase demand for the little produced products. On financial and production risk, majority of the SFs cited lack of adequate capital and under production respectively are key factors affecting their farming activities. It is now a general practice that the rains do come very late in the mid of December and by January it stops. Majority of the SF indicated that they take farming as a chance that in some instances, with stable rains, they have better farming prospect and, in some instances, where rains are not adequate, they have got uneven and low productivity. However, there is no institutions that could assist them in managing the risk such as crop insurance due to either non-existent of the crop insurance schemes or low asset base to act as collateral for any credit to support Small farm farming practices.

c. Risk perception by SFB

The SFBs in Balaka is very wider. Different food products have different idems. For example, maize and sorghum which are the main cereal crops can be produced and sold in fresh to retailers and consumers for consumption, milled and sold in the form of refined flour or as pap in the restaurants. However, majority of SFBs of maize opt to preserve it by drying and apply pesticides to sell it in the future when the prices are high to realize enough profit. In the case of groundnuts, it can be sold in fresh form where it is boiled and consumed directly, dried and roasted, milled and sold in form of groundnuts flour. In case of livestock, the main livestock produced in Balaka is goat. Goat can be sold live to the retailers or middlemen, slaughtered and sold in the form of meat, sold in the form of fast foods to the consumers in the restaurants.

d. Food system forecast in 5, 10 and 20 years

Despite the climate changes, pest attack and low yield, 20 years from now Malawians will still need healthy and good food to consume. With that said, there are a number of intervention done by local communities, government and non-governmental organisations to ensure food is available at all times. One of the important initiatives that is promoted is value addition at farm level. The vision from the government is in 20 years we will see a more of processing from the small farm level. Considering that small farms are contracted in low production, government of Malawi is promoting irrigation and also cooperative production and marketing. This will ensure that the little small farms produce can e combined in order to



penetrate big markets and even export. Even at small scale, in Balaka there is that interaction with businesses whether small or large on information of what consumers like. This provides an insight on the quantity and quality of food products small farms should produce.

Annex: List of resources

n. List of key experts interviewed

Key experts and informants interviewed	Institution
1	Lilongwe University of Agriculture and Natural Resources (LUANAR)
2	Lilongwe University of Agriculture and Natural Resources (LUANAR)
3	Lilongwe University of Agriculture and Natural Resources (LUANAR)
4	Lilongwe University of Agriculture and Natural Resources (LUANAR)
5	Lilongwe University of Agriculture and Natural Resources (LUANAR)

o. SF and SFB interviews and focus groups information

Stakeholder typology	N° of participants						How were they contacted?
	Interviews			Focus Groups			
	Me n	Wome n	Tota l	Me n	Wome n	Tota l	
Farmers	4	9	13	2	3	5	Through advisory officers
Producers’ cooperatives	0	2	2	1	1	2	
Slaughtering facilities	1	0	1	1	1	2	
Processors (small/large)	1	2	3	0	0	0	
Wholesalers	1	1	2	0	1	1	
Retailers	1	4	5	1	1	2	
Caterers	1	2	3	1	1	2	
Other small food business	0	1	1	0	0	0	
Exporters	0	0	0	0	0	0	
Importers	1	2	3	1	1	2	
Farm inputs suppliers	2	1	3	1	0	1	
Advisory services	0	2	2	0	1	1	
Agricultural administration/Ministr y of Agriculture	0	1	1	0	0	0	



Consumers' groups/organizations	0	1	1	0	0	0	
Local administrators and policy makers	0	0	0	0	0	0	
Political leaders and PMs	0	0	0	0	0	0	
Other programs/initiatives	0	0	0	0	0	0	
Nutritionist	0	0	0	0	0	0	
NGOs						0	
Traditional and religious leaders (for Africa)	0	0	0	1	0	1	
Total	40			19			



4.18. RR18 Hedmark –Norway– Food System Regional Report



WP3

Hedmark (RR 18) –Norway– Food System Regional Report

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Table of Contents: Food System Regional Report

1) Socio-economic and agricultural profile of the reference region.....	507
2) Key products and regional food balance sheet.....	508
3) Food system: Key nodes and flows and role of small farms and small food businesses.....	511
3.1. Key product 1: Dairy	511
3.2. Key product 2: Potato	513
3.3. Key product 3: Berries	515
3.4. Key product 4: Lamb	517
4) Typology of small farms in the reference region.....	518
5) Governance	521
6) Small Farms and rural livelihoods	523
7) Role of Small Food Businesses.....	524
8) The Future	525
9) Annex: List of resources	528



Socio-economic and agricultural profile of the reference region

The Hedmark region is located in the Norwegian inland, and borders Sweden to the East. The population of Hedmark was 196,190 in January 2017. Hedmark is experiencing population growth, but at a lower rate than the average for Norway (In 2016, Hedmark's growth was 0.4% compared to 0.9% in Norway). The age structure is 22% of the population being below 20 years, 29% between 20 and 44 years, 31% between 45 and 60 years and 19 percent above 67 (age of retirement). 9% of Hedmark's inhabitants are immigrants – either labour immigrants or asylum seeker background/family reunited or married. The majority of immigrants are European (55%).

Hedmark has a low unemployment rate of 2.6% (in 2015), which is slightly lower than the national level of 3%. All sectors covered, Hedmark has a higher share of small businesses (near 70%) than the average for Norway (65%). In some municipalities, 80% of businesses have no employees (except for owner), and are typically sole proprietorships. Hedmark is also among the Norwegian counties with least R&D activity. Of the county's total R&D activity, Hedmark University College is the only institution in the university sector, while the hospital Innlandet HF—an important institution in the health sector—also as some research activity. The public sector is an important employer, hiring 35% of the employed workforce. Agriculture and forestry are also important in the Hedmark economy with near 10% of the regions employees, shares being higher in areas with many small farms. Public and primary industries role are bigger in Hedmark than Norway's average.

Hedmark has a total area of 2.61 million hectares, of which about +0.1 million hectares of farmland is cultivated. The cultivated land equals 10% of the county's area. In 2015, Hedmark was the county with the most cultivated land in operation in all of Norway, which also explains agriculture's importance to the regional economy. Forest and mountains occupy much of the regions land (see figure 1).

Hedmark has varying opportunities for agriculture due to soil and climate inequalities. Some areas have very good soil and produces good crops. A large part of the county is made up of forest and mountains – areas important for farms due to grazing, hunting and logging rights, as well as tourism.

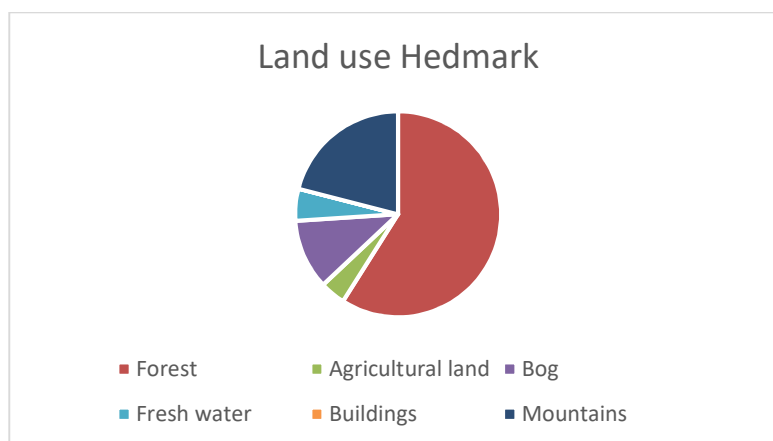


Figure 1. Land use in Hedmark.



Table 1: Basic data for the region

Indicators	Data per Region - Nuts 3
Land size (km2)	26,100
Population (thousands of people)	196'
Density (people/km2)	7.15
GDP (thousand USD/inhabitant)	11.5'
Total labour force in AWU	86,164
Total number of holdings	3,243
Total Agricultural area (ha)	104,880
Total Utilized Agricultural Area (ha)	104,880
Agricultural Area in Mountain Area	20,673
% of UAA in the RR	3.8 %
Average Farm size	34.1
Number of farms by UAA farm size: 0-5, 5-20,20-50, >50ha	348; 1125; 1142; 628.
Average size of farms < 5ha of UAA	2.03 ha
Area of main crops (ha) (list the relevant crops below)	Potatoes: 4,712 ha; Barley: 28,974 ha; Oats: 13,963 ha; Rye: 805 ha; Wheat: 8557 ha; Berries: 2,341 ha; Coarse feed: 46,388 ha
Area of main crops (ha) in farms < 5ha of UAA (list the relevant crops below)	NA
Livestock (LSU) per type (list the relevant types below)	Sheep: 49,002 (LSU: 49,002 * 0,1 = 4,900); Dairy cows: 13,292 (LSU: 13,292*1=13 292); Goats: 3,256 (LSU: 3,256*1=3,256). Pork: 120,067 (LSU: 120 067*0.25=30,017)
Livestock (LSU) per type in farms < 5ha of UAA (list the relevant types below)	NA
Annual work units (AWU) by UAA farm size:0-5, 5-20, 20-50, >50ha	NA by size. Total hours in RR (2013): 6,627,000 (3,592 persons-year).
Total family labour per farm size: 0-5, 5-20,20-50,>50ha	NA by size. 4,254,000 hours farmer and spouse, 572,000 (other family), 1,800,000 (non-family).

Key products and regional food balance sheet

a. Key products produced and consumed in the region

Due to limited land suitable for agricultural production due to natural and climatic conditions, livestock and dairy are the most important productions in Norway as a whole and are also key products consumed in the region. These productions are based on grass production (production of coarse feed) and rangeland/outfield/mountain grazing, in



combination with feed concentrates (grain, and proteins in the form of imported soy and partly grains). This applies for beef and sheep production, and the majority of dairy cows. Only a very limited amount of pigs and chicken/poultry graze in outfield pastures (only “specialty productions” or organic production systems).

Dairy, grain and livestock are also the most important productions in Hedmark. In the RR, dairy production (milk production) contributes to 1089 full-time equivalent (FTE) positions, which makes dairy production the largest production in terms of employment. Dairy production is followed by grain production, sheep production and potatoes and vegetables

Hedmark produces 38% of Norway’s potatoes and 18% of grains measured in hectares. The main plant productions are cereals, grass (coarse feed) and potatoes. A small part of the land is used for vegetable and berry production (accounting for 9% of the Norway’s vegetable production and 7% of the Norway’s fruit and berry production).

In addition to grain and potatoes, there is some vegetable, fruit and berry production in the region. Production varies due to climatic conditions across the region, such as mountain, valley and lowland areas having very differing conditions for production. In the mountain and upper valley zone of the region, milk, sheep and potatoes are most common productions. The lowland area is more suitable for berries and grain. In the region, dairy and potatoes are also produced in high volume, while many sheep farms are small or medium size.

For the analysis of the nodes and flows in the reference region, (RR) dairy, sheep, potatoes and berries were chosen as staples because they the most important crops that are produced on small farms (SALSA definition), and they are both produced and consumed in the RR. Grain is as mentioned earlier, also an important crop in the RR, but is mainly produced on large farms and not relevant for the analysis of small farms.

b. Balance of production and consumption of key products in the region

Table 2 show production and consumption of key products, balance and surplus/deficit in the region.

Table 2: Food balance sheet on key food products in Hedmark region.

Category	[B]	[C]	[D]	[E]
	Approximate amount produced in region (ton/year)	Approximate amount consumed in region (ton/year)	Balance (consumed - produced) $[B - C]$	% surplus-deficit on total consumption $[D/C]$
Cereals				
Total Cereals ^	232920	15101	217819	14,4
Oil plants				
Total oil seeds	181	*		
Vegetables				



<i>Potatoes</i>	139750	13245	126505	9,6
Total Vegetables	17956	15296	2660	0,2
Fruits				
Total Fruit and berries	1940	17582	-15642	-0,9
Animal products				
<i>Mutton (incl lamb)</i>	1 416 *			
<i>Goat (incl kid)</i>	16 *			
Total sheep and goat	1432	977	455	0,5
<i>Beef</i>	5827 *			
<i>Poultry</i>	16186 *			
<i>Pork</i>	18758 *			
All meat	42298	13948	28350	2,0
Milk (cow and goat)	88190	73058	15132	0,2
Eggs	5077	2442	2635	1,1

^ Wheat, barley, oat and rye.

*= data not available on consumption

Our estimates of production and consumption balance show that the region has, except for berries and fruit, production surplus on all key products where data are available. In a food security discourse this looks good. The numbers should however not be confused with general self-sufficiency which is lower. A recent White Paper from the Government Solberg Prop. 133 S (2015-2016) on the Agriculture Agreements for 2016-2017 defines self-sufficiency as “the domestic market share, measured on an energy basis, that is, how much of what we eat that is produced in Norway, and is one of several goals for which market share the Norwegian food sector has in the Norwegian food market. (...) Exports not taken into account.” It is a goal of Norwegian agricultural policy to increase Norwegian food production with the intention of increased the level of self-sufficiency, for food security reasons.

Norwegian self- sufficiency level is currently measured to be just below 50 percent, while the national food coverage (exports of mainly fish included) is 89 percent.

c. Official statistics and key products in the region

Official statistics provide some information on production of key products from farms in the region. We were able to derive information on total production in the region on staples, but faced some difficulties with calculating the role of small farms (Salsa-definition) in the total volume produced. We were however able to provide estimates on all staples. For some of the productions (grass for fodder etc.) public statistics report on area only, not volume produced. Public statistics do not account for consumption. Our balance sheets are estimations of general Norwegian consumption data multiplied by the region’s share of the country’s total population.



Food system: Key nodes and flows and role of small farms and small food businesses

National farmer's cooperatives receive the majority of the milk produced, as well as approximately 50 % of meat, cereal and potatoes products. Berries are sold in all markets – from direct sales, farmers' markets, local shops to national supermarkets. Private meat companies and fruit/vegetable wholesalers compete for market shares. The local food market (local identity/niche/specialty food) has had an enormous growth the past decades, but counts only for 3% of the total turnover of groceries in Norway.

There are differences between small and large farms and food businesses in nodes and flows in the food system. These are elaborated below.

3.1. Key product 1: Dairy

- d. Nodes in the regional food system: production, processing, commercialization and retail

Milk production is the largest and most important production in the Hedmark agriculture. Milk is produced on a variety of farms and includes, in addition to milk from cows, some milk from goats. However, milk from cows count for the majority of the production. Goat milk is mainly produced in the mountainous areas of the region.

The majority (above 90%) of the milk is collected and delivered to one major producer national cooperative (Tine) where it is processed and/or distributed to smaller processors and retailers. The remaining milk is either delivered to smaller processors or processed on the farm and sold to consumers as various dairy products.

- e. Flows connecting the different nodes in the regional food system

Above 90 % of milk produced is delivered to the farmer cooperative TINE who is responsible for carrying out market regulation and collection and sales of milk in Norway (on behalf of Norwegian Agricultural Authorities), based on farmers' ownership of milk quotas. Quotas are adapted to farm size, access to fodder and spreading area for manure. All farms, big or small, have a right to have their milk collected by Tine. Dairy farmers report that their relationship with Tine is fair. Continuation of quota system and the market regulatory role of Tine is crucial for the survival of small dairy farms. The farmer cooperative Tine buffer for shocks and maintain resilience in the Norwegian dairy model.

TINE has its own dairy facilities in the region. In addition, two other dairy companies exist in neighbouring regions: Røros Dairy, a "local food" business that buys and processes organic milk from TINE, and the Q-Dairy, a conventional private competitor to TINE. The private (large scale) dairy, Synnøve Finden produces cheese in the region. there is a range of



small cheese-making businesses and summer farms who process and sell produce at summer farm facilities (small gate shops and/or cafes). These also sell their products directly to shops, farmers markets and to HORECA (Hotels, restaurants and catering businesses). Small dairy businesses follow same food safety regulation as larger businesses. While there many worried about too strict requirements and loads of paper work when regulations were implemented, most SFB's reported on satisfactory relationship with the regulatory authority (The Food Safety Authority) and compliance with regulation (see also section on small food businesses).

f. Role of small farms and small food businesses within the food system

Given the low productivity of grass-land in the mountain region, the small farm category was interpreted with a bit of flexibility in order to make sure that we had representation of this important production from the region. Raw milk is currently, due to regulation, not a legal product in the Norwegian market, so there is no (or very little) direct supply of milk to consumers. Milk and dairy products are processed by Tine and the medium/large private processors for sales in retail at a regional and national level. Many small farm businesses have been established in the dairy sector. These produce cheese and some other speciality dairy products. Note that the small food businesses are connected to/ supplied by both small, medium and large scale milk producers (not only small). Small farm businesses sell their products directly, at farmers markets and in local and national retail. Only the most successful (meaning can provide high quality/stable quantities) producers / brands have contracts with the major retailers for national distribution / sales.

Our estimates suggest that small milk producer's account for approximately 30 percent of all milk producers and 10% of the total volume produced. Small dairy farms do contribute to achieve other agricultural policy goals such as settlement and employment in rural areas, maintenance of cultural landscapes and cultural heritage.

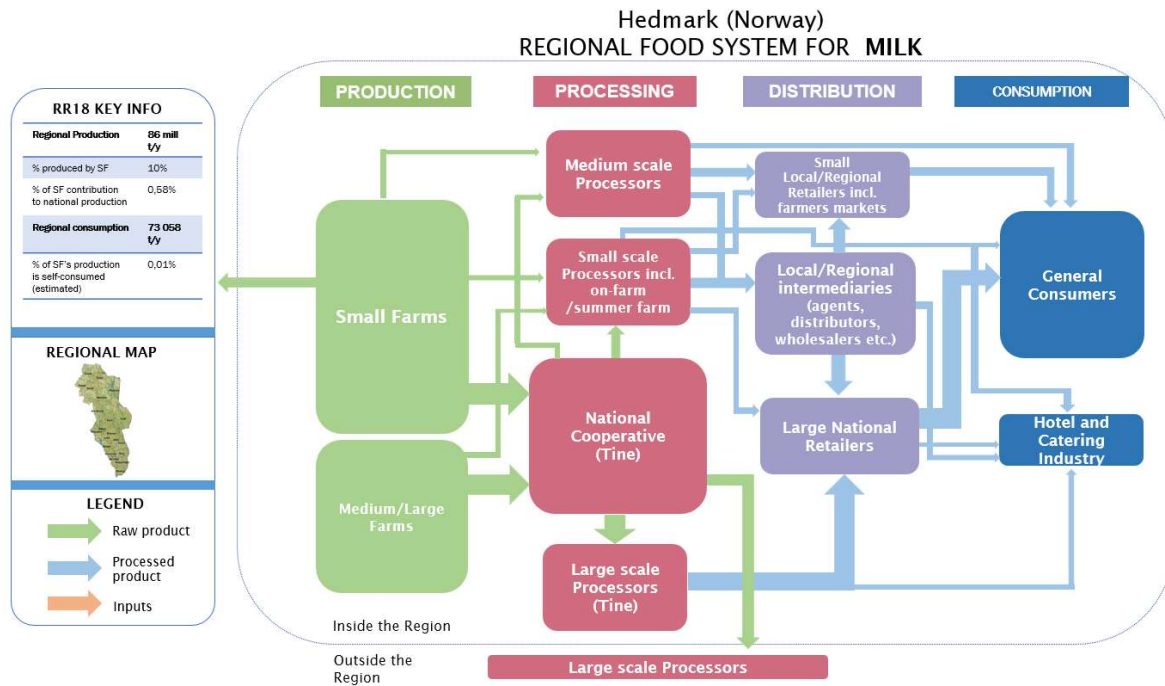
g. Importance of household self-provisioning in small farms and small food businesses

Milk produced at the farms has a marginal function as food for the farming family/household. Dairy farming's main function is household income. For small farm businesses, processing of dairy products adds other types of values to their production, such as maintenance of traditional methods/products, developing recipes and processing methods, consumer contact, in addition to additional income.

h. Other relevant information

The role and stability of the national farmer cooperative Tine is seen as a major strength of the Norwegian dairy system. It secures the right of all dairy producers to have their milk quota collected at the farm at a fixed price (quality differentiation applies).





3.2. Key product 2: Potato

“If you eat potatoes (In Norway) in solid, liquid or powder form, then the likelihood is high that it has its roots in Hedmark”.⁴⁴

- Nodes in the regional food system: production, processing, commercialization and retail

Hedmark produces 38% of Norway’s potatoes, and is also the largest producer of state-controlled seed potatoes with 70% of the country’s total area of 910 ha (figures from 2016). A total of 35 of the country’s 55 seed potato types are grown in Hedmark. The two largest potato businesses in Norway, Strand Unikorn A/S and Norgro A/S, have their headquarters in Hedmark. New potato varieties are pre-processed in Hedmark, and the Norwegian Farming Advisory Board S/A has devoted a lot of effort to improve the potato production in the county through local trials as well as individual and group counseling.

Potatoes from small-scale farmers are mainly sold/consumed outside the mainstream food system (major retailers and their accompanying wholesalers), as wholesalers require a certain production volume for contracting. Additionally the contracts typically demand that farmers deliver their entire crop to the wholesaler constraining the farmer’s access to other important avenues for revenue. Therefore, small-scale farmers sell their products either directly from the farm or through small processors or special deals with local retailers and restaurants.

⁴⁴ Quoted from the County Governor of Hedmark, <https://www.fylkesmannen.no/Hedmark/Landbruk-og-mat/Jordbruk/Jord-og-plantekultur/Potet-i-alle-former/>



The food map below shows the main actors involved in the potato value chain in Hedmark. In 2016, the market share for Norwegian potatoes was 62% (imports accounted for 38%), down from 81% in 2007.⁴⁵ Norwegian growers are therefore currently looking for new varieties to secure their future market position.

b. Flows connecting the different nodes in the regional food system

Wholesalers keep the gate closed for most small producers. A rule of thumb among wholesalers is that you need a minimum production of 90 tons of 'conventional' brands for the wholesalers to accept you as a supplier. Specialty potatoes can access the major wholesalers, like *Mountain Mandel*, or new potatoes even if the produced amount is less. Small scale producers find alternative sale channels. Some sell directly from the farm, at local markets, or through producer networks for specialty food/ specialty wholesaler (e.g. Rørros Food who distribute to HORECA).

c. Role of small farms and small food businesses within the food system

We have estimated that small farmers produce approximately 3% of potatoes produced in the region. Only few years back their role was much bigger. Now, few and very large potato farmers have stable access (contracts) with wholesalers/retail and small producers sell at farm gate or establish small food business'/cooperatives to improve packaging and sales. Hence, the small scale food businesses (processing businesses) can play an important role for small potato farmers ability to access market at all.

d. Importance of household self-provisioning in small farms and small food businesses

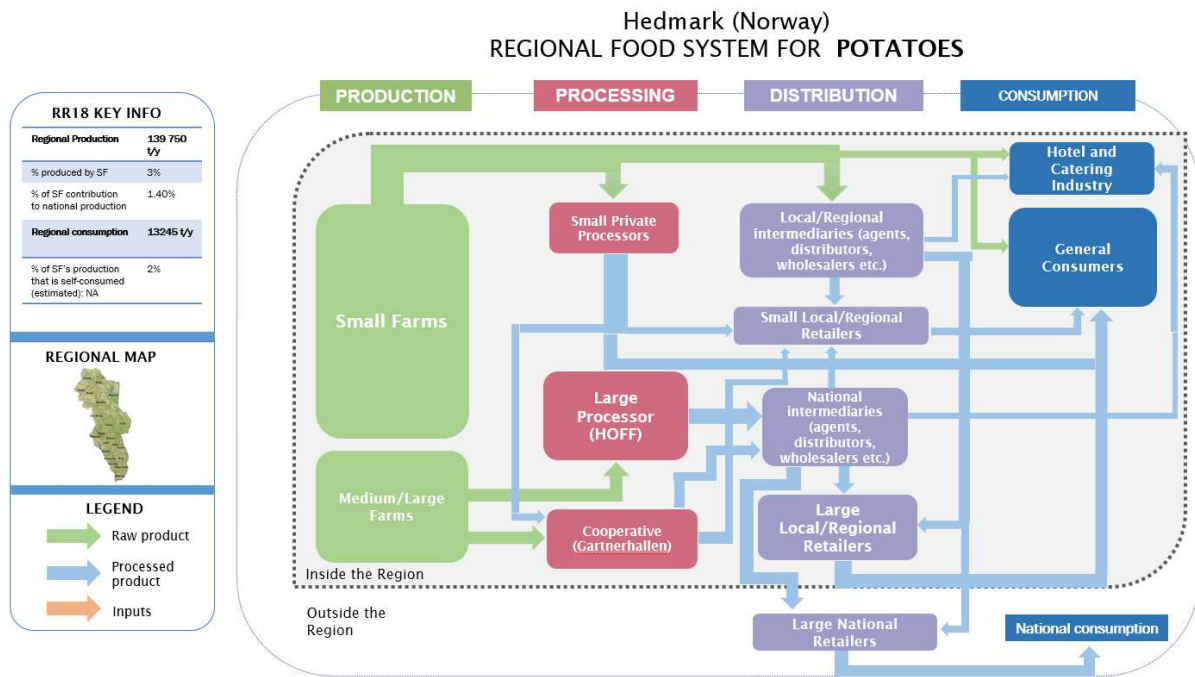
Potatoes produced at the farms provide farming and small potato business households with needed supply of potatoes during a year, if correctly stored.

e. Other relevant information

Potatoes production have undergone major structural changes. Small and medium scale farmers have lost access to general wholesalers. Now, small farmers and food businesses are creative in selling their produce. However, potato is a "difficult" good to distribute, being low in price and high in volume and weight. Local markets will keep cost of transport low. Falling prices is one major challenge, in addition to market access, to keep up production of potatoes in small quantities.

⁴⁵ <https://www.frukt.no/globalassets/materiell/totaloversikten/totaloversikten2016-pdf.pdf>





3.3. Key product 3: Berries

- a. Nodes in the regional food system: production, processing, commercialization and retail

Hedmark accounts for 7% of the production of fruit and berries in Norway. Strawberries, raspberries and black currants are the biggest berry productions. These productions depend on immigrant workers in picking seasons. Berries are preferably sold unprocessed on the market in season to secure a high price. Berries are sold in all markets – from direct sales, markets and in local shops and national supermarkets. Low quality or surplus berries and fruits are processed. There are both large scale processors and farm processors in the region. There are several small scale producers of berry products in Hedmark, and small scale producers need alternative sale channels compared to large scale contract growers. Small scale growers do not access large scale wholesalers who demand volume.

- b. Flows connecting the different nodes in the regional food system

Also for berries do wholesalers keep the gate closed for most small producers. Hence, few small scale farms exist for berry sales only. In the region there are several small food businesses who have specialized in processing fruit and berries for cordials and juices, jam/marmalade and syrups. Forest areas allow for picking of wild berries such as blueberries and cloudberries are also used by the small food businesses. Small food businesses can be connected to own production or buy berries from others. We do not have estimates of the relative position of each model.



Berries from large scale productions flow from farms through wholesalers to processors and retail or directly to retail in the season for newly picked strawberries and raspberries.

c. Role of small farms and small food businesses within the food system

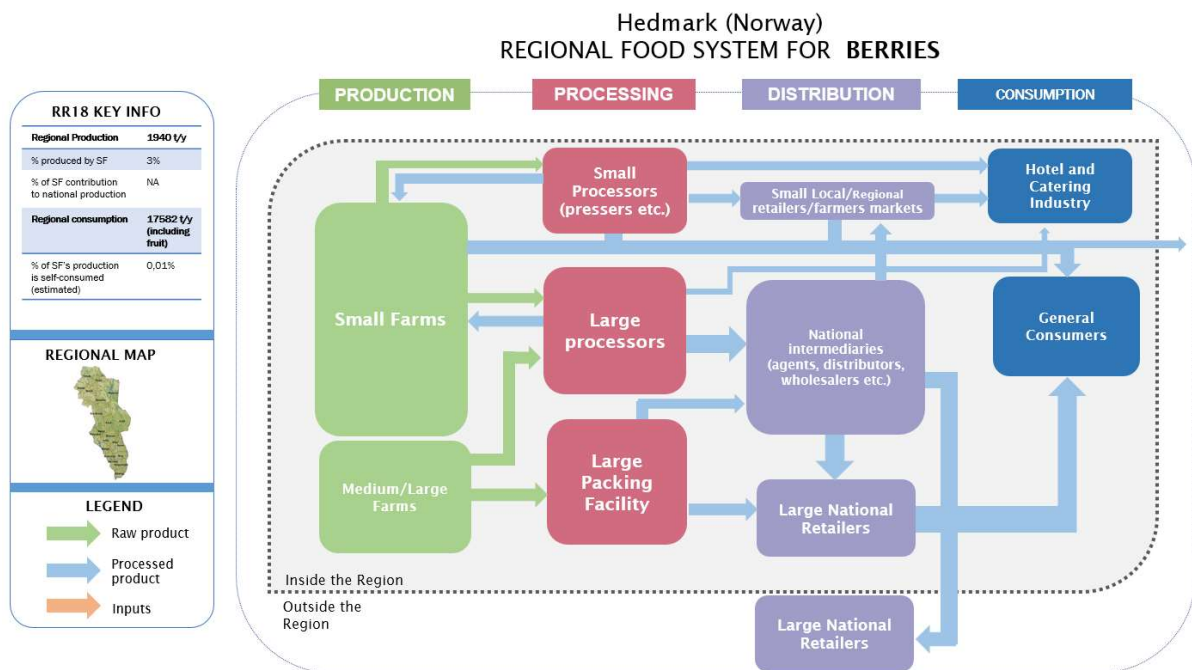
Small berry farms play a marginal role in the food system. Small farm businesses – those who process fruit and berries provide a valuable diversity in the regional food market and for the tourism businesses in the region. Some are extremely successful and sell in speciality stores or exclusive restaurants also outside the region.

d. Importance of household self-provisioning in small farms and small food businesses

Berries produced at the farms provide the farming households with some food. Specialised producers report on little self-consumption. Same applies to small food businesses, especially those who produce high quality products. They are “too expensive to self-consume”.

e. Other relevant information

Also fruit and berry production have undergone major structural changes recent decades. Wholesalers and retailers increasingly control access to markets and preferences are given to contract with large scale producers. Small farmers sell at farm gate. Small food businesses supply their goods to speciality stores and farmers’ markets. Some sell online.



3.4. Key product 4: Lamb

Sheep production (for meat) is important in Hedmark. There has however been a decrease in the number of sheep over the past decade. Today the number is 43 000 (adult) sheep, 10 000 less than in 2004. Sheep is part of the grazing animal productions. Severe loss to carnivores is a challenge for the future of this production. In 2014 economic replacement was given for 5650 sheep and lambs lost on rangeland. Sheep farming is important for SFs and are often co-located with carnivore habitats. Many farmers are member of the farmer cooperative Nortura, which has a large abattoir in Hedmark (Rudshøgda). It also has a processing plot in the county (Tynset – cured meat).

- a. Nodes in the regional food system: production, processing, commercialization and retail

Large slaughterhouses processes most of the mutton in the region and are convenient for farmers because they are obliged to collect the farmer's livestock. Despite of this, large slaughterhouses do not cope well with small-scale operations. When delivering meat to large slaughterhouses, small producers runs the risk of not having their animals slaughtered at the appropriate time, as well as not having all their animals returned (meat and pelt) for further processing. There are other alternatives in the form of smaller slaughterhouses, but these are too few and it is illegal for the farmer to slaughter livestock on the farm, except in special cases where it is approved by the food safety authority. Better arrangements for slaughtering is therefore a major issue. The majority of the meats processed by slaughterhouses are distributed by wholesalers to different retailers, but some meats are also sold directly from small farms to retailers and consumers.

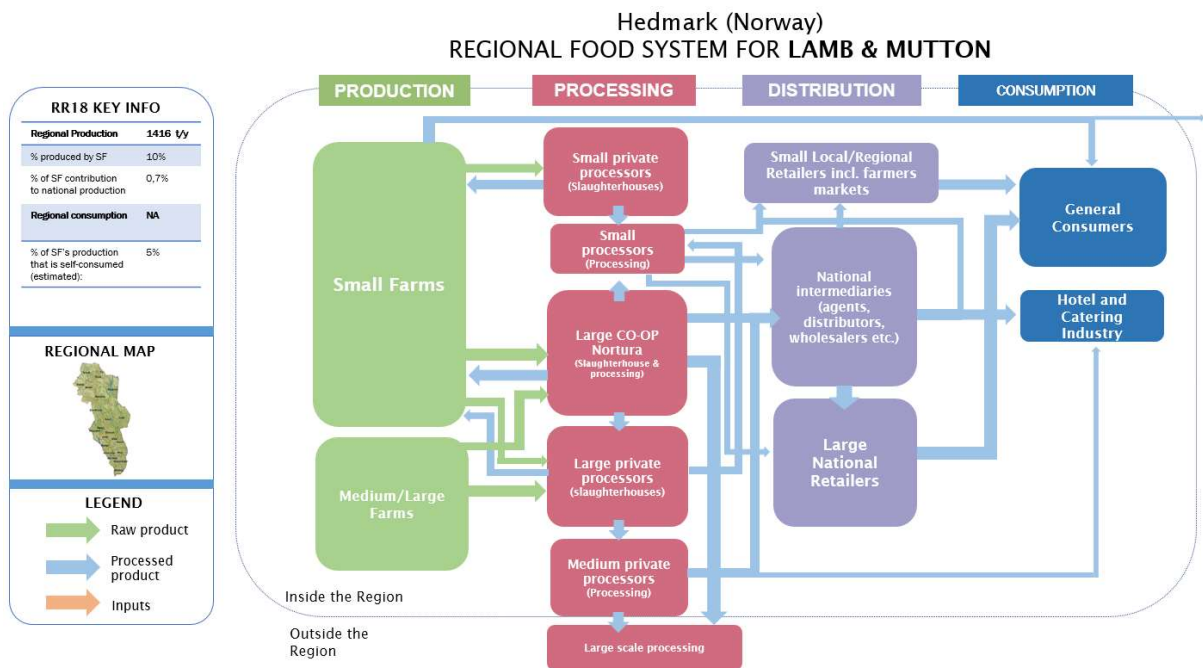
- b. Role of small farms and small food businesses within the food system

Our estimate is that lamb and mutton from small farms contribute to approximately 10 percent of the production in the region. While volume-wise relatively low, their impact on other parts of the system is high. Small sheep farms uphold settlement, employment, landscape and culture in the less central parts of the region. Small sheep farmers also often use varieties of breeds, e.g. old heritage breeds. Small food businesses process sheep and mutton, some also very professional, aiming for a high-end market. Others look for ways of adding value – e.g. processing sheep fell and horns for sale. As for other staples, small farm are not able to employ staff.

- c. Importance of household self-provisioning in SF and SFB

Many farm households are self-provisioned with lamb/sheep meat.





Typology of small farms in the reference region

a. Small farm types in the region

Small farms can be classified into four groups based on 1) their degree of self-sufficiency and 2) degree of market integration. The first meaning how much food the farm produces for the household's self-consumption, and the latter how much of own produce that is sold in the market compared to self-consumption (see Brunori et al 2017). From these two dimensions, four types evolved. The composition is derived from analysis of the data on the farms in our sample.

Type 1: Production for self consumption, but the production does not contribute much to self-sufficiency (Approximately 4%)

Example: Small scale berry production for processing of cordials, jam and jelly, or potatoes for their own and their neighbours' consumption. Some produce specialty products for direct sales, markets and smaller food outlets. Products are less frequently found at supermarkets. These small scale growers have full time work outside the farm.

Type 2: Produces for own consumption, and have a relatively high degree of self-sufficiency (Approximately 13%)

Example: Very small producers with varied production of sheep, potatoes, and vegetables. Lifestyle projects, with ambitions to grow for self-sufficiency. Some of these small-scale farmers have moved into the region to fulfil a dream or ambition to live a natural and/or more healthy life and want to offer their children different opportunities than they themselves had growing up. Some of these are start-ups farming fulltime on savings from



previous income sources. Others combine farming with part or full time work outside the farm in combination with some hired help on the farm.

Type 3: Produces for markets, and have a low degree of self-sufficiency (Approximately 66%)

Examples: Dairy production. This is often too time consuming to combine with other small-scale productions. Also specialized sheep producers fall in this category. Farmers are most often local, farming farms that have been in the family for generations. Farms in this category are relatively small, in the Norwegian context. Their farm is adapted to natural resources (farmland available for growing grass/coarse feed), consists of old and small farm buildings, but have very little debt, hence additional income will often be a net surplus. Expansion will mean major investments. These farmers are typically very loyal towards farmers' buyer cooperatives and do not process milk or meat themselves.

Dairy farmers in this category are often full time farmers. Some type 3 farmers combine a very high amount of hours spent on farm-work with part-time work (up to 50%) and/or have a spouse that works full-time off the farm.

Type 4: Produces for markets, but have relatively high degree of self-sufficiency (Approximately 17%)

Example: Sheep farmers with combined potato and vegetable production. Some milk producers also fall in this category, process milk for cheese and other dairy products. These are typically multifunctional farm and/or pluriactive farmers combining a lot of time invested in food production with additional farm based activities (processing, tourism, green-care etc.) and/or part-time work off farm.

b. Role of small farm types in the regional food and nutrition security

The Valencia meeting of Salsa provoked an interesting discussion on self-provisioning versus self-sufficiency. Based on data from the Hedmark region two narratives explain types of most typical examples of 'weak self-provisioning' and 'weak self-sufficiency' farms in Hedmark and two narratives explain types of most typical examples of 'strong self-provisioning' farms in Hedmark.

Weak

Self-provisioning: Dairy production is often too time consuming to combine with other small scale productions. Dairy farmers deliver exclusively milk to TINE (cooperative) and generally have a low consumption of their unpasteurized milk. Thus, this results in a weak self-provisioning. Other examples are berry producers who state that they have a very low self-consumption of their berries, in addition to its short production season in Norway. Short season also applies to potato farmers, where lack of storage may result in a weak self-provisioning over time.



Self-sufficiency: ‘Specialized’ sheep, dairy, potato and berry farmers fall in this category, as their “total food basket” produced on the farm is weak. As criteria for “weak self-sufficiency” we use a cut off criteria of 50 percent self-reported self-sufficiency. This cut off will separate those ‘specialized’ and those with high diversity and strong self-sufficiency. The categorization into a dummy “variable” will also remove some of uncertainty concerning the percentage.

Strong

Self-provisioning: In most cases, farmers are well provisioned by the products they produce in their farm, e.g. sheep farmers are provisioned on mutton and berry producers are provisioned on berries. However, short growing season makes e.g. vegetables and potatoes available only part of the year. Strong self-provisioning therefore depends on having the products available over time.

Self-sufficiency: Very small producers with varied production of sheep, potatoes, and vegetables. Typically lifestyle projects, with ambitions to grow for self-sufficiency. This includes sheep farmers with combined potato and vegetable production. Some milk producers also fall into this category, processing milk for cheese and other dairy products. These are typically multifunctional farm and/or pluriactive farmers combining a lot of time invested in food production with additional farm based activities (processing, tourism, green-care etc) and/or part-time work off farm. (See cut off criteria mentioned above).

Independent of degree of provisioning or sufficiency, all SFs and SFB’ in Hedmark reported that they always had access to enough and healthy food, either from farm or availability in retail. Most households collect more than 50% of their income from off-farm work.

In the focus group interview, there was a discussion of whether the role/purpose of small farms is “to grow or not to grow”. The wholesale-representative argued that small farm should and must grow in terms of the volume of their output so they can be more profitable. From that side of the table, the role of any farm is to maximize profits for the owners. The representatives from small farms and their interest organizations, however, argued that profit maximization by way of volume growth could be counterproductive with regard to “the small farm project”. In their eyes, the purpose of small farms is with regard to volume and profit is product differentiation, high quality and high unit value, or in other words to produce “niche products”. This product differentiation would be lost in “mass production”. The small farm side furthermore argued that the small farm has several roles besides creating profit, in that it is a vehicle for a certain lifestyle where values such as a simple life, clean and safe food, (farm) animal welfare, environmental protection and closeness to nature are predominant. Some added keeping traditions alive, and ensuring jobs and livelihoods in rural areas, and containment of rural-urban migration to the role of small farms. Furthermore, small farms have an emergent role within the tourism industry through the local food concept, on farm bed and breakfasts, as well as on farm activities.



Governance

a. Main interactions of SF and SFB with governance structures in the region

Norwegian agriculture is not part of EU CAP, but withhold its independent policy in this area also within the EEC agreement. Agricultural policy is developed in a corporative system of yearly negotiations between farmers' organisations (Farmers Union and The Smallholder Union) and the state on the agricultural budget and key structure/priorities of its spendings. If result of negotiations is agreement between the parties, the result is returned to parliament for acceptance. The Parliament will then not oppose the result. Within this system both large and small farmers have a voice through their elected representatives. In addition to strong compliance with farmers' unions, major/national farmer cooperatives carry out market regulation, monitor supply and prices.

Farmers apply yearly for subsidies. These applications are increasingly followed by implication and compliance with quality systems in agriculture. Guidance, as well as monitoring of compliance is carried out at county (Nuts3/region) level.

SFB's can apply for innovation/seed funding. Same level applies for these.

Regulations

There are different regulations on livestock, dairy and vegetables, fruit and berries and potatoes. Dairy and sheep is market regulated. Dairy farmers produce on fixed quotas and quotas can be sold/bought within the region. Vegetable and potato productions need contracts to access large markets and there exist minimum quantum contracts, hence small-scale producers find alternative channels to consumers.

b. Levels of governance and their relative importance for SFs and SFBs

All processors also need to comply with national food hygiene standards. These are national standards, and are aligned with EU food and hygiene regulations. Some small farms find these very stringent and hard/expensive to comply with, while others feel that they are necessary for building trust among consumers. Supermarkets and their connected wholesalers sometimes require specific certification schemes for their producers. Few small farms or food businesses have contracts with large retailers.

There are specific regulations for specialty productions such as organic produce (one national standard). Some small farmers see this as a system that helps their marketing and sales, while others (mainly the smaller of the small farms) find it too expensive or time consuming to comply with the specific regulation schemes.

c. Constraints impairing full participation in the food system



Of other specific issues mentioned were: Standards such as EUOP classification of meat that creates some difficulties for specialty productions (lack of price differentiation mechanisms for species (heritage brands etc.), regulation on packaging and branding are not differentiating between small and large scale producers and further regulations on public procurement (tedious and difficult tendering arrangements).

d. External policies, decisions and social norms affecting food systems

Wild-life conservation policies represent a major challenge in the region. Because of Norway's commitments in the Convention on the Conservation of European Wildlife and Natural Habitats (The Bern Convention, ratified in 1986), a large part of the area is designated carnivore area (wolf, bear, lynx, wolverine and golden eagle). Growth in numbers of carnivores conflict with grazing animals, such as sheep that traditionally graze without fences or herding on outfield pastures over summer. The number of wolves has, for instance, increased substantially over the past decade or so, and public opinion in (cities and the national political elite) is shifting towards preserving wolves and abolishing sheep farming, where these are in conflict. Regulations regarding carnivore protection is for most small sheep farmers a serious constraint on their production, as it is not uncommon to lose more than ten percent of the sheep to carnivores annually.

e. Gender issues intersecting governance issues

Men and women have in principle and by law equal access to markets and land. Farms are inherited on allodial rights – securing first born child the right to the farm. For innovation grants to business start-ups (e.g. small scale food businesses) there are incentives to prioritise female applicants.

Our material consist of approximate 50/50 male and female interviewees/delegates to meetings. This has not been purposive, but reflect a general gender balance among small farmers and among actors in the food chain.

f. Other actors and processes important for the regional food system

The food maps above reveal economic nodes and flows in the regional food systems, such as market access and direct links between producers and consumers. Connections with advisory services, banks, and government and governance bodies are not highlighted. The survey do cover most of these connections and SF's and SFB's experience of the relationship.

g. Relationship between small and large farms, and between small and large businesses

All farmers in Norway are, independent of farm size, owners of their farm. This might be why possible conflicts or topics related to small/large scale issues were not highlighted in the interviews nor in focus group. A relevant issue is, non the less, "farm cannibalism", which



entails structural changes where expanding farms “eat” neighboring farms that are going out of production. Another growing concern among smallholders is that the government subsidy schemes are increasingly favoring the large farms, making it harder for small farms to thrive and survive.

Perhaps more important than the relationship between small and large farms, is the relationship between small farms and large businesses. The Norwegian wholesale and retail (food) markets are dominated by very few, and very large actors, and they are generally not interested in contracting with small suppliers. This means that the sales channels available to small farms are on the market margins.

Small Farms and rural livelihoods

a. Importance of household labour in SFs

Household labour appears important for most of the SFs, and several SFs are dependent on participation from other family members in their work. Naturally, the farmers’ partner represent the most important labour force from the household by far. However, for some SFs, children and other family members play an important role in the farm work, especially in seasonally work periods with high amount of workload. This is also the pattern for SFBs, as most of the businesses are family driven, dependent on other family members participation. However, for the SFBs, paid labour appears as a more important labour force than for the SFs.

b. Farm and non-farm income in the SF’s households

There are great differences among the SFs regarding the relation between farm and non-farm income in the household. For some SFs, the farm income generates 100 percent of the household income, although most are dependent on non-farm income. In many cases, either the farmer, the farmers’ partner, or both, have a part or fulltime work besides the farm. Hence, a great variety of farms, involving SFs where farming is just a hobby, to those fully invested in the farm, depending on the income from the farm (this including subsidies, which appears as crucial (50% of farm income) for many of the SFs).

c. Shocks and coping mechanisms of SF households

Shocks to small farms are related to politics, subsidy levels and general support. Changes in minimum size of production (area farmed) or income (turnover) for being able to apply for subsidies, represent a real risk. Changes in these at the end of the millennium resulted in major small farm closures. Farmers also pointed at market situation, de-coupled consumers as risks. Climate change and environmental policies (carnivore protection program) are also risks, as well as potential lack of succession to farms, the latter more prominent on small farms, the former, higher risk in larger productions that depend on one crop / production.



Smaller farms with diversified productions and income appear more resilient towards climate and environmental challenges.

Role of Small Food Businesses

a. Main insights and patterns

When talking about the role of small food businesses it can be useful to differentiate between processors and wholesale/retail businesses. Small processors can operate “on farm” (often dairy or meat processing) where they process food from own raw material. The main role of these processors is to increase the profitability of the farm through adding value to the produce before it is sold. “Off farm” food processors (e.g. berry/fruit and potatoes) are not directly connected to a small farm, but often buy their input from small farms nearby. The off farm processors have the potential to create jobs and livelihoods (often) in rural areas, as well as to provide small farms with a market for their produce.

On the opportunities side, a national policy designated for development of small food businesses that has been in effect for the past 20 years. The policy has made seed money for innovative solutions for small business available to small farmers and other entrepreneurs in the region.

The development of local food production has been emphasized by Norwegian ministries of agriculture and food since the early 1990s. The development of local food and agro-food systems has been a strategy to revitalise rural communities in Norway since the early 1990s. Prior to the 1990s, there was little activity to promote local food production in Norway, and farm-based food production was nearly non-existent. Initiatives to promote local food businesses was accompanied with a growing demand in the market for speciality/niche/quality/ies food. Special rural development programs targeting farmers involved with agricultural activities were developed with entrepreneurship grants for new economic activity at or in connection to the agricultural property, for new products or new markets. A higher share of the budgets were allocated (if relevant applications) women and young people (positive discrimination).

In 2001, The Value Creation Programme for Food Production (VSP-mat) was established by the Ministry of Agriculture and Food. This was a 10-year programme with the objective of developing competitive and profitable high quality food firms. One important initiative in this programme was the establishment of five competence networks (“hubs”) located in different areas of the country to support the development of quality food producers. Help with shaping ideas, product development, marketing, accommodation of hygiene instructions and so forth are among the objectives of the programme. Target groups for VSP-mat, were in addition to farmers that either supply the industry with raw materials or produce food at the farm, other food enterprises and tourism and travel businesses, both deeply rooted in primary industries. By 2000 more than 1000 small-scale food enterprises were established in Norway. The number is now around 2000. Evaluations of the program



has identified marketing and marketing services as one urgent challenge for small food enterprises and their networks.

In addition, small food businesses often preserve food traditions that might otherwise die out, and they have a growing role in the tourism industry within the concept of environmentally friendly, healthy, specialty food with a local connection. All in all, the small food processors and wholesalers/retailers contribute to keeping up the settlement in rural areas. Their quantitative provision of food to FNS is medium to small.

b. SFB income

SFB's often employ two family members (husband and wife) where both work long hours. Some of the SFB's in our region hire employees, most often part time or seasonal. Long hours are also a reason or constrain for not being able to develop or grow the business. With a limited sample to generalize, half of our SFB's depend on the income for the business. The other half collect half of their household income from non-business activities, e.g. farming, or off farm work.

c. Shocks and coping mechanisms of SFB households

It is very important for both on and off farm small food businesses to have access to markets. The mainstream markets, in the form of wholesalers and retailers, are tailored towards large manufacturers. In order to gain access to these markets, you have to be able to deliver high volumes and sometimes adhere to a complicated and expensive quality control system. In practice, this means that these wholesale and/or retail channels are not available to the smallest producers. Some farmers and food processors therefore sell their goods from outlets on the farm, or at the production facility. It is, however, quite demanding to be both a producer, a processor, a marketer and a salesman. Small wholesalers, specialty retailers, and farmers' markets offer small farms and food businesses a time (and sometimes cost) saving alternative, while simultaneously creating jobs in distribution and sales. Small specialty food retailers offers a market where the products for small farms and small food businesses can be sold at a higher price than if they were in a regular store next to cheaper mass produced food.

The Future

Based on results from the survey and group interview/workshop information about SF's and SFB's perceptions regarding future prospects for their activities was collected.

a. Main objectives and priorities of SF for the future

The main objective and priorities for most **small farms** were to continue farming at present level into the future. Although there exist SFs that have plans to grow in both size and production, especially those in a startup-phase, the majority does not have labour capacity to do this. This is constraining them from producing more food. In addition to labour capacity



and time, small family farmers are more often at production limits regarding farming in old facilities. Growing will involve major investments and additional debt. Thus, many small farmers are facing a dilemma whether they should invest in the old facilities or not. An important factor influencing the investment dilemma involves succession; whether or not children or other family members are willing to take over the farm after the current farmer is no longer able to farm. Although this issue is dependent on the farmers age, the uncertainty of succession seems to be relevant for the majority. Keeping the farm in the family seems to be a common goal for most of the small farmers. Additionally, delivering ‘quality food’, seems to be a motivation for many small farmers to keep on farming, and is used as a reason not to grow in volume.

b. Main objectives and priorities of SFB for the future

Maintaining or creating a stable business and/or production, seems to be an important objective for many **small farm businesses**, although there are businesses expressing that the main objective is to grow in both size and production. The large diversity in SFBs, regarding production, products, annual turnover, and so on, causes a large diversity regarding the objectives of the businesses. Objectives and priorities of the SFBs for the future involves: creating jobs, investing in buildings for production, accessing new markets, making new deals with the government and increasing the production in the business. There are similarities between SFBs and SFs regarding the objectives and priorities for the future, as questions regarding who is going to run the business after retirement, are issues and questions of concern for the owners.

The current structure of seed money is directed towards growth businesses, whether farms or firms. While small farms are older operations, owning own means of production and with low debt, small food businesses are younger and more dependent on politics and incentives.

c. Risk perception by SF

SFs perception of risks may be categorized into two categories, *internal* and *external* risks.

Internal risks involves concerns and risks regarding the production on the farm. For potato and vegetable farmers (in some cases berry-farmers), this involves weather changes, such as too much rain, cold and frost, threatening their crop. Although livestock farmers (e.g. sheep farmers) are less exposed to weather changes, they have other risks concerning their production and livestock. There are substantial differences in farmers’ livestock losses to carnivores in Hedmark, and the pressure on sheep farmers are high in some areas in the region. Some farmers have discontinued their sheep operation due to high losses and the corresponding psychological strain, while others had to give up outfield grazing, keeping their livestock grazing on fenced-in land. Many of the SFs interviewed in this project identified carnivores as a problem that constrained them from potentially producing more food on their farm. One informant said that the national carnivore policy, especially governmental wolf policy, is challenging, and not the nature itself. E.g. The Norwegian Food Safety Authority monitors farmers that lose more than 10 percent of their livestock, thus



adding extra pressure on sheep farmers with livestock on outfield grazing in areas with carnivores. Additionally, the weight requirements for lambs on outfield grazing (13kg), causes the farmers to add concentrated fodder in order to expedite the lambing.

External risks involves concerns and risks regarding changing politics and reduction of subsidies, as many are dependent on subsidies in order to survive as a small farmer. Also increasing vertical integration and contract farming for the large retailers expose smaller farms to the risk of not having access to the market.

d. Risk perception by SFB

SFBs are most concerned about changing market situations (e.g. changing requirements for access to the market). They are also concerned about sufficient access to raw material, cost of transport, and the relative costs compared to larger actors (e.g. expenses with slaughtering, logistics etc).

e. Food system forecast in 5, 10 and 20 years

There are huge uncertainties regarding the role of SFs in the future. There is a tendency in current policy making and market regulation, which benefits larger farms rather than SFs. This involves a change the subsidies' structure, which seems to benefit the larger farms over smaller farms. As for market regulation, SFs within livestock and dairy production have easy access to the market, as they can deliver milk and meat through the farmers' cooperatives. However, non-processed meat and milk products may result in a poor income for SFs as the prices requires a relatively large production in order to make a living (especially the case for sheep farmers). SF with potato production has to go through alternative sources as the main delivery point (Gartnerhallen) has a minimum quota requirement, excluding small farmers from delivering. Alternative markets may be selling directly to the HORECA. Increasing vertical integration is as mentioned above also a potential threat to small farms and small food businesses.

A potential growing interest among consumers in 'local food', organic food and 'food from somewhere', may be beneficial for both SFs and SFBs. Food scandals or crisis in the conventional food system can be "beneficial" to small and local farms systems as consumers / citizens gain increased interest in how food is produced and handled in the food system.



Annex: List of resources

a. SF and SFB interviews and focus groups information

Stakeholder typology	N° of participants						How were they contacted?
	Interviews			Focus Groups ⁴⁶			
	Men	Women	Total	Men	Women	Total	
Farmers	20	20	40	2	1	3	Phone/email
Producers' cooperatives	1		1				Phone/email
Slaughtering facilities							
Processors (small/large)	8	7	15				Phone/email
Wholesalers	1	2	3	1	1	2	Phone/email
Retailers				1		1	Phone/email
Caterers	4	4	8				Phone/email
Other small food business							
Exporters							
Importers							
Farm inputs suppliers	1		1				Phone/email
Advisory services							
Agricultural administration/Ministry of Agriculture							
Consumers' groups/organizations							
Local administrators and policy makers		1	1				Phone/email
Political leaders and PMs							
Other programs/initiatives							
Nutritionist							
NGOs		1		1	1	2	Phone/email
Traditional and religious leaders (for Africa)							
Total	69			8			

⁴⁶ Some of the stakeholders and participants filled multiple roles in the focus group.



4.19. RR19 Rzeszowski –Poland– Food System Regional Report



WP3

Rzeszowski (RR 19) – Poland – Food System Regional Report

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Table of Contents: Food System Regional Report

1) Socio-economic and agricultural profile of the reference region.....	531
2) Key products and regional food balance sheet.....	532
3) Food system: Key nodes and flows and role of small farms and small food businesses.....	533
3.1. Key product 1: Cereals.....	533
3.2. Key product 2: Potato	535
3.3. Key product 3: Pork	537
3.4. Key product 4: Chicken meat	539
4) Typology of small farms in the reference region.....	542
5) Governance	543
6) Small Farms and rural livelihoods	549
7) Role of Small Food Businesses.....	550
8) The Future	551
9) Annex: List of resources	554



Socio-economic and agricultural profile of the reference region

Rzeszowski region consists of 6 counties: the city of Rzeszów, Rzeszowski, Łańcucki, Kolbuszowski, Strzyżowski and Ropczycko-Sędziszowski. It covers an area of 3,552 km². It has ths. 631,560 inhabitants with 57% of them living in rural areas. The region is characterized by a relatively high population density index. This is due to the fact that the city of Rzeszów, a medium-sized urban centre, is in the area. The region is part of the Podkarpackie Voivodship (NUTS 2 level), one of the least developed voivodships in Poland hence it has a lower level of socio-economic development than average in Poland.

The main feature of agriculture in the region is large agricultural land fragmentation. There are 72,400 farms in the region. The share of farms up to 5 hectares is 92%. Another problem is the spatial distribution of land plots. A single farm consists very often of a large number of separate land plots that hinders agricultural production.

The natural and soil conditions in the region are diverse, which makes agricultural production on both very good and weak soils. Agricultural production is mostly multidirectional with no specialization.

Rzeszowski region has a lot of abandoned agricultural production lands no more in use. During the surveys we observe a lot of plots, where farmers pretend cultivation (moving the grass once a year without using it for hay), just to obtain direct payments, not to produce feed. As a result the official utilized agricultural area declared by farmers is much higher than the real area under production.

Table 1: Basic data for the region

Indicators	Data per Region - Nuts 3
Land size (km ²)	3,552
Population (thousands of people)	631.56
Density (people/km ²)	178
GDP (thousand USD/inhabitant)	10,666.05
Total labour force in AWU	53,413
Total number of holdings	72,459
Total Agricultural area (ha)	230,078
Total Utilized Agricultural Area (ha)	185,151
Agricultural Area in Mountain Area	0
% of UAA in the RR	52.1
Average Farm size	2.56
Number of farms by UAA farm size: 0-5, 5-20, 20-50, >50ha	0-5: 66,953; 5-20: 5,204; >20: 302
Average size of farms < 5ha of UAA	1.43
Area of main crops (ha) (list the relevant crops below)	cereals 54,532 ha; potatoes 9,533 ha; forage crops 4909 ha;



	industrial crops 2,746 ha, other 2,093, pulses 67 ha
Area of main crops (ha) in farms < 5ha of UAA (list the relevant crops below)	cereals 22,896 ha; potatoes 6,420 ha; forage crops 1,841 ha; industrial crops 447 ha, other 1,187, pulses 30 ha
Livestock (LSU) per type (list the relevant types below)	cattle: 25,790; pigs 19,926; sheeps 244; goats 447; horses 4,060; poultry 35,214
Livestock (LSU) per type in farms < 5ha of UAA (list the relevant types below)	cattle: 10,187; pigs 6,214; sheeps 47; horses 2,248; poultry 24,923
Annual work units (AWU) by UAA farm size: 0-5, 5-20, 20-50, >50ha	0-5: 44,998; 5-20: 7,632; 20-50: 462; >50: 327
Total family labour per farm size: 0-5, 5-20, 20-50, >50ha	0-5: 44,625; 5-20: 7,474; 20-50: 312; >50: 98

Rzeszowski region is located in Podkarpackie voivodeship. It is one of the poorest regions in Poland. This has impact on condition of households, their income, possibility of work, importance of agriculture as a source of income, etc. Podkarpackie voivodeship borders with Ukraine and Slovakia. The proximity of Ukraine affects the RR 19 economy strongly, as in last 2-3 years we can observe increasing level of labour migration from Ukraine. Poland (also Podkarpackie voivodeship and especially RR 19) became a transfer point for thousands of Ukrainian, who travel to the West European Countries to find job.

Key products and regional food balance sheet

a. Key products produced and consumed in the region

From the list of products which are in large quantities produced and consumed in the region, two products were selected: cereals (all types) and potatoes. Poultry production is important in the region and the consumption of poultry has increased in recent years. Currently poultry is the second most consumed meat in the region, after pork.

Pork was selected as a product that in our opinion and from key informants is important from a culinary and cultural point of view. Pork is the basic raw material used in production of a wide range of regional (traditional) products.

It is difficult to find a product that is produced in large quantities in the region and at the same time sold mainly for export since the region is characterized by a low level of agricultural production and balance of trade is negative because imports to the region is bigger than export from the region. Fragmented agriculture in RR19 is connected with diversity of production and very low level of specialization. Among surveyed farms in RR 19 it was usually 4 different plant crops per farm, and usually 2 different livestock types per farm (regarding only those with animal production). Almost $\frac{3}{4}$ surveyed farmers keep some number of poultry which is used not only for meat (usually for own consumption) but also for eggs (sold more often than poultry meat and eggs could be important source of income



for SF). Almost half of surveyed farmers have pigs. Surveyed farms have other types of animals (most often milk cows but not large enough to change our choice).

In RR19 almost all surveyed farms cultivate potatoes and cereals. There is no other plant product in RR19 which could be considered as key product. Regarding information obtained from SFB we observed that among key products pork is important raw materials for processing in the RR. Data concerning crop yields obtained from surveyed SF owners confirmed information obtained from experts.

FG participants confirmed that key products for RR 19 were chosen appropriately. Participants invited to the meetings confirmed that cereal products are very important in the region as well as potatoes which are main products for every day dishes. SF still maintain chicken production, but pigs are more and more reared in SF, while pork is often consumed by inhabitants in RR 19.

b. Balance of production and consumption of key products in the region

- Cereals: production 188,681 t/year, consumption 65,050 t/year
- Potatoes: production 107,246 t/year, consumption 63,150 t/year
- Pork: production 9,320 t/year, consumption 26,150 t/year
- Poultry: production 15,140 t/year, consumption 17,050 t/year

c. Official statistics and key products in the region

Official statistics do not represent real level of production of key products in RR 19. Official data came from last Agriculture Census which was conducted in 2010. Information gathered during Focus Groups meeting challenged strongly the level of production estimated before.

Food system: Key nodes and flows and role of small farms and small food businesses

3.1. Key product 1: Cereals

a. Nodes in the regional food system: production, processing, commercialization and retail

b.

The main actors on the cereals (wheat, oats, barley, rye, mixtures of cereals) market are: input suppliers (machinery and equipment, fertilizers, pesticides etc.), agricultural producers, small mills, bakeries-confectioneries, distributors (cereals importers and small local/regional retailers) and consumers. Large farms dominate cereal production, producing around 80% of the region's production, while production in small farms account for about 20%. Processing by small mills is still available, but big mills take over almost all grain processing. Big mills are not interested in cooperation with small farms. Cereals processors are



comparably big (considering number of employees – there is usually more than 5 workers) and often collaborate with big recipients. The number of businesses which process cereals in the region is difficult to estimate as the statistics from the enterprise register are available at the NUTS 2 level. There are lots of local bakeries or confectionery producers in the RR, who sell their products to consumers, but they don't get their supplies from small farms but usually buy flour from big intermediaries (importers).

c. Flows connecting the different nodes in the regional food system

Farmers do not use cereal for direct consumption, but a large part of it is used on farms as feed for animals or sold to the feed industry. Animal fodders accounts for about 60-80% of cereal intake. Part of production is given to the family or is used for exchange (only few among surveyed farmers indicated that they exchange cereals with neighbours), however it is difficult to estimate, as SF owners use this exchange to obtain cereals for seeding, exchange cereals for potatoes or to “pay” someone for helping in farm. About 5% of cereal SF sell to big farms in RR 19 who often play the role of middlemen. It is easier and cheaper for SF to sell cereals to middleman located near them than transport it to purchase point. The rest of the SF sell to food businesses (usually mills).

Only few surveyed farms indicated that they buy seeds as a main input cost. In Poland SF owners usually do not buy cereals for seed, but leave part of their production for the next year or exchange seeds with other farmers. Surveyed farms had quite high costs buying fertilizer, pesticides and herbicides. Among the surveyed SF cereals cover 66% of production area so costs of cereals production (fertilizer, pesticides and herbicides) strongly influence the level of income which they obtain.

Cereal products such as bread, rolls, confectionery, cereal, flours, are bought by consumers in a variety of retail outlets (in grocery shops, bakeries, supermarkets, marketplaces).

d. Role of small farms and small food businesses within the food system

Cereals are consumed only after processing, farmers do not process it by themselves, they have to buy all cereals products they consume. Small Food Businesses (mills) process about 10% of RR 19 production – raw materials they use came also from SF in RR19. Small Food Businesses sell their products directly to retailers, to a lesser extent to general consumers or hotels and catering industry. Big Food Businesses import part of their raw materials, sell part of their products to wholesalers, and export part (beyond RR19).

e. Importance of household self-provisioning in small farms and small food businesses

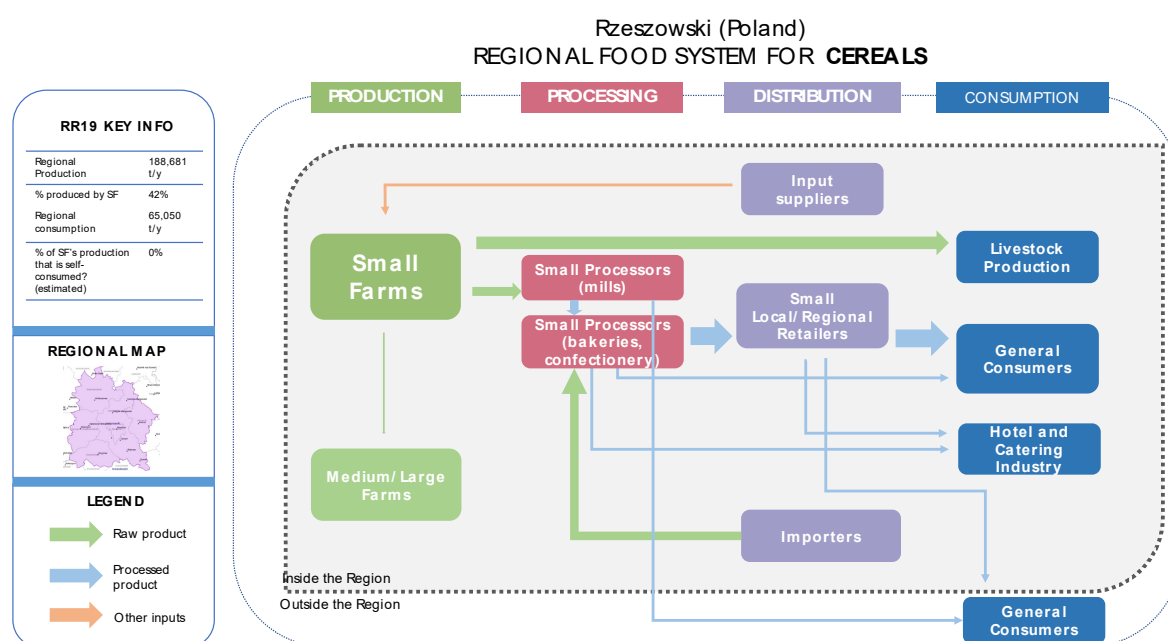
In surveyed farms cereals produced is mainly used for feeding animals. There is no other way (for example on-farm processing for flour production and then bread baking) of using cereals in farms. Bread preparing on farm (base on “own flour”, when farmer go to the mill and deliver some grains for milling, he can never be sure, that flour he obtain came directly from



grains he delivered, as amount of grain he delivery is usually very small, and he got flour which consist of grain from his and earlier deliveries) almost do not exist (we may find few such examples in RR 19). Bread and other cereals products are bought. If cereals in small farms are designated for sale, small cereals processors buy it. Sometimes cereals are given as gifts to family member who use cereals for forage. None of the famers indicated buying cereals for forage, so the regional production in small farms is sufficient to satisfy their needs.

f. Other relevant information

Cereals production in RR 19 seems to be maintained only to satisfy animal needs (forage), cereals products (different types of bread, groats, pasta) are the most important parts of Polish daily diet (also in RR 19).



3.2. Key product 2: Potato

- a. Nodes in the regional food system: production, processing, commercialization and retail

The main actors on the potatoes market are: input suppliers (machinery and equipment, fertilizers, pesticides etc.), agricultural producers, distributors (small local/regional wholesale and retail) and consumers. 80% of potatoes produced in the region is provided by small farms.

Potato is very important key product among surveyed SF. Almost all of them cultivate and use it as food and forage (SF with pig production still use potato as forage for that group of animal). Almost all potato production SF use some part of production for self-consumption



(only 2 farms indicated that they sell or gave away all potatoes they produced). Surveyed SF very often treat potatoes as gifts to family members (14 farms – 33% from of all surveyed farms) or as a gift to non-family member (2 farms - 5% from of all surveyed farms). When selling potatoes, farmer usually did it directly on farm (which is cheaper and easier for them). Only 2 farmers declared that they sold potatoes on farmers market and 1 that he send production to wholesalers and intermediaries (which is connected with low area of potatoes in each surveyed SF). Exchange with neighbours were very rare – appeared only in 2 farms.

In the region there are not small factories processing potatoes or using them as a raw material. Information from key informants show that there is one big manufacturing facility where potatoes are used as one of the raw materials (production of food for infants and small children), however, the suppliers to that plant are usually big farms.

b. Flows connecting the different nodes in the regional food system

Potatoes are an important element of agricultural production and inhabitants' daily diet in R19.

A large part of the production is bought by consumers in unprocessed form (boiled potatoes are one of the main and most commonly used ingredient of the second dish - dinner especially in the poorer regions). The vast majority of potatoes for consumption are purchased in a variety of retail outlets (supermarkets, grocery stores, marketplaces). Direct sales (on-farm purchases), food cooperatives and direct exchanges between farmers are of marginal importance as a source of supply.

Smaller retailers (grocery shops, gastronomy) obtain potatoes from local producers, but they also have to import some amounts of these products (such as early potatoes) from other regions or even abroad. Retailers (supermarkets) buy potatoes directly from local producers (big farms) or import them from other regions (f.e. early potatoes). Some production is sold outside the RR. Potatoes for consumers are available all year and prices are very low.

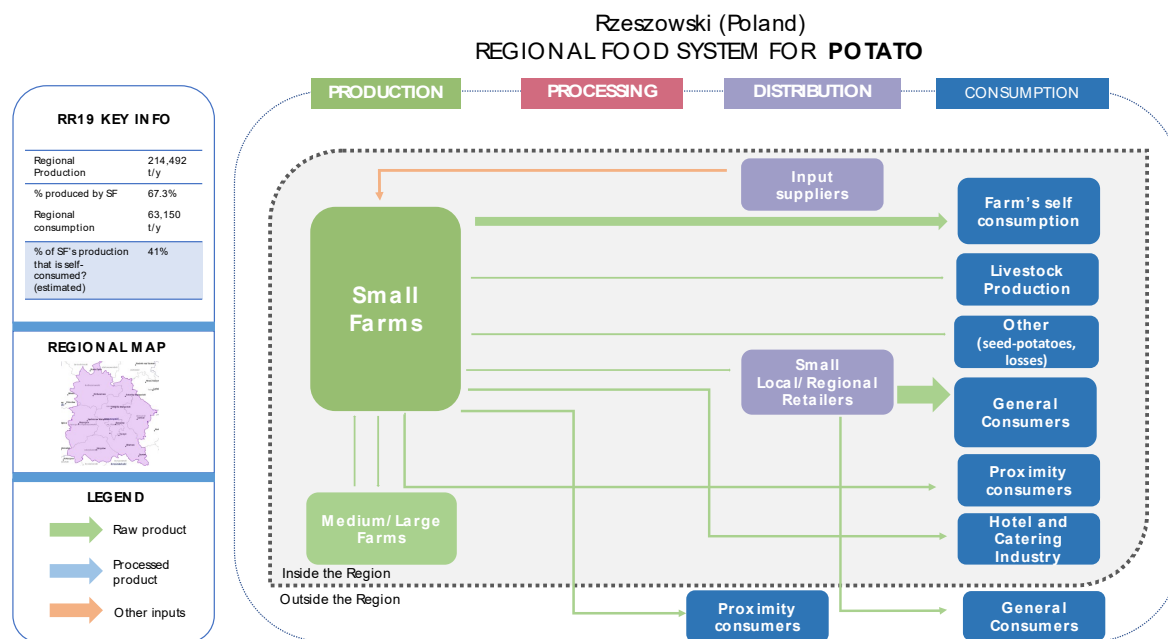
c. Role of small farms and small food businesses within the food system

Small farms produce potato mainly for own consumption, or for proximity consumers. Low price of potatoes and the necessary use of machinery in cultivation can cause a decrease in the area of potatoes next years (just like it is happening right now). SFB with potato processing are very difficult to find in RR19, however potato as one of the main ingredients of Polish cuisine is subject of trading in all groceries shops. If SFB use potatoes (as like one surveyed SFB did for preparing meals for tourists), they obtain them from local producers, and there are usually SFB offering such services as catering, accommodation, agro-tourist.



- d. Importance of household self-provisioning in small farms and small food businesses

Consumption in RR consists of potatoes purchased from shops, farms own consumption, consumption of potatoes given away to family and non-family members. If farmer has potatoes (even very small area) he usually does not buy potatoes beyond the farm.



3.3. Key product 3: Pork

- a. Nodes in the regional food system: production, processing, commercialization and retail

The main actors on the pork market are: input suppliers (feed, machinery and equipment, cleaning supplies, medicines, etc.), agricultural producers, slaughter and processors in plants, distributors (local/regional wholesalers and retailers), exporters, importers and consumers. The pork supply chain in the region is characterized by a high level of fragmentation of production, processing and distribution. Most of the pork production (almost 70%) is provided by large farms. Small holdings keep pigs for their own needs (about 25% of the production is designated to own consumption). Processing of pig meat is carried out in many meat processing plants which have different sizes and use different sources of supply. In small processing plants, the source of meat is the direct supply from the farms (mainly small, medium from within and outside the region).

Farmers deliver pigs to slaughterhouses or collection points run by these processors. Due to the large dispersion of suppliers, the companies also use intermediary services. Big productive plants often have their own services, which play an important role in the purchase



of pigs for processing. They collect pig livestock directly from farms or from their own collection points. For them suppliers are most often big farms or producers' groups. Due to the constraints on domestic market the importance of imported meat increases.

Pig production is important for key product in RR19 – 46% of surveyed SF indicated that they keep pig. Deep analysis showed that some of them maintain quite high amount of pigs (from 7 to 66) while remainders only few (from 1 to 5). Bigger amount of pigs on farm was not connected with higher farm area, what gives the basis for the statement that those farms have to buy forage for pig production (however none of that farm indicated animal feed as one of main inputs).

Pigs are processed in SFB in RR 19. Consumers look for meats and cold meats from SFB are quite popular. Surveyed SFB processing pigs obtained raw material locally, directly on farms or via local slaughterhouses. Surveyed SFB with pigs processing sell their products to small local/regional retailers. Selling products to supermarkets is very rare in RR 19.

b. Flows connecting the different nodes in the regional food system

Among surveyed small farmers with bigger pig production we observed that such product is usually sold all (100%) they produce (partly to small processors and partly to agents). In contrast, in the second group produced mainly for self-consumption or given as gift to family members. If farmers sell pigs, mainly small processors are recipients (mainly to small slaughterhouses or small processors, and less than 10% to the middlemen. The FG participants declared lack of pork selling on local markets because the hygienic requirements for that kind of market are too high and complicated. Processed pork is mostly sold in local shops and processors' stores. The distribution of meat and its products from the processing stage to the final purchaser covers the use of many different distribution channels, including intermediate links.

In large scale processing the strategy relies more heavily on cooperation with retail chains. For small processors the bigger role in the distribution of products is played by own stores (processor's retail stores) and smaller retail outlets.

c. Role of small farms and small food businesses within the food system

Farmers keeping pigs do not buy pork for family consumption. Small farms owners often process pork for own needs, but if they want to do it according to the law, costs of such slaughtering are high. They often decide to keep pigs without registration, and then process it illegally (it is cheaper, faster, less complicated, and have long tradition). Small scale production means that they cannot process pork to sell, however consumers look for pork products which were prepared from traditionally reared pigs. They can buy such products directly from farmers, or from local small pork processors. If farmers want to sell processed pork, he has a lot of problems, as in Poland regulations concerning direct selling change very often.

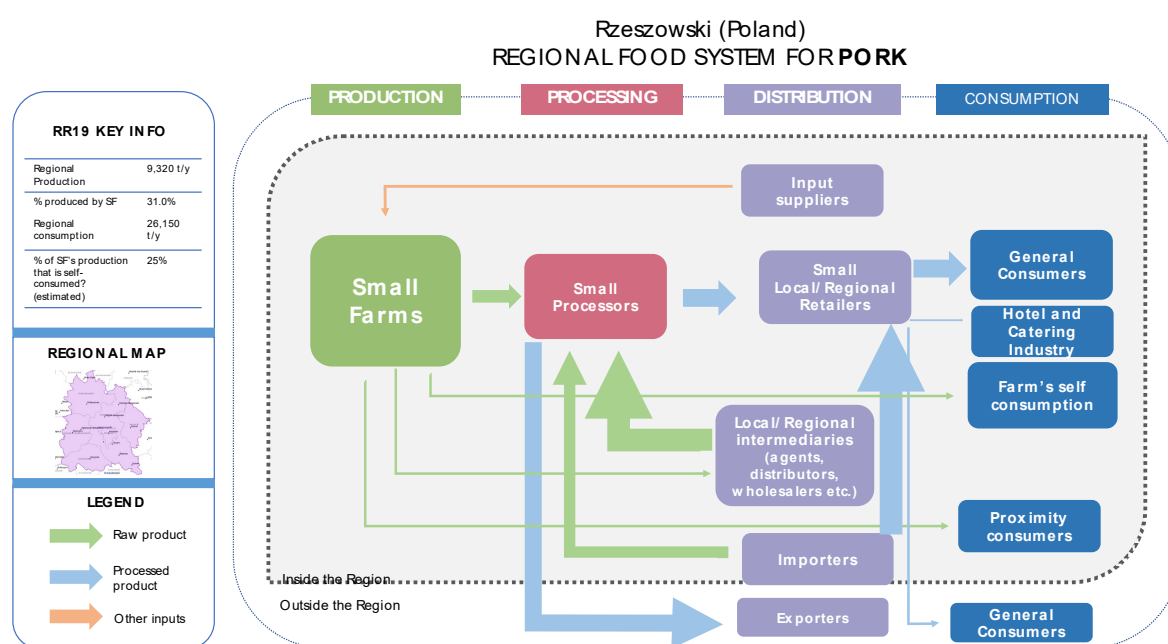


- d. Importance of household self-provisioning in small farms and small food businesses

Small farms in RR 19 are responsible for 31% pork production. Small farms are important source of pork for own consumption.

- e. Other relevant information

Pork is important part of daily diet among RR 19 inhabitants. Localization of RR 19 – proximity of Ukraine borders cause quite high risk of ASF (African Swine Fever) among pigs.



3.4. Key product 4: Chicken meat

- a. Nodes in the regional food system: production, processing, commercialization and retail

Main actors on the chicken meat market are: input suppliers (breeders of new breeds and crossbreeds, producers of poultry feeds, hatching eggs, chicks, machinery and equipment, cleaning supplies, medicines, packaging, etc.), agricultural producers, processors and consumers. The proportion of production in small and big farms with chicken meat production – small farms 10%, big farms 90%.

Small farms produce chicken meat mainly for their own needs (own consumption) or sell, give as gift to family members or other proximity consumers. Slaughters and processing



plants, distributors (wholesale and retail) are not important for small farms, as they do not cooperate with them. They get their supplies from large farms, often from outside RR 19.

Processing of chicken meat is carried out in many meat processing plants of different sizes and using different sources of supply, but they do not obtain raw material from small farms. There are a few small poultry processors in the RR, two were covered by the survey of SFB. One of them declared that his chicken meat comes from his own farm while the second one indicated that he buys meat from local slaughterhouse or from wholesalers. For both of them selling products to local customers (such as small retailers, individual customers, selling directly on business) was most important. Both of them give part of their production as gifts – or sell directly to consumers in the region.

Big processors buy raw material directly from big farms or import. Due to the large dispersion of suppliers, the processors also use intermediary services. Highly productive plants often have their own services, which play an important role in the purchase of meat for processing. They collect meat directly from big farms or from their own collection points. Due to the constraint of domestic poultry market the import of chicken meat is becoming important and increases. Big processing plants export about 60% of their products outside the RR, 40% stays in the RR.

The distribution of chicken meat products from the processing stage to the final consumer covers the use of many different distribution channels, including intermediate links as well as direct deliveries to supermarket chains, hypermarkets and discounters. In large scale processing the strategy relies more heavily on cooperation with retail chains. For small processors small retail outlets or direct sales play the largest role in the product distribution process.

Consumers buy 95% of chicken meat products within the region and about 5% outside the RR. The RR consumption of chicken meat in the region consists of such elements as: own consumption of farms, consumption of meat bought in retail stores, consumption of meat bought (or received free of charge) directly on farms or on business.

b. Flows connecting the different nodes in the regional food system

The most important flow is within the small farms – they slaughter chickens for their own consumption. Flows to proximity consumers usually mean that they visit farm and obtain their products directly from a farmer. Farmers usually do not have refrigerated cars which enable them transport and sell meat on the market place. Amount of meat which is allocated for selling is so low, that external shocks (if occur) probably will not influence the level of SF poultry production. In case of an external shock small farms are able to increase the chicken meat production quite easy and fast to raise the level of their food security.

c. Role of small farms and small food businesses within the food system



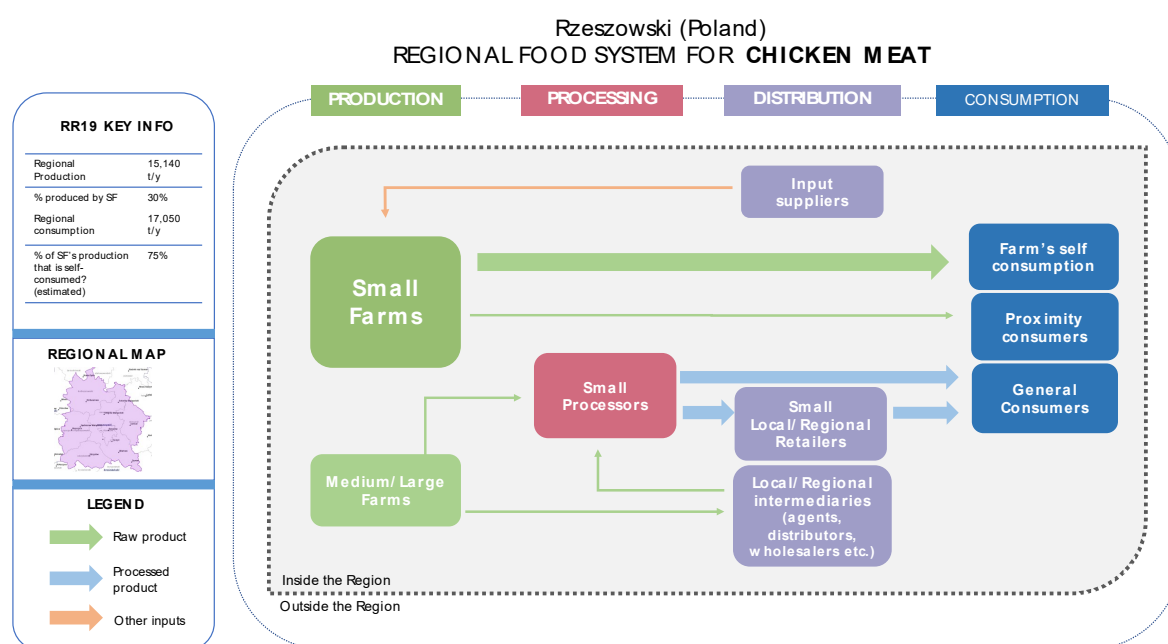
Regarding chicken meat, production on small farms is important only for their self-consumption. If they were able to increase production they could share the market with the large processors or supply more to them.

d. Importance of household self-provisioning in SF and SFB

Chicken meat is important kind of meat in Polish cuisine tradition. Production of chickens is very common in RR19, 74% surveyed SF declared that they possess hens/chickens (on average 43 hen/chickens). Scale of production is rather for own or family needs. Selling chicken meat was extremely rare – only 2 farms indicate that they do it. None of farmers indicated buying feed for poultry as one of the main inputs, so we can assume that feed for those animals came from own production.

e. Add any other relevant information that you think is required to understand the functioning of the food system of the key product.

It is worth noting that small farms keep hens not only for meat but also for eggs. Selling eggs is an important source of income for small farmers. About 25% of egg production is sold directly on farms.



Typology of small farms in the reference region

a. Small farm types in the region

FIRST CLASSIFICATION

TYPE 1:

About 90% of small farms in the region were classified as Type 1 - Agricultural production in these farms is mostly multidirectional, with no specialization. There is no dominant crop but they produce cereals (including wheat in particular), potatoes, vegetable, grass for fodder. Significant part of land in small farms are fallow land, often kept in “good condition” only for direct payments without using for food or forage production. Some farmers have livestock but only a few animals (1 or 2 cows, etc.). Agrarian fragmentation, a large number of separate land plots being part of a single farm, overcapacity of the labour force engaged in agriculture, result in very low economic strength of these farms. They are mostly not integrated or only slightly integrated with the market and the farm output usually serves for self-supply of the family. The family member have usually other non-agriculture source of income. The farm output is not sufficient to meet all food needs of the family, so the food is also bought on the market. The family structure is very often affected by processes of migration- young people migrate to cities looking for a job outside the agricultural sector. Farms are run by older generations, there are often no successors.

TYPE 2:

About 10% of small farms in the region were classified as Type 2- Agricultural production in these farms is more specialized (vegetables, fruits which are more and more popular in last years, especially raspberries, currants). Part of them are localized near Rzeszów (city) and provide food for the Rzeszów market. They are much more integrated with the market than farms in Type 1 and the farm output usually serves only in a small part for self-supply of the family. There is sometimes some kind of vertical integration with other stages in the food chain (processing or selling farm's produce). The economic strength of these farms is higher, sometimes agriculture is the only source of income for the family. The farm output is insufficiently diversified to meet all food needs of the family, so the food is also bought on the market. The family structure is less affected by processes of migration of young people, lack of successors is not as often as in Type 2.

SECOND CLASSIFICATION

The other typology could consider present state and future of small farms as a result of received in survey answers and result of discussion during the Focus Groups:

- Type A - are the farms with no future, without successor, no money to develop or even to keep status quo, sale or transfer of land only between family members (often for building purpose) – type A represent 55% of SF in RR 19,



- Type B – are the farms in more or less stable situation, the farmers want to keep that situation till their retirement or death, no money for investments and improvements – type B represent 38% of SF in RR 19,
- Type C – small amount – farms with relatively young farmers who want to develop their farms and production, want to build their future in agriculture, apply for EU funds, have plans and ideas for the future – type C represent 2% of SF in RR 19,
- Type D – farms maintained by farmers retired from Workers Social Insurance system – ZUS (but not from agricultural insurance system, farmers to get pension from farmers social insurance system have to stop agricultural production), without successor, the farms are in more or less stable situation (they have monthly non-agricultural source of income – retirement benefits) – type D represent 5% of SF in RR 19.

b. Role of small farm types in the regional food and nutrition security

- Type 1. Farm production is important as additional source of food delivery to family, however surviving of those farms is strongly dependent on direct payments.
- Type 2. Those farms are important in regional food system, as a significant part of customers are looking for healthy, high quality food. SFs are perceived as those which can provide it.
- Type C. Those farms in the future could be important part of food system, as their young owners already know that they want to work and live in rural areas. They will be important providers of food in RR 19.
- Type D. Those farms are important for food system right now. Their production can complement and enrich farmers diet (especially the poorest group of farmers).

Governance

a. Main interactions of SF and SFB with governance structures in the region

In Poland farmers are free to decide what they want to produce on their farms. “Big” farmers more and more take into consideration market demand, market quality requirements and world prices of food. “Small” farmers in most cases run their farms in a very traditional way. Farms have been treated mainly as a source of food for farmer’s family, surplus as a source of income. Farms were producing as many kinds of crops as area and land quality allowed. Differentiated animal production was limited by possibility of feed production for those animals. In many farms that kind of approach and tradition even now decides about condition and production of a farm.

From 2001 in Poland a farm can be inherited by any member of a family (wife, children) – the results are constant dividing of farms. Previously the farm could be passed to only one



person with at least basic agricultural education – it was to prevent dividing farms into small plots. In farm families traditionally and in most cases a farm is inherited by male successor, “the weakest” – the one that had no power to choose another life through education or finding other source of income. According to sociologists it has been a kind of “negative selection”.

Inheriting a farm is often treated as obligation to parents or other members of the family. It is very sad but farmers were never appreciated or had a high society respect. There is a Polish proverb: “a farmer is sleeping when his production is growing” – it is the way farmers are perceived by urban community - the income comes to farmers without their effort. That kind of approach is even stronger since farmers get millions of zloty in the EU payments and subsidies. Surveyed farmers in many cases complained about problems of their products marketing – small amounts, distance to the possible markets. It was quite often an argument for not developing their production even when they declared such a possibility on their farm. Farmers do not want to associate or cooperate in any way. They very highly value their independence even if it means problems with marketing or higher costs of input.

b. Levels of governance and their relative importance for SFs and SFBs

After 1989 the state system (including state “cooperatives”) of purchasing of agricultural production – raw materials nearly ceased to exist. The void was gradually filled with private entrepreneurs, dairy cooperatives or slaughterhouses. The way of products and raw materials from farms to consumers in general became longer, resulting in higher prices of food for consumers and lower share of “gate prices” in the final price of food. On the other hand in the last few years there is growing tendency of shortening that way by creating a form of direct marketing, e-commers, “food baskets”. Growing demand for fresh food from known sources, high quality, organic food creates new chances for small farms marketing their products. For several surveyed farms direct marketing was a main or only way to sell and obtain some income. As small farms produce small amounts of products usually their goods are sold on local markets or to small local retailers. Small scale means also very weak negotiation position of a farmer. Farmers usually produce what they want or what they need not taking into consideration what market, consumers would like to buy.

Ministry of Agriculture and Rural Development in Poland established Integrated System of Agriculture Market Information. All regional Advisory-Extension Centres also provide mainly local agricultural information for farmers on Internet and local publications. None of our respondents seemed to use those systems although information delivered by Advisory-Extension Centres during courses, trainings and personally by agents were important to farmers and adequate to their needs. Internet way of delivering important information is limited by access to Internet, owning computers and skills to use it. That is also interconnected with farmers’ age and education level. Their small amount of different products is not marketed at all, or as mentioned above, because of that their negotiation position is non-existing.



c. Constraints impairing full participation in the food system

Farms size and fragmentation, plots distance from farms, lack of machinery owned by farmers (machinery services have to be bought), plots so small that cannot be cultivated with machines, are only few among many other factors limiting production and income that small farms can obtain. One of the most important limitations of the scale of production is mentioned above tradition of self-provisioning resulting in producing small amounts of different products.

In Poland as in many European countries there is long term tendency of decreasing number of small farms. In Poland even the smallest farm above 1 ha is a “pass” to much cheaper farmers social security system and much lower tax burdens (or none) if they conduct some economic activity. The small farms, especially without a successor “disappear” from agricultural map. Between 1996 Agriculture Census and 2013 the number of farms 1-5ha in Poland dropped by 10% but SFs in our RR is dropped by only 3.8 %.

Poland joining the EU resulted also in keeping land as a source of direct payment. The land is kept in “good culture” not for production purposes but for receiving payments. It is also the reason that most farmers do not want to rent land officially. The land owners allow neighbours to “use” the land but still collect the direct payment. Farmer using informally rented land are unable to have long term plan for land use especially for developing animal production.

The surveyed farms could be divided according to their production to three types:

- farms producing only crops, even if they have meadows
- farms producing crops and animals
- farms production crops and only few hens/chickens (eggs for family) – so no market animal production.

The cross-compliance requirements significantly limited the number of livestock kept in small farms. Farmers could not adapt, had no means to adapt their buildings, buy equipment for two or three cows or low number of hogs. Although the number of heads of farm animals started to decrease in 1990, the drastic change could be observed from 2004. Between 2004 and 2016 the number of cattle and pigs dropped by 51% - mostly in small farms. “Vanishing” of local small slaughterhouses (EU requirements) was also one of the factors for much lower pig production in small farms.

Participants of the Focus Groups many times and very strongly indicated that payments should be for real production, only for lands that are cultivated so that land could be given to farmer who really need them for cultivation. The current system is promoting cheating of the state and tax payers. This particularly concerns farmers with green land – meadows and pastures but without any farm animals.



d. External policies, decisions and social norms affecting food systems

It is very difficult to point out policies affecting food systems. Although economists underline that free market in food production is not so free for individual producers, as at least part of their production can be stimulated by systems of premiums and subsidies hardly any external policies exist. All states EU impose regulations concerning food safety. From the small farms point of view this is often the main obstacle for direct marketing of processed products from the farms. Farmers complain that the requirements are too high and complicated, changed too often and visits of controlling bodies “paralyse” their activity. It also means that the added value that could improve farmers income is limited – when they decide not to process their own raw materials. From our experts and own surveys we know that there is a number of farmers unofficially processing their raw materials though not registered in any way.

Poor quality land designated for building purposes reduces land available for agricultural production.

None of surveyed farmers reported any limitations or problems connected with conservation procedures. Farms are probably too small and too traditional (self-consumption) to concern production of energy plants. “Land is for producing food”.

e. Gender issues intersecting governance issues

A lot has changed in traditional way of family life in rural areas but the core problems seem to be the same. Who is the cashier in the family? Is a woman financially dependent on her husband? Answers to these questions may influence the meaning of her life, self-esteem, respect of her children and other members of the society. More and more often, as our survey shows, women are the partners in marriage, management and decision making in farming. Traditional division of roles still exist: a woman – provides food for the family, perform other home chores, takes care of animals; a man – does harder physical work, field work, “earning money”. But in many cases the woman has non-farm job and better educated than her husband (in Poland more women have higher education than men).

There are more men in rural areas than women. Farmers’ daughters or rural women do not want to stay on farms or marry a farmer. If they stay they want non-farm jobs. There is a recognised problem known as “a wife for a farmer”. Too many single men, “old bachelors” run their farms with very limited chance to find a life partner and have children. In most surveyed farms our respondents were men, but decision making concerning farm and family life is participatory with spouse or other family members. A farmer is hardly a “dictator” on his farm.

Processing of raw materials for market, in particular for family needs is mostly done by women. In Poland and the RR men and women have the same access to markets. Direct selling from farms or on local markets is often done by women. Polish law do not discriminate against women in their right to buy land but farmers selling their land would



probably be more willing to sell land to a man than a woman. Still farming is perceived as hard work not for a delicate single woman. There is a strong probability that a farmer will have his son as successor, not a daughter unless she is married to a farmer.

There is very old and effective rural women organisation – Country Housewives Clubs with important social but also economic role. It is the real "women power" in rural areas. They pass tradition, including local cuisine, specific ways of processing and preserving local raw materials. They teach younger generations old traditional handcrafts, local songs and dances, old customs, for instance, traditional local wedding receptions or church holidays, harvest holidays and so on. The clubs organise trainings and workshops helping rural women to cope with new technologies and new challenges.

f. Other actors and processes important for the regional food system

In Rzeszowski region we can hardly talk about any kind of production specialization. There is not any special agricultural product which could be peculiar to RR 19. Culture and tradition have strong influence on production in RR 19, but mentioned aspects are the same for all NUTS 3 region in podkarpackie voivodship. Regional food system is strongly affected by institutional influences and government regulations concerning food safety. Food production, selling and processing are under control of sanitary and veterinary regulations. If SF owners want to sell their product (as raw material or as processed items) they have to follow regulations of production if they want to do it as farmers (otherwise it attracts tax and national insurance consequences). Direct payments are another problem as mentioned several times during the Focus Groups Discussions. Direct payments system discourages maintaining agricultural production since it provides some level of income, resulting in increasing area excluded from agricultural production. During the holiday season - mainly summer time – local consumption is higher as a result of tourist inflow.

g. Forms of collaboration and organization between small farms

There is a lot of organizations established in RR 19, which in different way influence social and cultural life of rural areas. There hardly are organizations associating small and big farms owners. There are organisations associating local community members including farmers and not farmers. The scope of their activity encloses for instance local folk groups. We could distinguish:

- Country Housewives Clubs. They are very active and are part of local culture. They prepare different events in villages, cook and sell food on picnics, local festivals, etc. Such meetings are often only opportunity to taste local dishes. A huge part of members of those associations maintain SF (alone or with spouse) and often men are also members of this organizations.
- Associations of Village Heads. Such an organization members represent voice of local community, local food producers, take part in workshops, meetings concerning rural issues in region.



h. Forms of collaboration and organization between small farms and consumers

In the RR there is no form of institutional collaboration and organization between small farms and consumers. This was the case in the desk data collection as well as SF and SFB owners interviews and Focus Groups Discussions. On the other hand, there is informal network relationship between farmers and family members, friends, co-workers, neighbours to whom they less regularly deliver products sometimes as gifts and sometimes sell to them.

i. Relationship between small and large farms, and between small and large businesses

There is collaboration between small and big farms owners, but the level depends on the kind of product. Big farms work often as collection points for SF owners: huge processors are not interested in buying small amount of production. What is more, SF owners often do not have appropriate cars or trailers to deliver their product to collection points. If SF owner wants to sell his product he can do it with support from huge farmers. Huge farmers provide also other services for SFs, for instance they provide machinery services. Huge farmers can be local leader, who can convince SF to develop new kinds of products or to use new technology. In such situations SF are not competitors to big farms but could be supported by them.

j. Other governance issues

During Focus Groups meetings such governance issues were mentioned:

- direct payments – present way of direct payments system – criteria, consolidate and deepen problem of abandonment of agricultural land and production. Areas designated under agricultural production are smaller and smaller in RR 19, or production, especially meadows, is only “for show”,
- legal limitation of agricultural production (mentioned earlier veterinary and sanitary regulations), especially the direct marketing from farms,
- very high land price if someone would like to enlarge his farm,
- land is kept for direct payments and sometimes rented unofficially to the neighbours,
- problems with land merge,
- the scale of SF production is too small, even SFB owners buy raw materials looking for bigger suppliers,
- domination of large-scale trade in RR 19.



Small Farms and rural livelihoods

a. Importance of household labour in SFs

SF base their activities on unpaid household labour. Farmers and family members are the most important source of labour, hired labour is extremely rare. What happens quite often is labour exchange, when during harvest neighbours support each other. Sometimes one farmer uses other farmers' equipment and instead supports the equipment owner with manual labour. One person, usually the oldest in the farm alone is able to cope with the work on the farm with the help of a lot of children during summer who help in field work (haymaking, potatoes collecting).

b. Farm and non-farm income in the SF's households

In SF in RR 19 dominant crops are cereals (including wheat in particular) and potatoes. Pigs and poultry dominate in the livestock. Agrarian fragmentation, unfavourable area structure of farms with the existing overcapacity of the labour force engaged in agriculture, result in low economic strength of farms in the region. Small holdings are mostly not integrated or only slightly integrated with the market and the farms' output usually serves for self-supply of the family, which usually has another than agriculture source of income. Almost all farms (99%) derive support from direct payments or other related EU programmes. Significant part of SF has other non-farm sources of income. Often pension is the main source of income and a farm is treated as way to deliver healthy, high quality source of food for family members.

c. Shocks and coping mechanisms of SF households

Agricultural production in the region does not meet all food needs of inhabitants, so many products are imported. In the region there is not only dispersed production but also dispersed trade of agricultural products. The agricultural market is highly dispersed and not always transparent for the economically weak and small agricultural holdings, that makes it difficult to sell agricultural products. The creation of concentrated entities (co-operatives, agricultural producer groups) is a process which goes very slowly and doesn't bring significant results. Farms suffer from the weather shocks (for instance very high or very low temperature, floods, draught), do not have appropriate tools and experience to fight them. There is also problem of animal diseases (for instance threats from ASF, or bird flu). Other shocks which influence SF activity are financial shocks: high prices of factors of production (especially petrol) and low price of products which cause huge problems of economic inefficiency among even the most active farms.



Role of Small Food Businesses

d. Main insights and patterns

Small Food Businesses - average age of surveyed owners was 42, most of them came from RR. SFB and how they function is quite difficult in RR 19. Polish law requires that developing or entering into any economic activity is connected to very high cost of participating in national insurance system. For SFB (which are often started and developed by SF owners) it is much cheaper and easier to work in “grey zone”, without registering their activity. As a result their owners do not reveal any kind of information about it (they are afraid about the legal consequences of their activity).

Pork is usually used for producing high quality meats, meat products which are sold mainly to local consumers (no SFB declared selling their products to supermarkets). Three of the surveyed SFB declared that their activities were connected with cereals which they process into bread, cakes and producing grain from barley. Among surveyed SFB potatoes are only subject of trading in local shops. Data about potato processors in RR 19 obtained from official statistics confirmed that there is no SFB connected with potato.

Part of SFB in RR 19 are involved in production based on traditional recipes. Podkarpackie voivodship is known as those with the highest number of products registered on the List of Traditional Products in Poland. In 2017 it was 217 products from podkarpackie on that list, and some of them are produced in RR 19. SFB are often managed by families, they give employment for family members or local community members. To succeed they have to produce high quality, often traditional products, recognised as better than “mass” production. Our survey showed that SFB in RR 19 used to be originally SF in the past, or still join both activities.

e. Labour in SFB work

Small Food Businesses are fairly important for RR19. They create local on-farm and non-farm jobs.

f. SFB income

SFBs provide significant income for their owners, and often became very important (the only one) source of income for SFB owners and their families. Most of them came from farms, and they still cultivate farming, so they obtain direct payments. SFB usually did not decide to apply for other types of support.

g. Shocks and coping mechanisms of SFB households

SFB in RR 19 have been experiencing financial shocks, which is connected to high cost of raw materials they buy, hence are unable to buy enough. Another kind of shock is connected to high standards – especially after Poland joined the EU. After accession a lot of SFB in



rural area have suspended activities, as they did not meet the EU requirements, or some suppliers (SF) ceased operations. A lot of SFB activity strongly depend on the weather, and quite rapid change in it also cause periodic problems during their activity (for instance problems with too small or too high level of product deliveries).

The Future

a. Main objectives and priorities of SF for the future

Question about main objectives and priorities for surveyed SF was very difficult for them. Deep analysis of received answers enable grouping SF in RR19 in to 3 main groups:

- farms where (according to obtained answers) there is no prospects for any kind of development, no successors and they will keep production on present or maybe even lower levels, until they retire. In those farms land is often unofficially rented to other farmers (to obtain additional source of income from direct payments) or slowly abandoned.
- farms where situation is quite stable, they want to keep actual levels of production. On those farms there is usually additional source of income, which strongly influence their plans connected with agriculture,
- developing farms (very few) which want to increase level and quality of production, such farmers are usually younger, interested in investing and want to buy land, new machines, build or renovate buildings, they count on financial help of the EU programs and funds, for instance for young farmers.

We could distinguish such factors as age, health condition, situation on market/prices that are very important and our respondents take into consideration for future plans of. Objectives and priorities for short and long term were not very varied among farmers, however in long term answers “to have successor” or other raised problems about farm being taken over in the future.

When spouses were asked about objectives and priorities for the future, their answers were similar to answers received from respondents. Children’s education was very important for farmers and the children themselves, it is perceived as the way to better life, probably away from farming or enabling them to obtain stable non-farm or non-agricultural income.

b. Main objectives and priorities of SFB for the future

Surveyed SFB owners were more willing to say what their objectives and priorities in the short term were than in the long term. Regarding goals in the short term, from answers gathered we could say that in general SFB want to develop their activity by for instance maintaining their cooperation with suppliers, generating more products with higher quality or use more raw material which they produced by themselves and staying on the market.



We could observe that for SFB owners with 3 or 4 years experience on the market it was important to pay off their debts (invested credits) and stay on the market. More experienced SFB owners (with 15 or more year's engagement in businesses activity) were focused on developing their activity. There was no specific pattern for SFB owners' objectives and priorities for the future considering subject of their activity or such things, as how they came into the ownership of the business.

Surveyed SFB owners had problems with differentiations their answers for short and long term hence gave the same answers that they want to stay on the market and develop. They Spouses gave the same answers as SFB owners, or spouses did not answer at all. Their children did not give answers these questions however 2 respondents underlined that children do not want to take SFB after them.

c. Risk perception by SF

Answers to question about risk for farming activity were dominated by replay: weather conditions especially flood except 3 surveyed SF who did not indicate weather as a source of risk. In Poland agricultural insurances are obligatory for farmers (if they do not insure at least a part of their production it could cause loosing access to direct payments) but in practice no one is checking it, so farmers do not buy plant or animal insurances (although 60% of the insurance fee is covered by the budget). The consequences of weather events in such cases can be very serious for farmers.

Farmers are afraid of future financial conditions of farms and indicate financial risk, unstable prices of input and output, possibility of loosing EU payments (18 out of 39 surveyed farmers indicated such factor). The financial risk they combine with age, health condition, situation on market, costs of production factors, possibility to work on farm in the future and earn money to maintain family.

Another answer that appeared quite often was damage in crops by game animals (6 farmers indicated such answer). Farms involved in animal production indicated risk of animal diseases and loosing production. Another source of risk indicated by single farmers were: low price of their products on market (that influence their income) and poor quality of soil, that influence their productivity. All answers given concern more internal than external source of risk. None of farmers indicated risk connected with for instance competition of their products with products from farmers from other region, country or from abroad. Apart from mentioned risk connected with prevalence of animal or plant production, there is no basis to distinguish different types of farms and risks.

d. Risk perception by SFB

All surveyed SFB owners in RR19 indicated some risks to their businesses. Their production strongly depends on the weather hence, they commonly mentioned that weather conditions influence yields, quality of raw materials and in general could limit supplies and therefore limit scale of their production. Another common risk was low finance conditions of the



business as consequences of the situation of the country's economy. Surveyed SFB are afraid of high cost of prices of raw materials and factors of production. Financial risk is also perceived in connection with cost of credits. Two of the surveyed SFB owners who process and sell meat and cold meats declared lack of steady and adequate supply of raw material as very important source of risk.

e. Food system forecast in 5, 10 and 20 years

Participants of Focus Groups indicated that:

- SF owners are mostly older people without successors, hence in the next 10-20 years it will be difficult getting the next generation take over land to continue production.
- participants estimated that in next 20 years there will be huge change in structure of farms and there will be many more big farms (with more than 5 ha).
- problem with exclusion of land from agricultural production, in next 10-20 years a lot of plots belonging to SF will be woods and bushes.
- cereals production could be profitable since almost all the inhabitants of RR 19 depend on cereals product but locally produced cereals is not enough so depend on imported raw materials from outside RR 19.
- cereals processing will be “fashionable” in the future.
- potato production in SF will reduce – process of divestments, lack of machinery to maintain such production will cause that the few SFs who will produce will do so only for self-subsistence.
- poultry production will be maintain in SF, however in the last few years a lot of disease is threatening such production.
- Pig keeping in the future will be dominated by huge farms.

f. Other future related issues

During Focus Group meetings other future related issues were mentioned:

- problem of depopulation of agricultural areas.
- direct payments and high land price cause that “young farmers” cannot develop their production.
- There will be plenty of food in shops so that consumers will not appreciate food producers.



Annex: List of resources

a. List of key experts interviewed

Stakeholder	Affiliation
President of Regional Association of Cooperatives of Agricultural Production in Rzeszów; expert on agricultural production and rural development	Producers' cooperative
Member of Farmers' Cooperative, which produces and processes poultry	Producers' cooperative
Member of the Association of Village Leaders in one of the districts in RR	Local administrator
Staff of the Podkarpacka Food Cooperative, which offers via the internet products supplied by small farmers	Consumers' group/organization
Vice Chairwoman of the Rural Housewives Club of the Rzeszów district	NGO

b. SF and SFB interviews and focus groups information

Stakeholder typology	N° of participants						How were they contacted?
	Interviews			Focus Groups			
	Men	Women	Total	Men	Women	Total	
Farmers	29	14	43	2		2	Firstly by phone, then face to face
Producers’ cooperatives							
Slaughtering facilities							
Processors (small/large)				3		3	Firstly by phone, then face to face
Wholesalers							
Retailers	2	1	3				Firstly by phone, then face to face
Caterers							
Other small food business	4	3	7				Firstly by phone, then face to face
Exporters							
Importers							
Farm inputs suppliers				1		1	Firstly by phone, then face to face
Advisory services					2	2	Firstly by phone, then face to face
Agricultural administration/Minis try of Agriculture				2		2	Firstly by phone, then face to face
Consumers' groups/organizations							



Local administrators and policy makers					2	2	Firstly by phone, then face to face
Political leaders and PMs							
Other programs/initiatives				4		4	Firstly by phone, then face to face
Nutritionist					2	2	Firstly by phone, then face to face
NGOs							
Traditional and religious leaders (for Africa)							
Total	53			18			

c. Other important issues

The presented report is a result of several steps of research according to the Project timetable. The first set of data was prepared according to statistical data and data we could get from our stakeholders. Those results were completed with data obtained from questionnaires used for small farms and small food businesses survey. That version, including key products maps, was presented during our Focus Groups meetings. As a result we had to again make some corrections including opinions of FG participants. Those changes are presented in the key products maps and comments.

We organized 2 Focus Groups: one dedicated to pork and poultry, second to cereals and potatoes. They were held 19th and 20th September 2017, both in Agricultural Advisory Centre in Boguchwała. We have had really great discussion during this meetings. We had 9 participants in each (plus 4 people from SALSA team). Meetings started at 10.00 and both finished before 2.00 p.m. (with break for lunch). People were very interested in our topics, they asked questions, discussed (we sent them presentation with main topics for discussion before meeting).

Participants were really very open for discussion. We have had discussion at the end of the meetings, which summarize our meetings and give opportunity to present other problems, issues. We have contacts to all of them (mails or/and phone numbers), so we can contact with selected participants and ask them about missing information. We have such impression that participants were interested in our survey but quite wary or even suspicious during first minutes of meetings. After that, they were more willing to discuss. It was very difficult to find one common date for each meeting – most of participants told us that they could not promise us, that they would appear on meetings. We invited many more people for each meeting however a lot of them did not come.



4.20. RR20 Nowosadecki –Poland– Food System Regional Report



WP3

Nowosadecki (RR 20) –Poland– Food System Regional Report

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Table of Contents: Food System Regional Report

1) Socio-economic and agricultural profile of the reference region.....	558
2) Key products and regional food balance sheet.....	559
3) Food system: Key nodes and flows and role of small farms and small food businesses.....	560
3.1. Key product 1: Cereals.....	560
3.2. Key product 2: Potato	562
3.3. Key product 3: Apple	563
3.4. Key product 4: Cow milk	566
4) Typology of small farms in the reference region.....	567
5) Governance	569
6) Small Farms and rural livelihoods	575
7) Role of Small Food Businesses.....	576
8) The Future	576
9) Annex: List of resources	580



Socio-economic and agricultural profile of the reference region

Nowosadecki region (RR 20) was established as NUTS 3 on January 1st, 2015 (Commission Regulations npr 1319/2013). It consists of counties: gorlicki, limanowski, nowosadecki and a town Nowy Sącz. Nowosadecki subregion is the south-eastern part of the Malopolskie voivodship. Most of the area of the RR 20 is covered by mountainous and upland areas as well as river valleys. Nowosadecki sub region can be described as typically agricultural. The largest group of land is agricultural land – 70.9% of the area. Among them, there is a high percentage of meadows and pastures (40,6%) and a relatively high percentage of orchards and permanent crops 5,7%. Hence, the dominant agricultural activity is cultivation of cereals, fruits (mainly apples) and cattle breeding, especially dairy cows.

Table 1: Basic data for the region

Indicators	Data per Region - Nuts 3
Land size (km2)	3,524
Population (thousands of people)	535,636
Density (people/km2)	152
GDP (thousand USD/inhabitant)	8,997
Total labour force in AWU	56,533
Total number of holdings	57,933
Total Agricultural area (ha)	131,331
Total Utilized Agricultural Area (ha)	122,885
Agricultural Area in Mountain Area	31,841 ha/ 24%
% of UAA in the RR	34.8%
Average Farm size	2.23
Number of farms by UAA farm size: 0-5, 5-20,20-50, >50ha	0-5: 52,944; 5-20: 4,848; >20 ha: 174
Average size of farms < 5ha of UAA	2.6
Area of main crops (ha) (list the relevant crops below)	Cereals: 23,143; Potatoes: 6,095; Industrial (flax, tobacco, hops, chicory): 142; Feed: 5,412
Area of main crops (ha) in farms < 5ha of UAA (list the relevant crops below)	Cereals: 11,069; Potatoes: 3,476; Industrial: 26; Feed: 2,118
Livestock (LSU) per type (list the relevant types below)	Cattle: 55,047; Cows 38,536; Pigs 10,758; Sheep: 1,414; Goats: 437; Horses: 4,798; Poultry: 11,947
Livestock (LSU) per type in farms < 5ha of UAA (list the relevant types below)	Cattle: 27,309; Cows: 19,118; Pigs: 3,018; Sheep: 834; Goats: 240; Horses: 2,016; Poultry: 8,598
Annual work units (AWU) by UAA farm size:0-5, 5-20, 20-50, >50ha	0-5 ha: 47,700; 5-20 ha: 8,700; >20 ha: 300
Total family labour per farm size: 0-5, 5-20,20-50,>50ha	0-5 ha: 116,400; 5-20 ha: 15,000; >20 ha: 300



There is also a much higher percentage of forest and forest land in the RR 20 than in Malopolska (NUTS 2)- 23,3% compared to 14,5%. A significant part of the region includes the Pieniny and the Magurski National Park, numerous nature reserves and landscape parks. It is a region with a very high landscapes and tourist attractiveness hence specializes in spa, health and holiday tourism. The number of people living in the RR 20 is about 531.4 thousand, and annually approximately 1.9 million tourists visit region using accommodation and meals also on agrotourism farms. The advantage of the sub region is also its cross-border location, which links it with Slovakia. It gives possibility to cooperate with the Slovakian bordering region. An important economic and social role belongs to Nowy Sącz (town) which is the main urban centre of this area.

There is a long tradition of own business developing in RR 20, as this region (especially town Nowy Sącz and the nearest municipalities) was in the past (from 1958 to 1975) place of introducing experimental policy aimed to revive economic, cultural and social activity of inhabitants of RR 20. This policy brought for instance development of local transport, a new cooperatives and new companies were established (gastronomy industries were strongly supported), in farms new breed of animals were introduced, farmers could use preferential credit system (aimed specially to start and develop agro tourism activity).

Key products and regional food balance sheet

a. Key products produced and consumed in the region

As key products we have chosen: cereals, potatoes, apples and milk. Cereals and potatoes in the RR 20 play a dominant role in the overall crop structure - respectively 65% and 10% of total sown area. In addition, these products are the basic ingredients of the daily diet of the inhabitants of the sub region (but also in the whole Poland). They are also used for the production of feed intended for feeding farm animals.

Because of the mountainous terrain and the high percentage of land occupied by permanent grassland, the RR 20 is especially predestined for the development of animal production based on pastures and meadows and on-the-spot feeding of bulky feed. The main direction in animal production is cattle breeding, especially dairy cows but according to our FG participants it may change to slaughter cattle production as the kind of production that is lees time consuming. The RR 20 is characterized by a high proportion of cattle in the voivodeship - 31% of the population in Malopolskie voivodeship, of which over 62% are dairy cows. Milk and its products are the basic ingredients of the daily menu of the inhabitants and the visitors in RR 20.

One of the most important branches of agriculture in the RR 20 is orchard production, with the dominant direction of apple growing (other also important direction of orchard production are: plums, pears, cherries). Its strong economic and social position determines the share of commodity production in the results of production as a whole, and in particular in the plant production. Malopolskie voivodship, including the RR 20, is one of the largest fruit producers in Poland. The fruit orchard products are undoubtedly one of the leading



products which have developed their position on the local, national and international market based on farmers knowledge and tradition.

b. Balance of production and consumption of key products in the region

The results of discussion during the Focus Group were correction of the old state data (Agriculture Census 2010). The estimated balance of production and consumption of key products are:

Key product	production	consumption
cereals	32 600 t.	57 800 t.
potatoes	51 000 t.	55 000 t.
apples	105 000 t.	15 000 t.
cow milk	100 000 l.	110 000 l.

Consumption of cereals, potatoes and milk is higher than the region production. Apples production is much higher than the region needs. It is main raw material for processing in the region.

c. Official statistics and key products in the region

The statistical data in Polish agriculture are 10 years old so in many cases they do not show the real, updated information. Changes in rural areas and agriculture are quite dynamic. The information from FG participants allow us to present contemporary data about the production, consumption and other data needed for the key products maps.

Food system: Key nodes and flows and role of small farms and small food businesses

3.1. Key product 1: Cereals

a. Nodes in the regional food system: production, processing, commercialization and retail

The main actors on the cereals market are: input suppliers (machinery, and equipment, fertilizers, pesticides ect.) agricultural producers, mills, bakeries, confectioneries, other small producers, distributors (cereals importers, small local/regional retailers) and consumers. Main cereals producers of cereals in the RR are big farms - about 89% of production. Small farms represent only about 10% of production. As general cereals produced in small farms are small amounts that stay on small farms as feed.

Cereals are the main plant production except orchard production) in RR20 (about 25% of AL) - 32 thousand tones per year.



Small farms represent only 10% of cereals production. Main part of cereals production stays on farms of which 80% serves as feed and forage, 10% as seed material and 0.1% as family consumption). About 10% is exchanged with neighbours or sold directly. Consumption is divided between two main kinds of retailers facilities: 40% of cereal products consumers buy in supermarkets and nearly 50% in grocery shops plus restaurants, all kinds of gastronomy and catering. Remaining 10 % is purchased outside the region.

b. Flows connecting the different nodes in the regional food system

Farmers do not use cereals for direct human consumption, but a large part of it is used on farms as feed for animals. Part of production is kept and used as seed material on own farm or exchanged with neighbours. It also can be given to family members with animals but without cereals production.

Production of cereals dropped by 60% in comparison to the last Agricultural Census (2010). The region is predestined to apple production which is also more profitable. Small plots make it difficult to mechanise cereals production. Cereals production as any plant production is particularly vulnerable to climate changes, like global warming and their consequences.

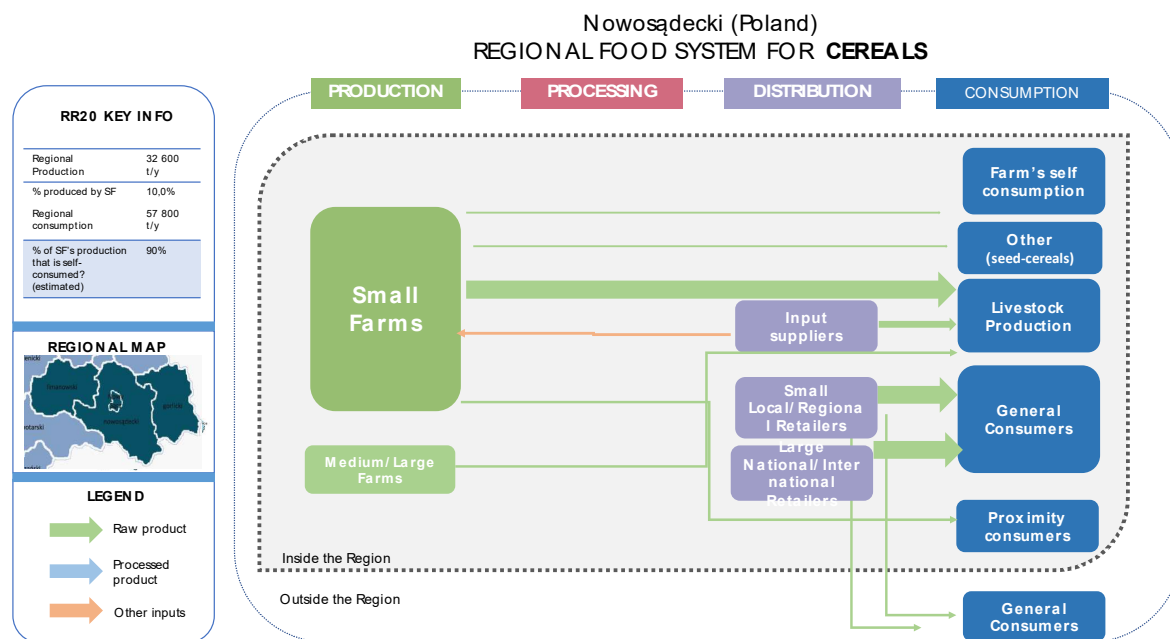
c. Role of small farms and small food businesses within the food system

Cereals production in RR20 in small farms consists only 10% of crop production in the region and cereals are used in 80 % for animal feed, 10% used as seed material directly on own farm or for exchange with neighbours and about 10% for the family consumption but only after external processing (as flour). Products like bread, cakes, macaroni are bought in local shops or in supermarkets.

d. Importance of household self-provisioning in small farms and small food businesses

Cereals production dropped significantly and mostly stays on the farm. Household consumption represents about 10%. of production but only after external processing. Other consumed cereals products are bought in local shops or supermarkets.





3.2. Key product 2: Potato

- Nodes in the regional food system: production, processing, commercialization and retail

The main actors on the potatoes market are: input suppliers (machinery, and equipment, fertilizers, pesticides ect.) agricultural producers, distributors (small local/ regional wholesale and retail) and consumers (farmers' families and others).

Potatoes are the second important kind of plant production in the R20. Their area consists 5% of AL. Production is about 51 thousand tons per year (the region and its climate is difficult for potatoes, the yields are rather low 15,0-20,0 t/ha and consumption within the region is nearly 10% higher than production. Small farms produce 20% of the total potatoes production. Nearly all farms have at least, a small plot of potatoes for their own needs. That way 80% of potatoes production stays on farms, 62% as feed for animals, 8% is lost during storage, 5% is used as seed material and 5% for farmers families consumption. That 5% consists 13% of the whole potatoes consumption within the region. According to our estimation 20% consumers buy directly from farmers or from the local farmers markets. 10% of potatoes production is exported and 10% is imported, especially early varieties plus potatoes exported from other countries.

- Flows connecting the different nodes in the regional food system

Potatoes production and their share in AL dropped significantly in the last 10 years. Farmers produce nearly only for their own needs (feed, home consumption). About 20% leaves a



farm sold directly on the farm or on farmers markets. Potatoes are not processed in RR. SF without potatoes production often obtain them direct from medium/large farms.

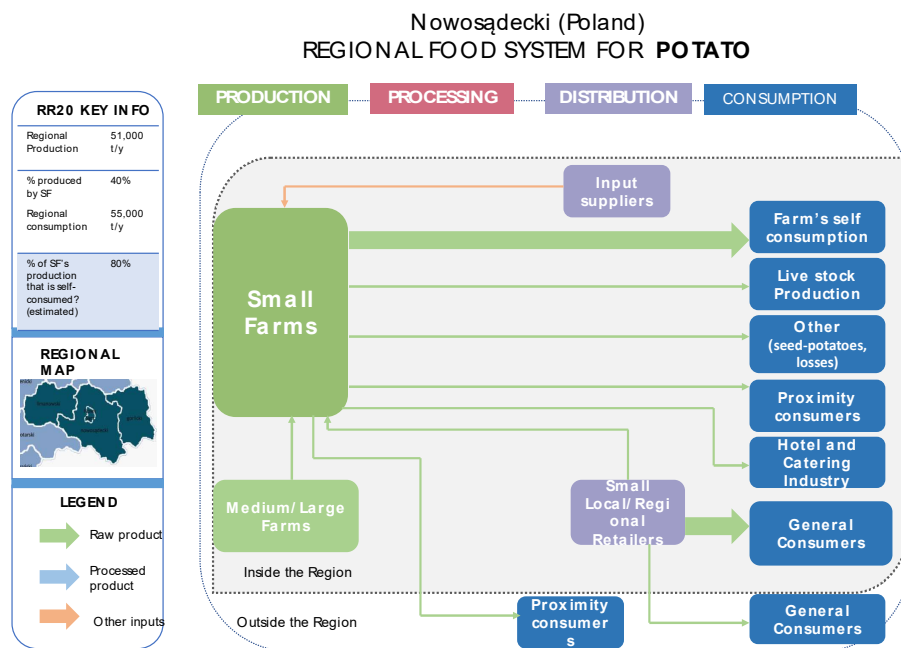
Potatoes are important part of diet in the RR20 but production is dropping as more and more farmers buy food including potatoes in shops and supermarkets. About 20 % of potatoes produced in shrinking number of farms is sold to neighbours or directly to consumers. 80% of potatoes is produced in big farms. The RR 20 location results in low yields of potatoes and small plots make it difficult for farms to use machines.

c. Role of small farms and small food businesses within the food system

Potatoes in RR20 are not processed in any industrial way.

d. Importance of household self-provisioning in small farms and small food businesses

As potatoes consumption (self-consumption, feed, and seed material) is higher than production, farmers' households buy about 10% of potatoes from the regions outside the RR20 and from abroad – mostly early spring potatoes. In most cases they buy it in supermarkets.



3.3. Key product 3: Apple

a. Nodes in the regional food system: production, processing, commercialization and retail



One of the most important agricultural products of Nowosadecki region (R20) are apples. There are 10 thousand farms with orchards with total area about 4,7% of AA. Scale of production is different in particular years – weather is among the most important factors influencing the size of yields.

Farmers have to pay higher tax for the land occupied by orchard production so they try to hide the real size of their orchards so data concerning orchards production is partially an estimation.

Important factor influencing scale of production and apples is export abroad – fresh fruit, juices or concentrates. The shock has been Russian embargo on Polish products. Our export of apples to Russia in 2013 consisted 55% of the total Polish production. We had to find new markets and now China is our biggest market.

Part of production is still exported to Russia but with many middle men (even countries) what makes it more difficult and less profitable. With the surplus of apples on the market we also started to produce more apple juices and cider.

In RR 20 Nowosadecki average production is about 100 thousand tones per year. Small farms represent 61% of the total apple (orchards) production. About 2% of production stays on the farms – it represents 10% of apples consumption in the region. 76% of production goes to different intermediaries (agents, brokers, wholesalers). 20% goes to small, local processors and 2% is sold directly or on farmers markets. The highest income the orchards owners can get for fresh, “dessert” apples. The apples bought by middle man partially - 40% are exported as fresh apples, 26% goes to processors (cooperatives, companies) and 5% to grocery shops (25% of consumption).

Consumers buy apples in supermarkets 40%, grocery shops 30%, 5% of consumption are the processed products from small processors, 10% it is direct sell and farmers markets, 10% it is consumption on the farms and about 5% consumed apples comes from import.

b. Flows connecting the different nodes in the regional food system

Apples are the most important product in RR20 from the commercial point of view. The participant of FG underlined the growing number of orchards and their area, exchange of trees for more modern, market required varieties of apples. Apple orchards are also seen as the future growing specialisation of the region.

About 98 % of apples produced in small farms go outside the farms. 60% goes to cooperatives, producers groups which sell the products to retailers, supermarkets, processors and export. 38% goes directly to processors, 1,5 % direct marketing and about 0,5 to hotels and restaurants.

Export of - fresh and processed – is the main source of income of apple producers, so any factors disturbing that process are external shocks as in case of Russian embargo.



c. Role of small farms and small food businesses within the food system

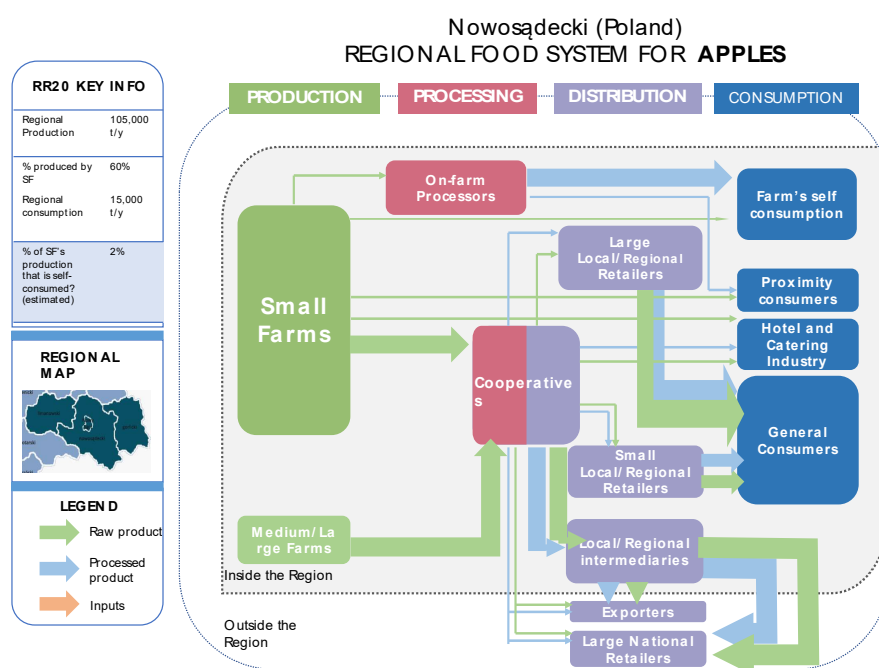
Apple production is the only kind of production in the most farms of orchards owners. Some of farmers have also plums and cherries production but in much smaller quantities. Those farms specialise in apple production. They sell 98% of their production. Remaining 2% is for households and family consumption and direct marketing from the farm.

d. Importance of household self-provisioning in small farms and small food businesses

An apple as the product that is not the basic part of everyday diet has more commercial meaning as the main source of income in specialised farms. Household consumption means also apples given to family members and neighbours without apple production.

e. Other relevant information

Changes of climate, warming, more frequent weather extremes – less rain, long hot period make orchards production more and more difficult and cause lower yields. More and more farmers realise that future orchard production without irrigation can be unprofitable. Establishing irrigation systems is expensive as is the exploitation. The area of orchards with irrigation systems is very low by now.



3.4. Key product 4: Cow milk

- a. Nodes in the regional food system: production, processing, commercialization and retail

Cow milk production in R20 dropped by about 20-25%. Milk production takes place in small farms - 40% and bigger farms - 60%. Total production it is about 100 thousand tons per year. Milk and milk products consumption within the region it is about 115.5 thousand tons per year. Lowering number of small farms as general and small farms with one – two cows caused lower milk production in the RR. However growing number of milk cows in big farms confirms concentration of milk production. According to the stakeholders estimations 18% of milk production in farms stay on farms (3% - households' consumption, 10% as feed, 5% is processed and then sold directly). Half of produced milk goes to big processors (dairy cooperatives) and about 15% to small processors. 10% of raw milk is exported. Dairy farms sell also 13% of milk as processed food (cheeses) and 3% of raw milk on farms and local farmers market. Processed milk and milk products are distributed through supermarkets, grocery shops and gastronomy.

Milk production do not cover consumption needs for milk and milk products, so some products need to be imported also to give consumers wider choice of for instance cheese or butter than local production.

- b. Flows connecting the different nodes in the regional food system

Milk production requires specially adapted buildings, professional equipment, but also everyday care and milking cows. It is hard work 365 days per year. Concentration of milk production can make it more profitable in comparison to necessary investments in small farms but the tendency underlined by FG participants is converting from milk production to young meat cattle production slaughtered for beef production. This kind of production is less time and labour consuming. Farms with milk cows have problems with successors. Potential successors do not want to be tied to a farm every day of their life.

- c. Role of small farms and small food businesses within the food system

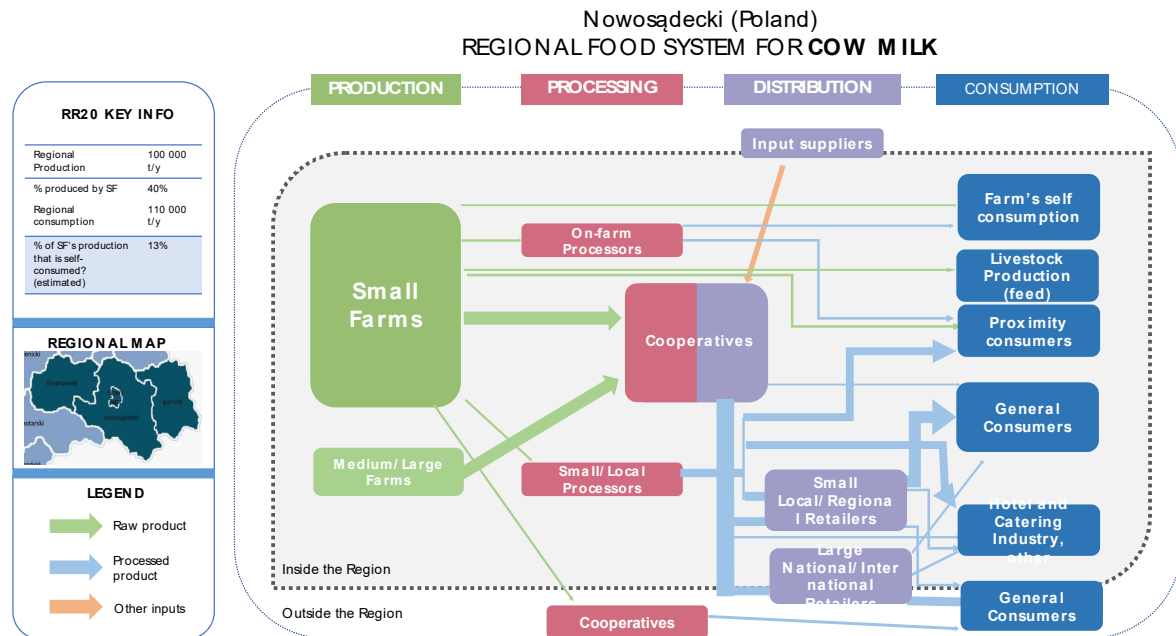
Although the number of small farms is going down and also the number of cows in small farms - milk production of small farms still consists 40% of milk production in RR. About 10-12% of that production stays on farms as feed, 3% for household consumption.

Milk from farms goes to dairy cooperatives, small processors, is bought by informal middlemen (goes to processing, at least in some grey zone), small quantities are a gift to family or sold to neighbours.

- d. Importance of household self-provisioning in SF and SFB



Farms with milk production use some amount of milk for household consumption - fresh milk, cottage cheese (white), but rather no butter or hard cheese. They buy milk products in local shops and supermarkets as the rest of farmers.



Typology of small farms in the reference region

a. Small farm types in the region

Data collected for the project allowed us to define four types of farms in RR20. The main factors taken into consideration were the share of own products in household consumption and the share of farm production marketed.

Specification	Type I	Type II	Type III	Type IV
Share in the RR	20%	8%	51%	21%
Average area	2,93	3,90	6,32	4,92
No of plots	6-7	3	8	6
Share of production used for self-consumption	88%	74%	14%	24%
Share of family food needs from own production	20%	70%	24%	80%
Farmers age	45	50-60	40	50-60



Type I

Consists about 20% of small farms in RR, less than half of their production goes to the market (some of the farms produce only for their own needs). Even than the whole farms' production consists less than 50% of food consumed by the family. On average farms consist of 6-7 plots, sometimes located far away from each other.

Usually they have high amount of labour force. Production is differentiated: cereals, potatoes, kitchen gardens, some fruits. If they keep animals there are only few (1 cow, a dozen of chickens). In most cases the families have additional sources of income (non-farm jobs, pensions, disability pensions). Over 50% of food consumed by the family is bought in supermarkets, from local shops or neighbours. Family members are getting old, farms have no successor, young people move to towns.

Type II

It is only 8% of farms in RR. Less than 50% of their production is sold (some of the farms produce only for their own needs). The food they produce consists more than 50 % of food consumed by the family, they buy relatively small amounts of food. The farms in that type are run by the oldest group of farmers. Production is differentiated: cereals, potatoes, kitchen gardens, some fruits. If they keep animals there are only few (a dozen of chickens, sometimes 1 cow, so called "feeding cow"). Farms consist of 2-3 plots. Farms have no successors.

Type III

This type is represented by 51% of small farms in RR. 90-100% of farms' production is sold. Some farms do not consume any of their products, their own products consist only less than 20% of family needs. The families buy high percentage of food consumed by family, in some cases 100%. Farmers in that type are the youngest. The average farm has 6ha AL. Farms in that type are mostly specialised – orchards, mostly apples production. In case of animal production there are milk cows and milk production. Farms consist on average of 8 plots. They have relatively good financial situation but still farmers point out lack of successors.

Type IV

About 21% of small farms in RR belong to that type. They sell about 75% of their production, but still the remaining production consists about 80% of family needs for food. Families buy relatively small amounts of food. Average farm consists of 6 plots, the average area 5ha of AL. Farmers age 50-60.

The second typology underlines the present situation of the farms and their future potential and perspectives. Taking into consideration those aspects we could divide farms into 2 types.

Type A:

- a. farms without successors,
- b. farmers 50-60 of age
- c. farms in good condition



- d. farmers cannot say what will happened to their farms in the future
- e. that type consists 90% of small farms in RR

Type B:

- f. farms with successor
- g. farmers 40-50 of age
- h. farmers want to develop their activity – production
- i. farmers have plans and ideas how to modernise, develop their farms
- j. that type represents 10% of small farms in RR

- b. Role of small farm types in the regional food and nutrition security

The highest participation in the regional food and nutrition security represent farms in Type III and Type B in our typology. Farms Type III are the most market-oriented as they sell up to a 100% of their production. In the second typology the most important is problem of farm succession as this influences present and future situation of farms. Type B are farms with “the future” – farmers declare that they want develop their agricultural activities, invest in modernisation with the help of EU projects and funds. Of course, other types of farms also participate in FNS, at much smaller scale but still if they mostly feed the members of their families total production of small farms consists meaningful amount of food. The most difficult and uncertain is the situations of farms that have no successor - no younger generation on farm or children do not want to be involved in agricultural production. The present owners in general do not have plans for the future.

Governance

- a. Main interactions of SF and SFB with governance structures in the region

In Poland farmers are free to decide what they want to produce on their farms. “Big” farmers more and more take into consideration market demand, market quality requirements and world prices of food. “Small” farmers in most cases run their farms in a very traditional way. Farms have been treated mainly as a source of food for farmer’s family, surplus as a source of income. Farms were producing as many kinds of plant production as area and land quality allowed. Differentiated animal production was limited by possibility of feed production for those animals. In many farms that kind of approach and tradition even now decides about condition and production of a farm.

From 2001 in Poland a farm can be inherited by all members of a family (wife, children) – the result is constant dividing of farms. Previously the farm could be passed to only one person with agricultural, at least basic, education – it was to prevent dividing farms to small plots. In farmers families traditionally and in most cases a farm is inherited by male successor, “the weakest” – the one that had no power to choose another life through education or



finding other source of income. According to sociologists it has been a kind of “negative selection”.

Inheriting of a farm is often treated as obligation to parents or other members of the family. It is very sad but farmers were never appreciated or had a high society respect. There is a Polish proverb: “a farmer is slipping when his production is growing” – it is the way farmers are perceived by urban community - the income comes to farmers without their effort. That kind of approach is even stronger since farmers get millions of zloty in the EU payments and subsidies. Surveyed farmers in many cases complain about problems of their products marketing – small amounts, distance to the possible markets. It was quite often an argument for not developing their production even when they declared such a possibility on their farm. Farmers do not want to associate or cooperate in any way. They very highly value their independence even if it means problems with marketing or higher costs of input.

b. Levels of governance and their relative importance for SFs and SFBs

After 1989 the state system (including state “cooperatives”) of purchasing of agricultural production – raw materials nearly ceased to exist. The void was gradually filled with private entrepreneurs, dairy cooperatives or slaughterhouses. The way of products and raw materials from farms to consumers in general becomes longer, resulting in higher prices of food for consumers and lower share of “gate prices” in the final price of food. On the other hand in the last few years there is growing tendency of shortening that way by creating forms such as direct marketing, e-comers, “food baskets”. Growing demand on fresh food from known source, high quality, organic food, creates new chances for small farms to market their products. For several surveyed farms direct marketing was a main or only way to sell and obtain some income. As small farms produce small amounts of products usually their goods are sold on local markets or to small local retailers. Small scale means also very weak negotiation position of a farmer. Farmers usually produce what they want or what they need without taking into consideration what market, consumers would like to buy.

Ministry of Agriculture and Rural Development in Poland established Integrated System of Agriculture Market Information. All regional Advisory-Extension Centres also provide mainly local agricultural information for farmers on Internet and local publications. None of our respondents seemed to use those systems although information delivered by advisory-extension Centres during courses, trainings and personally by agents were important to farmers and adequate to their needs. Internet way of delivering important information is limited by access to Internet, owning computers and skills (especially the elderly farmers) to use it. That is also interconnected with farmers’ age and education level. Their small amount of different products is not marketed at all, or as mentioned above, because of that their negotiation position is not existing.

c. Constraints impairing full participation in the food system

Farms size and fragmentation, plots distance from farms, lack of machinery owned by farmers (machinery services have to be bought), plots so small that cannot be cultivated with



machines, are only few among many other factors limiting production and income that small farms can obtain. One of the most important limitation of the scale of production is mentioned above tradition of self-provisioning resulting in producing small amounts of different products.

As in many European countries also in Poland there is long term tendency of decreasing number of small farms. In Poland even the smallest farm but above 1ha is a “pass” to much cheaper farmers social security system and much lower tax burdens (or none) if they conduct some economic activity. The small farms, especially without a successor “disappear” from agricultural map. Between 1996 Agriculture Census and 2013 the number of farms 1-5ha in Poland dropped only by 10%, in the part of Poland where our RR are located only by 3,8 %.

Our joining the EU resulted also in keeping land as a source of direct payments. The land is kept in “good culture” not for production purposes but for receiving payments. It is also the reason that most farmers do not want to rent land officially. They allow neighbours to “use” the land but themselves collect the direct payments. For a farmer renting some land informally it means uncertainty for future decisions concerning for instance developing their animal production.

The surveyed farms could be divided according to their production to three types:

- farms with only plant production, even if they have meadows
- farms with plant and animal production
- farms with plant production and only few hens/chickens (eggs for family) – so no market animal production.

The cross-compliance requirements significantly limited the number of livestock kept in small farms. Farmers could not adapt, had no means to adapt their buildings, buy equipment for two or three cows or low number of hogs. Although the number of heads of farm animals started to decrease in 1990, the drastic change could be observed from 2004. Between 2004 and 2016 the number of cattle and pigs dropped by 51% - mostly in small farms. “Vanishing” of local small slaughterhouses (EU requirements) was also one of the factors of much lower pig production in small farms.

Participants of Focus Groups many times and very strongly underlined that direct payments should depend on real production, in other case farmers collect payments, do not cultivate land and stop other farmers from developing their farms and production. Present system is promoting cheating on the state and tax payers. This particularly concerns farmers with green land – meadows and pastures but without any farm animals.

d. External policies, decisions and social norms affecting food systems

It is very difficult to point out policies affecting food systems. Although economists underline that free market in food production is not so free for individual producers, as at least part of their production can be stimulated by systems of premiums and subsidies hardly any external policies exist. All states and the EU impose the regulations concerning food



safety. From the small farms point of view this is often the main obstacle for direct marketing of processed products on the farms. Farmers complain about the requirements – for them they are too high and complicated, changed too often, and visits of controlling bodies “paralyse” their activity. It also means that the added value that could improve farmers income is by them limited – when they decide do not process own raw materials. From our experts and own surveys we know that there is a number of farmers is unofficially processing their raw materials so it is not registered in any way.

Land is also lost for agricultural production when, especially land of poor quality is designated for building purposes or for establishing forests. None of surveyed farmers reported any limitations or problems connected with conservation procedures. Farms are probably too small and too traditional (self-consumption) to concern production of energy plants. “Land is for producing food”.

e. Gender issues intersecting governance issues

A lot has changed in traditional way of family life in rural areas but the core problems seems to be the same. Who is the cashier in the family, is a woman financially dependant on her husband? It may influence the meaning of her life, self-esteem, respect of her children and other members of the society. More and more often, as our survey shows, women are the partners in marriage and in managing, decision making in farms. There still is the traditional division of rules: a woman – providing food for the family and other home chores, taking care about animals, a man – harder physical effort, field work, “earning money”. But in many cases a woman is the one to have non-farm job or education higher then her husband (in Poland more women have higher education than men).

There are more men in rural areas than women. Farmers’ daughters or rural women quite often are not ready to stay on farms or marry a farmer. If they stay they want non-farm jobs. There is a recognised problem known as “a wife for a farmer”. Too many single men, “old bachelors” run their farms with very limited chance to find a life partner and have children. In most surveyed farms our respondent was a man, but the question about decision making indicated participation of a spouse or other family members in decisions concerning farm and family life. A farmer is hardly a “dictator” on his farm.

Processing of raw materials for market, but in particular for family needs is mostly done by women. In Poland and our RR men and women have the same access to markets. Direct selling from farms or on local markets is often done by women as they usually spend more time at home. Polish law do not discriminate women in their right to buy land but farmers selling their land would probably be more willing to sell land to a man than a woman. Still farming is perceived as hard work not for a delicate single woman. If there is a choice there is also strong probability that a farmer will see as his successor a son, not a daughter unless she is married to a farmer.

There is very old and very effective, with important social but also economic role, organisation of rural women – Country Housewives Clubs. It is the real “women power” in



rural areas. They pass tradition, including local cuisine, local specific ways of processing and preservation of local raw material. Teach younger generation old traditional handcrafts, local songs and dances, old customs connected with for instance traditional local wedding receptions or church holidays, harvest holidays and so on. Clubs organise trainings and workshops helping rural women to cope with new technologies and new challenges.

f. Other actors and processes important for the regional food system

In Nowosadecki RR20 region we can talk about regional specialization in orchards' production (mainly apples). Culture and tradition have strong influence on production in RR 20, but mentioned aspects are the same for all NUTS 3 regions in malopolskie voivodship. Regional food system is strongly affected by institutional influences and government regulations concerning food safety. Food production, selling and processing are under control of sanitary and veterinary services. If SF owners want to sell their products (as raw material or as processed items) they have to follow limitation of production if they want to do it as farmers not business owners (otherwise it implicates tax level and national social insurance consequences – income higher above the set level forces farmers to join national social security with much higher fees and income tax). Direct payments are another problem (several times mentioned during Focus Groups). Direct payments system discourages maintaining agricultural production giving some level of income without need of real agricultural production. That has strongly influenced increasing area excluded from agricultural production. During the holiday season - mainly summer time – local consumption is higher as a result of tourists inflow.

g. Forms of collaboration and organization between small farms

There are several organizations established in RR 20, which in different way influence social and cultural life of rural areas. There hardly are any organizations associating small and big farms owners or only small owners. Small farms have no real strong body acting as theirs representative. There are organisations associating local community members including farmers and not farmers. The scope of their activity encloses for instance local folk groups but not economic interests of community. We could distinguish:

- Country Housewives Clubs. They are very active and are part of local culture. They prepare different events in villages, cook and sell food on picnics, local festivals, etc. Such meetings are often only opportunity to taste local dishes. A huge part of members of those associations maintain SF (alone or with a spouse) and some men are also members of those organizations.
- Associations of Village Heads. Such an organization members represent voice of local community, local food producers, take part in workshops, meetings concerning rural issues in region but in reality with very results.
- Local Action Groups – some of them are quite active but are more interested in the aspects of rural areas and community development but according to their declaration agriculture is not within the scope of their interest.



h. Forms of collaboration and organization between small farms and consumers

In the research area any form of institutional collaboration and organization between small farms and consumers could not be found. Gathering information within desk data collection did not reveal any kind of such organization. During discussion with SF and SFB owners they did not indicate such collaboration. Also participants of Focus Groups told us, that there is no such collaboration. On the other hand, there is network of informal relationship between farmers and consumers, who are family members, friends, co-workers, neighbours that SF owners more or less regularly deliver products for them, sometimes without paying for it, sometimes in form of selling.

i. Relationship between small and large farms, and between small and large businesses

In some cases there is informal collaboration between small and big farms owners, but the level of it depends on kind of production. Big farms work often as collection points for SF owners: huge processors are not interested in buying small amount of raw materials. What is more, SF owners often do not have appropriated equipment to deliver their production to collection points (cars or trailers). If SF owner wants to sell his production, he can do it with support from big farmers. Big farmers provide also other services for SF, for instance they provide machinery services. Big farmers can be local leaders, who can convince SF to develop new kind of production, to use new technology. SF in such a situation is not competitor for a big farm, on the other hand it could be supported by them.

j. Other governance issues

During Focus Groups meetings such governance issues were mentioned:

- direct payments – present way of direct payments system – criteria, consolidate and deepen problem of abandonment of agricultural land and production. Areas designated under agricultural production are smaller and smaller in RR 20, or production, especially meadows and pastures is only “for show” (to fulfil CAP requirements),
- legal limitation of agricultural production (mentioned earlier veterinary and sanitary regulations), especially the direct marketing of processed products from farms,
- very high land price if someone would like to enlarge his farm, very limited land market,
- land is kept for direct payments and sometimes rented unofficially to the neighbours,
- problems with land merge, (farms consists of many small plots),
- the scale of SF production is too small, even SFB owners buy raw materials looking for bigger suppliers,
- domination of large-scale trade in RR 20.



Small Farms and rural livelihoods

a. Importance of household labour in SFs

Small farms very often have potential labour higher than needs of their farms but such factors as age, land fragmentation, lack of adequate machinery, traditional ways of farming may result in periodically – for instance during harvests – need for additional labour. Then family or neighbours help is very important. In all surveyed farms labour of owner and occasionally family members was the only one. Only 5 farms declared occasional paid hired workers (seasonally). Scale of production and income very often, is not enough to support financially the whole family.

Small businesses in most cases were based on owner and family members labour. SFB have been undertaken as the way of solving the income problem. Owners of some SF and SFB were involved in SFB as a family tradition and legacy. Conducting small businesses in rural area gives also labour opportunities to other country dwellers.

b. Farm and non-farm income in the SF's households

Interviews data indicate that most farmers had income only from farming. In the case of farmers over 65 it can be misleading as they usually have retirement benefits – pensions as a permanent source of income which was not asked for. Other did not admit additional sources of income their own or family members. So total financial data obtained from farms are partially true.

The average income for all interviewed farmers from farming was in 90,2% from farming, only 4,7 % from non-agricultural activities. The combination of income from farming and non-farm activities consisted only 38.7% of the households income. The share of direct payments and other subsidies for researched farms was 30.6 %.

c. Shocks and coping mechanisms of SF households

The results of climate changes could be noticed by farmers as we experience periods of very high temperatures and longer and longer periods without rains or in opposite torrential rains and tornadoes – as a result the plant production dropped in many farms. Farms in RR20 are not irrigated so farmers are afraid about production results in the future.

For apple producers embargo for apple export to Russia was a shock as demand for their product at that moment dropped by nearly 50%. Finding new markets took some time. Also orchard production is endangered by climate changes. Some farms already, probably all in the future will require irrigation systems.



Role of Small Food Businesses

a. Main insights and patterns

Surveyed SFB were established as new opportunity in a situation of lack of non-farm jobs and very low income from agricultural activity. In some farms it was also family tradition. SFB owners indicated also market changes as a factor for establishing or joining businesses. The average age of SFB owner was between 30 and 60.

Polish law rules cause that developing or entering economic activity is connected with very high cost of participating in national social insurance system. For SFB (which are often started and developed by SF owners) it is much cheaper and easier to work in “grey zone”, without registering their activity. It causes that their owners do not want to reveal any kind of information about it (they are afraid about the legal consequents of their informal activity).

With the high share of apple production in agricultural production in the RR 20, part of apples is processed, mostly to juices, in the farms but only some farms – orchard owners do it officially.

b. Labour in SFB work

SFB are the opportunity to create jobs for family members and they are the main labour force in those businesses. Only in 3 cases there was one or two additional officially employed persons.

c. SFB income

Only 8 SFB declared their financial insights. The average yearly turnover was 57 275 Euro, the average total income from SFB was 7 275 Euro. The income from SFB activities consisted in average 61.25 % of total owners' income.

d. Shocks and coping mechanisms of SFB households

Unstable prices for raw materials and their products, growing competition, products imported to the region, unstable rules of economic activity.

The Future

a. Main objectives and priorities of SF for the future

Question about main objectives and priorities for surveyed SF was very difficult for them. Deep analysis of received answers enable split SF in RR20 in to 3 main groups:



- farms where (according to obtained answers) there are no perspectives for any kind of development, no successors and they will maintain, keep production on present or maybe even lower level, until they will be able to retire, in those farms land is often unofficially rented to other farmers (to obtain additional source of income from direct payments) or slowly abandoned,
- farms where situation is quite stable, they want to keep actual level of production. On those farms there is usually additional source of income, what strongly influence their plans connected with agriculture,
- developing farms which want to increase level and quality of production (orchards, moving from milk production to young cattle production), such farmers are usually younger, interested in investing and want to buy land, new machines, build or renovate buildings, they count on financial help of the EU programs and funds, for instance for young farmers.

We could distinguish such factors as age, health condition, situation on market/prices, that are very important and taken into consideration for future plans of our respondents. Objectives and priorities for short and long term was not very varied among farmers, however in long term answers “to have successor” or other indicated problems with farm taking over in the future appeared.

When spouses were asked about objectives and priorities for the future, their answer was usually similar to answers received from respondents. Children education was very important for farmers and children themselves, it is perceived as the way to better life, probably away from farming or enabling them to obtain stable non-farm or non-agricultural income.

b. Main objectives and priorities of SFB for the future

Surveyed SFB owners declared different answers when asked about their main objectives and priorities for the future. They were more willing to say what are their objectives and priorities in short term, than in long term (too high level of uncertainty). Regarding goals in short time, from gathered answers we could say that in general SFB want to develop their activity (by for instance maintaining their cooperation with suppliers, generating more products with higher quality or use more raw material which they produced by themselves) and stay on market. We could observe that for SFB owners with quite short experience on market (who have been in business for 3 or 4 years) it was important to pay off their debts (invested credits) and stay on market. More experienced SFB owners (with 15 or more year's engagement in businesses activity) were focused on developing their activity. There were not any specific pattern for SFB owners' objectives and priorities for the future considering subject of their activity or such things, as how they came into the ownership of the business.

Surveyed SFB owners had problems with differentiation of their answers depending on short and long term perspectives. When they were asked about objectives and priorities for the long term they were repeating answers which they gave earlier (in reference to short term) or just indicated that they want to stay on the market and develop.



Questions about objectives and priorities of SFB for the future addressed to spouses usually were the same as answers of SFB owners, or spouses did not answer to them. Children did not give answers to that question, however 2 respondents underlined that children do not want to take SFB after them.

c. Risk perception by SF

Answers to question about risk for farming activity were dominated by one replay: weather conditions (in replies quite often appear also answer: flood). Only 3 among surveyed SF did not indicate weather as a source of risk. In Poland agricultural insurances are obligatory for farmers (if they do not insure at least a part of their production it could cause loosing access to direct payments) but in practice no one is checking it, so farmers do not buy plant or animal insurances (although the insurance fee in 60% is covered by the budget). The consequences of weather events in such cases can be very serious for farmers. As they produce small amounts of particular product they see the loss of yields as small risk.

Farmers are afraid of future financial condition of farms and indicate financial risk (but more as possibility of marketing their products and the prices of their products – then loosing income by loosing yields), unstable prices of input and output, loosing EU payments (18 from 39 surveyed farmers indicated such factor). The financial risk they combine with age, health condition, situation on market, costs of production factors, possibility to work on farm in the future and earn money to maintain family.

Another quite often appearing answers were damages in plant production made by game animals (6 farmers indicated such answer). On the other hand, farms with animal production indicated risk of animal diseases and risk of loosing production. Another source of risk indicated by single farmers were: low price of their products on market (what influence their income) and poor quality of soil, what influence their productivity. All referred answers concern more external than internal source of risk. None of farmers indicated risk connected with for instance competition of their products with products from farmers from other region, country or from abroad. Apart from mentioned risk connected with prevalence of animal or plant production, there is no basis to distinguish different types of farms regarding different risks.

d. Risk perception by SFB

All surveyed SFB owners in RR20 indicated some sources of risk for their business. As subject of their production strongly depends on the weather, such source of risk was very common among them (weather condition influence yields, quality of raw materials and in general could limit supplies of it and therefore limit scale of their production). Another common kind of risk were finance conditions of the business as consequences of the situation in national economy and potential customers incomes. Surveyed SFB are afraid of high cost connected with prices of raw materials and production factors. Financial risk is also perceived in connection with cost of credits. As export of fruits and fruit products is very important for fruit processors any obstacles are seen as high risk for their businesses.



e. Food system forecast in 5, 10 and 20 years

Participants of Focus Groups indicated that:

- SF owners are usually older people without successors, in next 10-20 years it will be serious problem with land taking over by the next generation,
- participants estimated that in next 20 years there will be huge change in structure of farms and there will be many more big farms (with more than 5 ha),
- problem with exclusion of land from agricultural production, in next 10-20 years a lot of plots belonging to SF will be woods and bushes, especially poor quality plots or far away from households,
- cereals could be profitable direction of production, inhabitants of RR 20 almost all cereals product buy locally but raw materials do not necessary come from RR 20,
- cereals processing will be “fashionable” in next years (healthy food),
- potatoes production will be smaller and smaller in SF – process of divestments, lack of machinery to maintain such production will cause that it will be keep only for self subsistence,
- orchards area and production will be growing
- animal production in the future will be dominated by young cattle production.

f. Other future related issues

During Focus Groups meeting such other future related issues were mentioned:

- problem of depopulation of agricultural areas,
- direct payments and high land price cause that “young farmer” cannot develop his production,
- plenty of food in shops cause that consumers do not appreciate food producers,
- farmers should have stronger voice in rural policy, especially in discussions concerning their future, and state policy towards agriculture. But for that they need strong farmers organisation – cooperation,
- growing market of non-farm jobs will encourage and help the youth leaving the farms or countryside.



Annex: List of resources

a. List of key experts interviewed

N°	Institution
1	Advisory services. Feed Advisor one of the Polish feed companies, Specialization: feeding cattle 15 years of placement.
2	Advisory services. Advisor of Agricultural Advisory Center in Malopolska. 20 years of placement
3	Local administrators and policy markers. Councilor in rural areas. Second term of office
4	Vice-Director of a cooperative bank. 18 years of placement
5	Consumers' group / organizations. Member of the producer group, owner of orchards

b. SF and SFB interviews and focus groups information

Stakeholder typology	N° of participants						How were they contacted?
	Interviews			Focus Groups			
	Men	Women	Total	Men	Women	Total	
Farmers	36	16	52	5	3	8	Interviews: with SF and SFB owners we contacted by phone, then we met with them face-to-face. Focus Group: we first sent letters (by post office or by e-mail) with general information about SALSA Project. The second contact were letters (also send by post office or by e-mail) with invitation for meetings. Then we made phone call (at least 2 with each person) to confirm their present at meeting (FG).
Producers' cooperatives			0	1		1	
Slaughtering facilities			0			0	
Processors (small/large)	6		6	2		2	
Wholesalers			0			0	
Retailers		1	1			0	
Caterers			0	1	1	2	
Other small food business	1	1	2			0	
Exporters			0			0	
Importers			0			0	
Farm inputs suppliers			0	1		1	
Advisory services			0	2		2	
Agricultural administration/Ministry of Agriculture			0	1	2	3	
Consumers' groups/organizations			0			0	
Local administrators and policy makers			0			0	
Political leaders and PMs			0			0	



Other programs/initiatives			0			0	
Nutritionist			0			0	
NGOs			0			0	
Traditional and religious leaders (for Africa)			0			0	
Total	61			19			



4.21. RR21 Nowotarski –Poland– Food System Regional Report



WP3

Nowotarski (RR 21) –Poland– Food System Regional Report

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Table of Contents: Food System Regional Report

1) Socio-economic and agricultural profile of the reference region.....	584
2) Key products and regional food balance sheet.....	585
3) Food system: Key nodes and flows and role of small farms and small food businesses.....	587
3.1. Key product 1: Lamb.....	587
3.2. Key product 2: Cow milk	590
3.3. Key product 3: Potato	592
3.4. Key product 4: Cereals	594
4) Typology of small farms in the reference region.....	596
5) Governance	598
6) Small Farms and rural livelihoods	601
7) Role of Small Food Businesses.....	602
8) The Future	603
9) Annex: List of resources	606



Socio-economic and agricultural profile of the reference region

Nowotarski region was established as NUTS 3 on January 1st, 2015 (earlier in Poland it was only 66 NUTS 3 regions, now we have 72 NUTS 3 regions). Quite interesting but also complicated region – it consists of 3 counties: nowotarski, tatrzański and suski. Two first are located in mountain area, so there is extremely high share of pastures and meadows in total utilized agricultural area. The most popular animal production is sheep production (for lamb and for milk which is processed to cheese) and cattle production (mainly for milk). Vegetables, fruits are very rare in fields what is connected with natural and climatic handicaps. Nowotarski and tatrzański counties have also very rich highlander culture, traditional clothing, local dialect and specific products and dishes. In suski county agricultural production differ from production in nowotarski and tatrzański counties – there is higher share of production on arable lands (f.e. vegetables, potatoes, cereals) and a bit bigger farms.

In RR 21 there are 342 576 inhabitants but each year in tatrzański and nowotarski counties there is about 3 000 000 tourists visiting the regions per year (who stay also on farms, who eat and spend money for local products strongly connected with agriculture production). Local folklore, traditional production, landscapes, skiing in winter and sightseeing and climbing from spring until autumn enable wide diversification of SF income (especially in nowotarski and tatrzański counties). About 70% people from RR 21 live in rural areas. RR 21 borders with the Slovak Republic, what is also important because of tourist inflow from that country and export of agricultural products.

On 31 December 2012, 31.9 thousand entities of the national economy were registered in RR21 (18% of them in Zakopane and 14,6% in Nowy Targ – two biggest towns in RR 21). Among those 31,9 thousand, 38,5% were registered in village communities. Among 31,9 thousand entities of the national economy, 95,8% employed less than 10 person.

Table 1: Basic data for the region

Indicators	Data per Region - Nuts 3
Land size (km ²)	2,632
Population (thousands of people)	342,576
Density (people/km ²)	130
GDP (thousand USD/inhabitant)	7,163 USD (in 2015, current prices)
Total labour force in AWU	31,874
Total number of holdings	45,400
Total Agricultural area (ha)	150,907.93
Total Utilized Agricultural Area (ha)	110,554.49
Agricultural Area in Mountain Area	
% of UAA in the RR	42
Average Farm size	3.35
Number of farms by UAA farm size: 0-5, 5-20, 20-50, >50ha	0-5: 42,448; 5-10: 2,462; 10-15: 339; >15ha: 175



Average size of farms < 5ha of UAA	1.8057
Area of main crops (ha) (list the relevant crops below)	Cereals 4,849.42; Potatoes 4,948.43; Industrial crops 38.33; Sugar beetroots 23.59; Rape and colza 0; Pulses 1.18; Ground vegetables 13.16; permanent orchards 145.84; Meadows 74,394.43 Pastures 5,068.61
Area of main crops (ha) in farms < 5ha of UAA (list the relevant crops below)	Cereals 2,319.48; Potatoes 2,822.09; Industrial crops 7.02; Sugar beetroots 5.20; Rape and colza 0; Pulses 0.48; Ground vegetables 5.01; permanent orchards 89.31; Meadows 45,960.88; Pastures 2,214.48
Livestock (LSU) per type (list the relevant types below)	milk cows 27,620; other cattle 10,466.40; Pigs (gilts) 237.50; other pigs 1,830.90; horses 2,820 Chicken (broilers) 1,040.36; Chicken (per eggs) 2,435.72; Other poultry 928.95; sheep 4,999.40 goats 299
Livestock (LSU) per type in farms < 5ha of UAA (list the relevant types below)	milk cows 15,110.90; other cattle 4,658.59; Pigs (gilts) 63.03; other pigs 551.28; horses 1,827.92 Chicken (broilers) 702.76; Chicken (per eggs) 1,860.89; Other poultry 675.81; sheep 2,948.65; goats 221.47
Annual work units (AWU) by UAA farm size:0-5, 5-20, 20-50, >50ha	0-5: 27,000; 5-20: 5,336; 20-50: 178; >50ha: 50
Total family labour per farm size: 0-5, 5-20,20-50,>50ha	0-5: 26,840; 5-20: 4,816; 20-50: 175; >50ha: 45

Farming in Nowotarski region (especially tatrzański and nowotarski counties) is extremely fragmented. One farm consists of several dozen, very small plots. Often plots are so small, that farmers cannot obtain direct payments to them (in Poland farmers can apply for subsidies to the plot of the area of at least 1000 m²). Such situation has explanation in the history of the region: inherited lands were split within all children what increased level of farm and land fragmentation and become the main obstacle for the rationalization and economization of production. Actually land fragmentation and environmental handicaps (for instance slope of fields, short vegetation period, low soil quality) makes it difficult to introduce new technology to agriculture.

Key products and regional food balance sheet

- a. Key products produced and consumed in the region



Variety of agricultural production in RR 21 is quite poor, so a lot of different goods have to be imported. SFs do not produce high amount of production, but production in some farms is specialized.

We choose as key products: cereals (all species), potatoes, lamb and milk (from cows). Cereals and potatoes do not have high share in total utilized agricultural area in RR 21 (potatoes especially in suski and tatrzański counties, where they are rare) however there are very important ingredients of daily diet. Tatrzański and nowotarski counties were in the past very poor regions, so potatoes and cereals products were the cheapest food for farmers. In the past in parts of RR 21 farmers used to cultivate potatoes for seeds. Right now potatoes from RR 21 are infected with potato blight. Cereals as main ingredient of bakery products are very important. Bread is essential for Poles, as main part of Polish dishes (especially breakfasts, dinners but also lunches).

Milk production is very high in RR 21 when we compare it with milk production in Małopolska region (NUTS 2 level), but milk yield is rather low (no more than 4000 litres per cow). Milk and its products are also important ingredients of every day meals.

Lambs are produced mainly for export (live animal – so called Easter Lambs) and for consumption in restaurants, hotels, generally for tourist (in Poland there is very low consumption of lamb, we do not have culinary tradition for lamb meat consumption. It is connected with history. From 1950's until late 1980 years of the 20th century in Poland were observed permanent deficiencies of food. Farmers often offered mutton, and consumers usually did not know how to prepare this meat. Meat from sheep is perceived as not tasty and we have no tradition of lamb consumption). Other important products in RR 21 are different kinds of cheeses and other products from sheep and cow milk, however these products are strongly connected to traditional way of processing.

b. Balance of production and consumption of key products in the region

Cereals:	production 13 300t/year, consumption 41 400 t/year
Potatoes:	production 56 290 t/year, consumption 38 750 t/year
Cow milk:	production 85 000t/year, consumption 102 000t/year
Lamb meat:	production 250 t/year, consumption 77 t/year

c. Official statistics and key products in the region

Official statistics do not represent real level of production of key products in RR 21. Official data came from last Agriculture Census which was conducted in 2010. Information gathered during Focus Groups meeting change strongly level of production in comparison to estimated on the base on statistics.



Food system: Key nodes and flows and role of small farms and small food businesses

3.1. Key product 1: Lamb

- a. Nodes in the regional food system: production, processing, commercialization and retail

Lamb meat production is concentrated in nowotarski and tatrzański counties (according to Agricultural Census in 2010 in RR 21 there were 50000 sheep – 30000 in nowotarski and 19 200 in tatrzański county and in Małopolska voivodship (NUTS 2) there were 69000 sheep). SF represents about 35% of lambs production in RR 21. Among 57 surveyed SF in RR 21, 16 indicated that they maintain sheep, and among those 16 only 1 farmer uses all lamb production for family needs. Other farmers usually sell all production (consuming meat from lambs or sheep is not popular even in RR 21).

SF consumed small part of lamb production and also small part they designated for renovation of the herd. There are no slaughterhouses only for lambs, so lambs are exported abroad (as Easter Lambs), exported to a slaughterhouse beyond RR 21 or sell to retailers.

- b. Flows connecting the different nodes in the regional food system

Producers are strongly focused on export of Easter Lambs, they want to sell as many live lambs as possible, and each year approximately 30% is sent abroad (in the past production and amount of export of Easter Lambs were much higher, during last years lambs from Romania meet demand on international markets, their products are much cheaper. In RR 21 there is an Association of Sheep Producers which is very important organization which mediates and supports SFs during lambs selling). Rest of production must be distributed in other way. Farmers try to find customers in Poland and within RR 21. Lambs, which were not exported as live animals are processed – slaughtered in RR 21 (about 10% of lambs). There are slaughterhouses in RR 21, but most of them slaughter lambs only once/twice a week. In such a situation slaughtering devices must be prepared for slaughtering lambs what is very expensive and discourages farmers from using these slaughterhouses. Farmers often decided to slaughter animal on farm (what they can do for self-consumption), and then sell such product to proximity consumers or prepare meat for special orders for restaurants, for special events like weddings, outdoor events, other meetings (what is illegal). About 10% of production is sold to big slaughterhouse beyond RR 21 and about 30% is sold to retailers. Participants of FG can not define precisely what is happening with animal from retailers (probably for rearing).

Rest of production (about 10%) is designated as household consumption and for renovation of the herd (about 10%). Farmers want to sell bigger amount of live lambs abroad, however each year it is connected with different conditions – for instance in 2017 lambs were born very early (in January), the Easter Holiday was in April which caused that animals were mostly too big and did not find as many customers as farmers expected). In 2018 due to previous



year's protests by animal rights defenders, Italian contractors withdrew from the purchase of lambs.

Lambs cannot be sold all year, this is seasonal product (carcase from older animals have less value for consumers). Price depends on class of lamb - 9 złotych/kg (2,10 Euro) in the first class to 7 złotych/kg (1,63 Euro) in the third class. Keeping lambs for sheep wool is not profitable, as for 1 kg of fleece farmer get about 0,7 złotych (0,16 Euro) and for one sheepskin about 5 złotych (1,16 Euro).

c. Role of small farms and small food businesses within the food system

Lambs are very important in RR21 because of tradition and culture in region – but (like it was mentioned before) in RR 21 there are no companies which process only lambs or if we can find slaughterhouse which provide such services, they slaughter lambs only once a week and are very expensive for farmers. Usually live lambs are exported as Easter Lambs – mostly to Italy and Spain, and those which are consumed in RR 21 are often slaughtered by SF owners and then consumed by family or by tourists and during local meetings and events (in such case they weren't registered in The Agency for Restructuring and Modernisation of Agriculture).

With the system of summer collection of sheep from small farms by professional shepherds and rearing them for about 6 months (during that time the sheep are milked and milk is processed to traditional kinds of cheeses – source of income for persons taking care about sheep) small farms can save enough hay and other feed to keep sheep during the rest of the year. For such farms lambs can be the most important source of income. Some of small businesses are connected with sheep milk processing, sheep meat and cheeses are important part of menu of local restaurants, agritourism farms and local gastronomy in general.

d. Importance of household self-provisioning in small farms and small food businesses

Household self-consumption of small farms and small food businesses are not significant as there is very poor tradition of lamb consumption in RR 21.

e. Other relevant information

In RR 21 there is very long tradition of sheep production, which started since 16th century from first settlements in the foothills of the Tatras. New comers got economic rights to graze ruminant in mountain pastures and meadows. When the Tatra National Park was established (1954) it caused a breakthrough in the ownership status. Shepherding was removed from the National Park forests and plans were also made to remove sheep from the Tatra Mountain pastures.

In 1978 as a reaction for protests from naturalists and economists, sheep grazing in the Tatra National Park became prohibited. It caused violent opposition from local farmers, who could



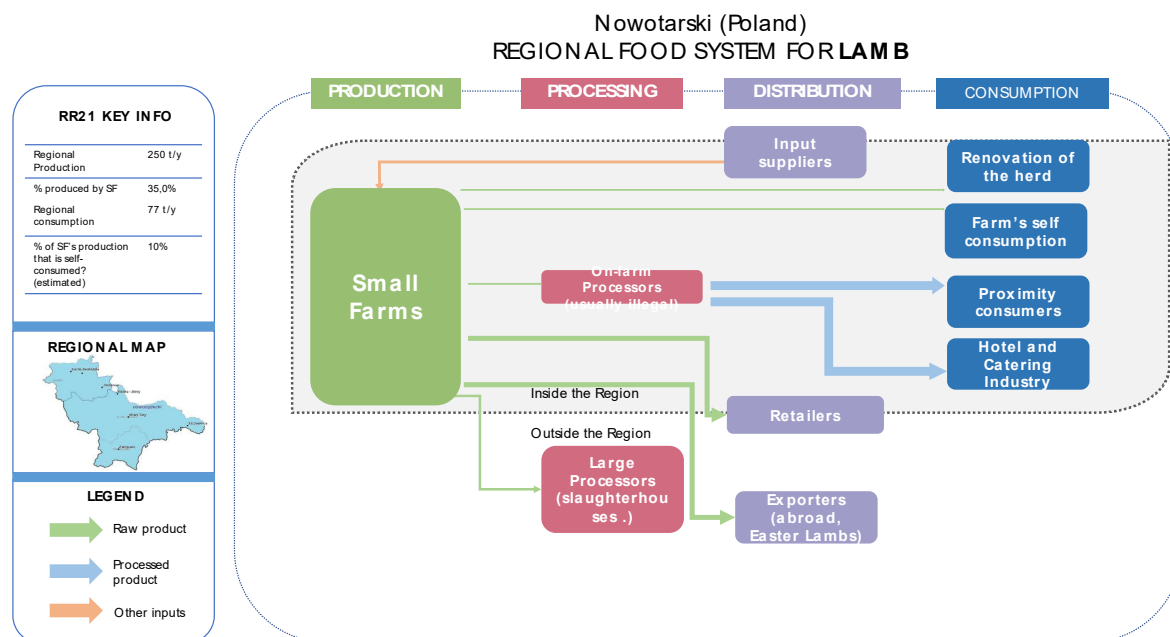
not graze sheep in piedmont pastures during summer, which strongly influenced herd size and farmers incomes. In next years illegal extensive sheep grazing was cultivated, and in 1992 in response to the demands from local inhabitants, quantitative standards of grazing and additional organizational and cultural requirements were established to maintain legal grazing tradition.

In the 1980s, income from sheep production came mainly from wool and skin selling. In next ten years political transformation and the abolition of wool subsidies cause that Polish wool was more expensive than those from Australia or New Zealand. As a result a lot of Polish farmers resigned from sheep production.

Now sheep are property of farmers (different size of herd). Sheep are kept in farms from October until April. During this period the farmer deals with them, the lambs are born and after being withdrawn from mothers they are sold. Grazing season starts each year in last days of April. During this period flock master (“*bača*”) takes care about hundreds of sheep from many farms. For the duration of grazing, the flock master employs shepherds and young shepherd boys to help him. From mountain sheep milk cheeses are produced (white cheese – “*bundz*” and hard, smoked cheese – “*oscypek*” or “*oszcypek*”). The recipe for making sheep's cheeses has remained unchanged for ages (but mountain sheep milk cheeses contain very high share of cow milk and a lot of sheep cheeses are counterfeited and in its composition are mainly or exclusively cow's milk and are marketed as “mountain cheeses”). Flock master settles with sheep owners in the form of milk and cheese or pays them money earned during cheese selling. For winter, sheep come back to their owners.

Lambs from RR 21 (*Jagnięcina Podhalańska*) since 2012 are inscribed on the list of regional products which name is protected and reserved in the European Union. The most important recipients of Polish lambs are Italy and Spain. Italians buy lambs from Podhale since 1985. In the 1980s, around 5 million sheep were raised in Podhale (Podhale is cultural region in southern Poland at the northern foothills of the Tatra Mountains. Podhale includes all communities of Tatrzański county and 8 communities from Nowotarski county).





3.2. Key product 2: Cow milk

- Nodes in the regional food system: production, processing, commercialization and retail

Nodes in milk in RR 21 are very complicated and there is a lot of entities involved in milk food system. Milk production is concentrated in nowotarski county (according to Agricultural Census in 2010 in RR 21 there were 27 600 milk cows, of which 20 000 were in nowotarski county). Milk yield in RR 21 is very low – about 3 000 litres/year per cow. According to data from National Agriculture Census (2010) 40% of farms in RR 21 posses milk cows. According to data from Focus Group participants SFs produce about 15% of milk in RR 21.

There are few huge cooperatives in RR 21 (they used to be independent company, now they are part of bigger, often international holdings) and several small processors (also those that operate illegally). SFs sell milk also to processors (small and large) beyond the region.

There are few “wholesalers” in RR 21 which buy milk from SFs, they deliver milk to small processors and also purchase milk to export it beyond the RR 21. It is difficult to estimate how big part of production from SFs is sold in that way, as often milk obtain by “wholesalers” is low quality, and is used by small processors (for “oscypki”). That part of “milk way” is unofficial, often paid in cash.

Cooperatives located in RR 21 have own shops (not only in RR 21 but also beyond the region). Milk products are sold by small/regional retailers and large/international retailers. Both supply themselves in and beyond RR 21. In RR 21 it is very common to process milk



on farms (on small scale and mainly from own milk production) and then sell milk products directly to the consumers. Milk processed by small processors and by farmers is often used to prepare “sheep products” for tourists. Despite a high share of meadows and pastures in UAA in RR 21 this region has deficit in milk. High consumption is connected with huge amount of tourists visiting RR 21 and with local and tradition milk products which are specially willingly purchased by visitors.

b. Flows connecting the different nodes in the regional food system

According to information obtained from stakeholders, farmers sell raw milk to these recipients, who give them better price, or if farmer has problem with milk quality, to those who do not follow restricted hygienic requirements. Surveyed of SFs indicated that among 54 SFs, 39 produce milk. Among surveyed milk producers, 33% sell milk to processors (big and small), 20% to wholesaler and about 1/4 sell milk or milk products directly to the consumers. Those farmers, who sell milk to big processors (dairy cooperatives) have to prepare it for selling (cooling milk).

Small processors usually have own milk production and in addition they buy milk from other farms. Cooperatives located in RR 21 buy milk in RR 21, but they also have to obtain raw milk from abroad (regional production is not sufficient, and what more, it is bought for example by processors from Slovakia). Milk for processing is often imported from outside the RR 21. Processed milk and milk products are sold to small local/regional retailers, to large national/international retailers.

c. Role of small farms and small food businesses within the food system

Milk processing is not concentrated in RR 21. Milk from RR 21 is sold for processing in RR 21, in other counties and even abroad (to Slovakia). Locally milk processing companies must buy raw milk from other counties (among others from nowosądecki RR 20). A lot of raw milk is designated to processing to “sheep products” (local sheep products should contain at least 60% of sheep milk, but estimations show that it is only about 10% or even less) and “mountain cheeses”. Part of consumers from RR 21 obtain milk and milk products directly from SFs, especially those who used to produce milk in the past and decided to suspend production because of low economic efficiency. Milk selling by SFs directly to consumers is much more profitable in comparison to price offered for milk by processors or wholesalers, and price of milk is higher when consumer buy it direct from SF than when he buys milk in groceries.

d. Importance of household self-provisioning in small farms and small food businesses

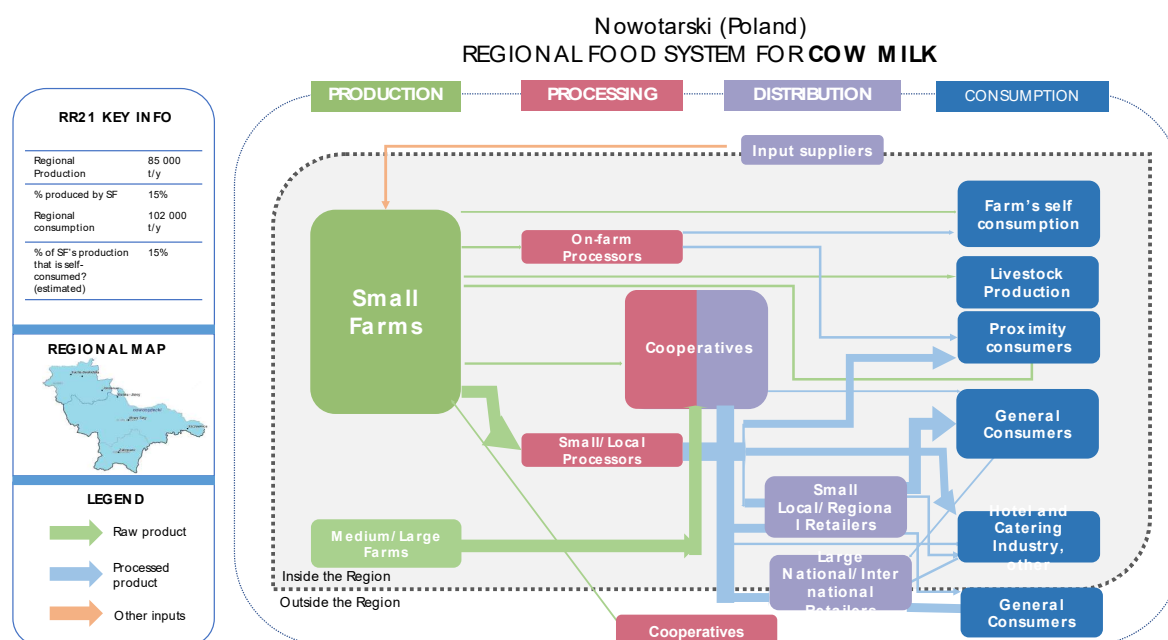
Each surveyed farm with milk production designated part of milk production for self-consumption. None of surveyed farmers with milk production indicated that have to obtain milk beyond farm. About 10% of production from SF is designated for self-consumption, also about 10% is processed on-farm (into cheese, butter or other products) and half of



processed products are consumed by farmer family. About 5% of production is designated for livestock production. There are still a lot of farms with 1-2 dairy cows, but the population of them is decreasing rapidly.

e. Other relevant information

According to FG participants there is a process of concentration in milk production in RR 21. Such process does not find full illustration in official statistics, as many farmers use land informally, and an increasing level of milk production is based on rented lands. Decreased number of SF with milk production did not caused a decrease of milk volume production in RR 21. It is a result of process of concentration in milk production and increasing milk yield. Milk remains very important raw material in RR 21 as farmers use it also to produce so called “mountain cheese”.



3.3. Key product 3: Potato

- a. Nodes in the regional food system: production, processing, commercialization and retail

There is not big area cultivated with potatoes in RR 21. Production is very differentiated within the RR 21 – very little in tatrzański and suski counties. Potatoes in RR 21 are produced mainly in nowotarski county (according to data from National Agriculture Census from 2010, 85% area with potatoes is located in that county, however participants of FG indicated that scale of potatoes production in all RR 21 is decreasing in last years, they estimated that area under potatoes production is about 35% smaller than in 2010). Participants of FG underline that potatoes are less and less common plant in RR 21, however they could not indicate other



product, which can replace potatoes and be more appropriate in regional analysis. In RR 21 there is no company with potatoes processing. Potatoes are used by farms for household consumption and other internal farms needs (seeds, forage for animals). SFs with potatoes production have to supply themselves in different inputs, but buying potatoes for seeding is very rare. Gastronomy is recipient of potatoes from small farms – cooperation between them is quite easy, providing products mainly for meals for tourists. According to data from National Statistic Office each year tourists benefit from 3 725 thousands nights staying in RR 21. It means, that each year in RR 21 the number of people to feed is about 10 thousands higher than number of permanent inhabitants in RR 21.

Huge retailers (supermarkets) do not buy potatoes directly from local producers – they mostly import them beyond RR 21 (very often from abroad), because local production does not cover the seasonal needs (mostly early potatoes). Small local retailers obtain potatoes from SFs, but the quantity of purchases is low.

b. Flows connecting the different nodes in the regional food system

Consumers buy potatoes from farmers (mainly other farmers or agricultural areas inhabitants), farmers markets, farm sale, grocery, gastronomy (mainly tourists) and in supermarkets (located in and beyond RR 21). Potatoes for consumers are available all year, prices are rather low – average 0,3 Euro/ kg. 26 among 57 surveyed farmers in RR 21 indicated that they cultivated potatoes, but area of production was very small – about 0,2 – 0,4 ha per farm. Among 26 producers with potatoes, only 9 indicated that they sell part of their production (all on farmers markets). Small scale of potatoes production implies that there is no need of cooperation between SFs with potatoes production RR 21.

Potatoes are also subject of exchange between farms - there are farmer markets in RR 21 where farmers could exchange their product without including money to this process – barter exchange. Smaller retailers (grocery shops, gastronomy) obtain potatoes from local producers, but they also have to import potatoes or products such as early potatoes from other regions or even abroad.

FG participants indicated lack of connection between SFs and other farms in RR 21.

c. Role of small farms and small food businesses within the food system

Decreasing area under potatoes production is a result of much lower consumption of potatoes and “escaping” young people from SFs. Small scale of potatoes production cause that SF owners usually do not have sufficient equipment, and used to use family members workforce for potatoes cultivation. Very low potatoes price in shops, connected with lack of support from younger generation cause that even farmers decided to buy that product instead of produce it – it is easier, often cheaper and less labour-intensive than self-production. In RR 21 there is no industrial potatoes processing.

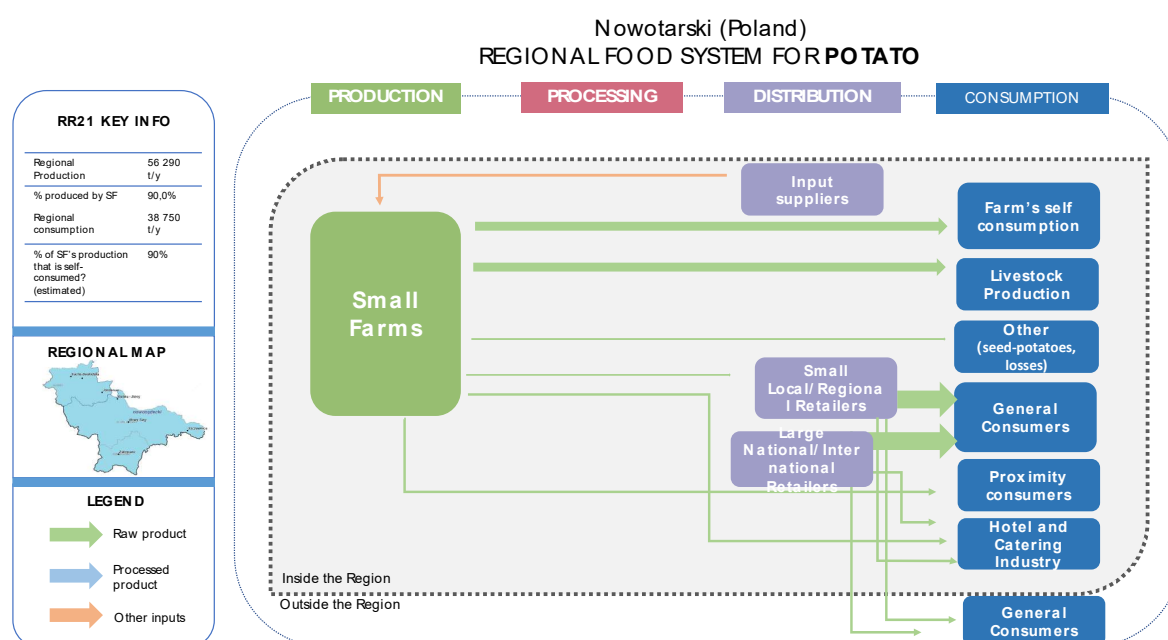


- d. Importance of household self-provisioning in small farms and small food businesses

Potatoes are an important element of people's daily diet in RR 21. If a farmer cultivates potatoes, production usually covers his household needs of self-consumption. We can estimate that about 90% of potatoes production remain in SF, and is designated for forage (about 30% of farm production), for seeds (about 10% of farm production) and the rest 50% for self-consumption.

- e. Other relevant information

Nowotarski region is one of the most often visited regions in Poland because of its mountain area. Apart from the above mentioned number of tourists who are staying at least one night in RR 21, each year there are thousands of daily visitors who sightsee RR 21 and use only meals, usually with potatoes.



3.4. Key product 4: Cereals

- a. Nodes in the regional food system: production, processing, commercialization and retail

Cereals represent only 5.4% of UAA in RR 21, whereas among SFs, they represent only 4.3% area of UAA. Cereals dominate in nowotarski and suski counties in RR 21 (represent respectively 61% and 37% of all cereals area in RR 21). In tatrzański county in 2010 there were about 100 ha of cereals. SFs represent about 40% of cereals production in RR 21. There are no cereals processors in RR 21. There used to be a lot of small mills but now they have vanished. Much more easier (and cheaper) is buying bread and bakery products in shops.



There are small processors in RR 21 (bakeries, confectioneries), but they are based on imported inputs. Distribution of bakery and confectionery products is in hand of small, local/regional producers and large national/international retailers, supermarkets.

In consumption, the most important nodes are livestock production, general consumers, hotel and catering industry and other (for instance seeds, exchange with neighbours). Participants of FG underline that cereals are not common plant in RR 21, however they could not indicated other product, which can replace cereals and be more appropriate in regional analysis.

b. Flows connecting the different nodes in the regional food system

SFs use almost all cereals production for own needs: forage about 80%, seed about 10% (however it is illegal, and farmers should buy seeds) and rest - exchange with neighbours. Small processors supply themselves beyond the region, as there are no mills in RR 21. They sell their product to small local/regional retailers, to consumers or to hotel and catering industry in RR21. Small local/regional retailers and large/international retailers sell their products to consumers or to hotel and catering industry. Large/international retailers supply themselves beyond the region.

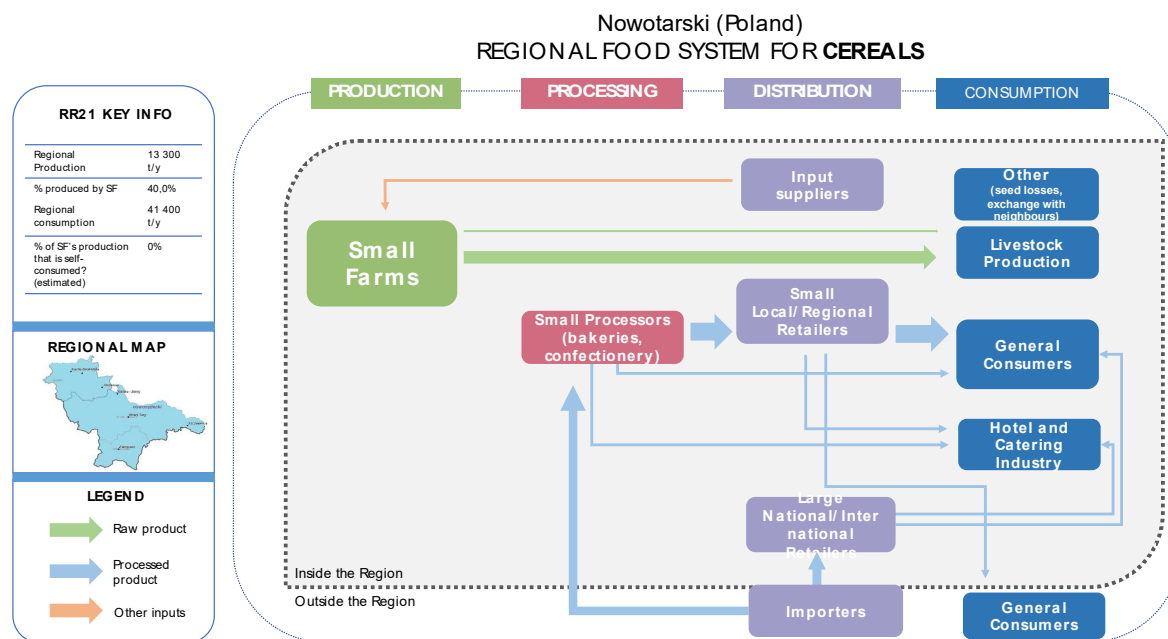
c. Role of small farms and small food businesses within the food system

Among surveyed farms about 50% indicated that they cultivate cereals, but in small areas in each farm. Almost all cereals products consumed by SF owners are purchased in shops (small and big, local and international). Cereals processing does not exist in RR 21, but there are a lot of small bakeries and confectioneries whose products are well known in RR 21 (for instance bakeries in communal cooperatives “peasant self-help”).

d. Importance of household self-provisioning in SF and SFB

Self-consumption in RR 21 exists only if we think about cereals for forage. There are no longer such practices as to exchange grains in mill for flour and bread preparing in RR 21.





Typology of small farms in the reference region

a. Small farm types in the region

First classification: SF typology in RR 21 according to level of self-sufficiency and level of marketability of production.

Type I represent about $\frac{1}{4}$ of SFs in the region. Those farms sell less than half of production (often consume all produced food), and level of self-sufficiency is smaller than 50%. A large part of food consumed in a household has to be purchased. Farms without specialization, cultivate several plants (mainly grasslands, but also potatoes and cereals). Almost every farm maintains ruminants (mainly milk cows and sheep) and chicken. SFs are very fragmented, average farm area is 4 ha and consist of over a dozen plots, which significantly hinders agricultural production. There are no successors in that group of SFs.

Type II represent about 5% SF in RR 21. Those farms sell less than half of production (often consume all produced food), and level of self-sufficiency is higher than 50%. They obtain beyond the farm relatively small amount of food. Farms are managed by the younger farmers in RR 21 (35-45 years old). There belong farms without specialization, also with grasslands, less often with cereals and potatoes. If they maintain animals, then it is only a few and in small numbers (milk cows, pigs, chicken). One farmer owns 9-10 plots. There are no successors in that group of SF.

Type III represent about $\frac{2}{3}$ SF in RR 21. SFs which sell 90-100% of production, often they do not consume their products. Level of self-sufficiency is smaller than 50% (it is about 20%). They obtain beyond the farm relatively high part of food (often all consumed food is



purchased). Average farm area – 5 ha. In plant production we can observe domination of grasslands. Those farms are specialized in milk or lamb meat production. SFs in type III are extremely fragmented – farm consist of dozens of plots. Every fourth farmer has successor, part of farmers can not indicate either they have or not successor because their children are too young.

Type IV represent 1-2% SF in RR 21. SFs which sell about 80% of production, level of self-sufficiency is higher than 50% (average 70%). Those farms purchase on market relatively small amount of food. Average farm area 4 ha, lack of specialization., multidirectional production, which deliver rich set of products. Farms are much less fragmented. Those farms are managed by the oldest farmers.

Second classification: SF typology in RR 21 according to their actual and future situation.

Type A: SF without successors, manager by relatively young farmers (40-50 years old). Farmers can not indicate what will happen with farms after their retire. Part of them do not think about it yet. Type A represents about 80% SF in RR 21.

Type B: SF with successor. Average farmer age: 50-60 years old. Farmers who want to develop their farms, increase level of production, they obtain support from EU (not only direct payments), they have plans for the future and ideas how to increase level or profitability. Type B represent about 20% SF in RR 21.

b. Role of small farm types in the regional food and nutrition security

In all distinguished Types (from I to IV) there are a lot of farmers who work professionally out of farm and in the same time run a farm. Such situation determined attitude to farms' future. Often SFs are managed by farmers which are already on pension. They treat farming as a hobby, as a source of additional income, as a way to increase level of variety in their diet.

Considering first classification, the most important in the regional food and nutrition security could be farms in Type III. They produce milk and lambs. SFs with milk production are important milk providers. They sell milk not only to cooperatives, but also to small food businesses which process milk. SFs often sell milk to “grey” zone processors, who usually produce “mountain cheeses”. Those SFs assure monthly income for their owners, and in that way those farmers can assure food security for their family. SFs with milk production often sell milk directly, that is a great opportunity for regional inhabitants to enrich their diet. Type II represent farmers which usually do not buy big amounts of food beyond the farms because they either do not have enough money to do it or treat farm as a way to enrich their diet.

Considering second classification, Type A plays important role in regional food system security, as represents those farms, which will deliver local, well-known, traditional food.



Governance

a. Main interactions of SF and SFB with governance structures in the region

In Poland farmers are free to decide what they want to produce on their farms. “Big” farmers more and more take into consideration market demand, market quality requirements and world prices of food. “Small” farmers in most cases run their farms in a very traditional way. Differentiated animal production was limited by possibility of feed production for those animals. In many farms that kind of approach and tradition even now decides about condition and production of a farm.

Inheriting a farm is often treated as obligation to parents or other members of the family. It is very sad but farmers were never appreciated or had a high society respect. There is a Polish proverb: “a farmer is sleeping when his production is growing” – it is the way farmers are perceived by urban community - the income comes to farmers without their effort. That kind of approach is even stronger since farmers get millions of zloty in the EU payments and subsidies.

In RR 21 farmers can decide what they want to produce by themselves. Among surveyed farmers almost half indicated that when they decide what to grow and how, they made such decision by themselves, almost 40% made such decision common with a spouse. Rest mentioned about other factors (such as whole family needs or Association of Sheep Producers). They very highly value their independence even if it means problems with marketing or higher costs of input. There are special projects/funds directed to small farms – their economic development but most of small farms cannot qualify for those projects, they still are too small and cannot guaranty increase of their economic value required by the “rules” requirements of the projects.

b. Levels of governance and their relative importance for SFs and SFBs

Almost all farmers (95% from surveyed group) have access to production and marketing advice or training through Farm Advisory Services. In Poland such state provided services are in most cases free of charges for farmers.

Polish farmers have a separate system of Social Insurance. Farmers with farm land (UAA) over 1 ha are obliged to participate in the Agricultural Social Insurance Fund (ASIF, in Polish “KRUS”). Farmers with less than 1 ha can also be the members of the ASIF as volunteers if they declare agriculture as the main source of income. The system is cheap for farmers as monthly contribution (fee) is much lower than in the “workers” system. Plus the system is in about 80-85% supported by the State (?) budget. The system is one of the reasons that people want to be owners (sometimes only formally) of some area of land to benefit from ASIF. In many cases belonging to the system is a kind of obstacle to develop any kind of additional activity as income above certain level forces farmers to join “workers” insurance system causing much higher costs as contributions (fees) in that system are much higher.



SFs have to cooperate with The Agency for Restructuring and Modernisation of Agriculture (on county level) if they want to obtain direct payments, they have to follow rules prepared for all farmers if they want to obtain support, for instance each farm has to be no smaller than 1 ha of UAA and each plot in farm no smaller than 0,1ha.

Local government units do not influence farmers' activity – community authorities (“gminy”) are responsible only for collecting agriculture tax. Usually on communities level there is not department responsible for agriculture activity. Counties or voivodeship authorities do not interact directly with farmers.

c. Constraints impairing full participation in the food system

Among 57 surveyed farmers only 2 indicated that they do not use any kind of financial support (from Polish government or from EU).

Just like all farms in Poland, also SFs from RR 21 if they want to obtain direct payments have to possess at least 1 ha, and each plot area should be bigger than 1000 m². In RR 21 circumstances this is not so easy, as this region is characterized by extremely high land fragmentation (among surveyed farms average farmer owned 21 plots with an average area 22000 m². There are policy of land merging in RR 21, but history, tradition, mentality and first of all costs of such merging are important obstacles to introduce such merging with success. Farmers in RR 21 can apply for payments for cattle: they have to possess at least 3 animals (no older than 24 months). Payments are designated for no more than 20 cattle. Farmers in RR 21 can apply for payments for cows: they have to possess at least 3 cows, but payments are designated for no more than 20 cows. Payments for sheep are designated for farmers with at least 10 ewes (no younger than 12 months). For ewes there is no upper limit of number of animals in a herd. Few farmers indicated that the size of their farm is too small to obtain payments for animals. Most of farmers apply for LFA payments.

d. External policies, decisions and social norms affecting food systems

RR 21 is one of the most beautiful parts of Poland, as there we have the Tatra mountains. It is great pressure to maintain in those areas animal production (especially sheep and cattle) as it is important part of agriculture environment and landscapes. In RR 21 natural conditions predispose this region to meadows and pastures (especially in tatrzański counties) as there is no possibility to produce something else. It is also important to preserve the mosaicism of the fields because it also builds the tourist qualities of the region. On the other hand SF owners in RR 21 are indicated as the weakest chain of food system. One of solution for improving SF situation is to enter the merging processes, which mismatches with the above mentioned objectives.

For SF owners in RR 21 there is big problem with government regulation concerning food producing and processing. Farmers are rumored to sell direct their products to avoid cost of distribution and increase level of income from farm. On the other hand they have a lot of problems with complying with regulation from veterinary and sanitary services, for instance



they can not slaughter animals on farm and then sell meat. If they want to sell meat they have to slaughter animal in a slaughterhouse which is expensive. Farmers complain also about the level of bureaucracy which is very time consuming for them.

e. Gender issues intersecting governance issues

Among SF in RR 21 we did not find problems concerning gender issues, however there are activities which from ages are traditionally reserved only for men. SFs with lamb production after selling lambs commonly organize sheep grazing. Sheep from several farms are taken by flock master “baca” or “juhas” (always man) who from early spring, until late autumn take care about them, milking sheep and producing mountain cheese – which is their source of income.

f. Other actors and processes important for the regional food system

Lamb processors - such businesses do not exist in RR 21. During FG, participants underlined that there is great problem with lamb slaughterhouses. Significant part of lambs production is send abroad (for instance to Spain or Italy). Big amount of lambs is send to slaughterhouse in other voivodeship (podkarpackie). Costs of this service are very high (one lamb cost about 30 Euros, while slaughter 1 animal in professional slaughterhouse cost about 10 Euros). If local restaurant want to serve meat from locally produced lambs, they have to obtain it in mentioned way. In RR 21 there are illegal slaughterhouses which prepare meat from lambs for small groups of customers (tourists, guests of local events).

g. Forms of collaboration and organization between small farms

In RR 21 there is no collaboration between cereals and potatoes producers as area of these crops is strongly limited by environmental condition. There is very important organization for lamb producers in Poland: Polish Association of Sheep and Goat Farmers which consist of 11 Regional Associations of Sheep and Goat Farmers. Regional Unions work directly with sheep and goat farmers. They conduct the evaluation of sheep and goats in herds, as well as enter animals of these species in the books of farm animals. One of regional departments is located in Nowy Targ. SFs with milk production do not have such form of cooperation. Usually farmers sell milk to dairy cooperative of which they can be members, but they do not cooperate between themselves.

h. Forms of collaboration and organization between small farms and consumers

SFs and consumers in RR 21 do not have any form of official registered collaboration. In searching information about food system in RR 21 we did not find consumers cooperatives there. We have information that selected SF owners cooperate within consumer cooperatives in Krakow (Krakow is capital city o malopolskie voivodeship about 80 km from RR 21). There is “Targ Pietruszkowy” (“Parsley Market”) and “Bistro Marchewka” (“Carrot Bistro”) and SF owners sell there their products (usually local, traditional, ecological).



If SF owners cooperate with local consumers, they do it informally, and build own chain of connection and a base of consumers.

- i. Relationship between small and large farms, and between small and large businesses

In RR 21 officially big farms almost do not exist. Agriculture land is a form of investment as prices of land (even with agriculture destination) are very high. It is a result of very attractive location, near the Tatra mountains. Another factor which does not convince SF owners to sell land are direct payments which each year bring to farmers a stable income. SF owners do not want to sell land, so there are not many big farms. There is no relation between small and large farms.

Small Farms and rural livelihoods

- a. Importance of household labour in SFs

Survey conducted among SFs indicated that permanent household labour is extremely important for the farmers. Farm owners work in farm with spouse, sometimes children support them, especially during harvest season. Household labour is almost always non-paid (family members benefit from farm products). SFs do not use non-family labour, extremely rare is support from neighbours. Data from National Statistic Office show that Małopolska (NUTS 2 region in which we have RR 21) is characterized by the highest amount of workers per 100 ha in Poland.

Survey conducted among SFBs indicated that they rely mainly on permanent household labour (non-paid, but also paid). If they use non-family paid labour, it is only occasional employment.

- b. Farm and non-farm income in the SF's households

Taking into account data from surveyed SFs in RR 21 we can indicate that proportion of SF household income that comes from farm, considering both agricultural and non-agricultural activities together range from 5% to 100% (average 40%). Regarding relative proportion of farm agricultural and non-agricultural activities in the total farm income we can indicate that in surveyed farms about 90% of total farm income comes from agricultural activities.

Only 2 among surveyed SFs indicate that they do not apply for subsidies or any other kinds of public financial support. Rest of farmers indicated, that these subsidies represent approximately 40% of their farm income.

There is no quantified information (absolute numbers or size classes, in euros) about farm and non-farm income in the household.



c. Shocks and coping mechanisms of SF households

According to data from FG, farm adjustment to EU requirements was quite challenge for SF owners. On one hand they can benefit from direct payments and other kinds of financial support, on the other they often have problems with appropriate preparation to EU requirements.

Role of Small Food Businesses

a. Main insights and patterns

A lot of SFBs in RR 21 are based on milk (from cows and sheep) processing. There are a lot SFBs, very often work illegally, which produce “mountain cheese”. For many years there is common problem with falsification of “mounatin cheese” in which the share of cow's milk is too high. Traditionally sheep milk processing into local sheep product takes place in “bacówka” (a kind of flock master’ hut). Sheep traditional milk products (but always with addition of cow milk) are sold mainly directly for tourist or export beyond the region.

“Mountain cheese” from RR 21 can be bought in RR 21, but also beyond it, in almost all parts of Poland, especially in places which derive income from tourists. “Mountain cheese” (oscypek) is culinary symbol of tatrzański and nowotarski counties.

In RR 21 there are a lot of restaurants, hostels, hotels, but also farms (not necessarily small) which offer accommodation and meals for tourists.

Participants of FG complained about lack of slaughterhouse in which sheep or lamb could be slaughtered. Farmers with those animals have to export them beyond the region for slaughter, which is very expensive and implies that lamb meat is very expensive in local restaurants. As a result lamb consumption is also not very popular among RR 21 inhabitants. Local restaurants, organizers of local events often buy lambs from farmers which slaughter them illegally, as it is more profitable for both sides, than sending animals beyond RR 21 for slaughter and then selling.

In RR 21 there are a lot of small shops with traditional handicraft products. They are made by local inhabitants and are often sold together with “mountain cheese” on one stand.

b. Labour in SFB work

SFB rely mainly on family labour.

c. SFB income

When considering importance of business income from SFB with regards to total household income, it is usually quite important, as represent approximately 50%.



d. Shocks and coping mechanisms of SFB households

Adjustment to EU requirements was quite a challenge for SFBs. Since 2004 SFB owners have to change a lot to stay on a market, otherwise they finished their activity or work illegally (especially processing). Participants of FG complained about low price of lamb and shrinking market for lambs exported from Poland. Price of lamb is very low. In the past they benefited also from sheep (they could sell not only meat, but also skin and wool, right now they throw away wool because they can not sell it).

The Future

a. Main objectives and priorities of SF for the future

More than half of surveyed SF owners do not have high expectations when thinking about their future, as about 60% of them want to “keep farm” without changing anything. Most of them are counting years to retirement, and it is their objective – keep farming until 65 (man) or 60 (woman) years old to get pension. On the other hand, SF owners in RR 21 are quite old, they do not have skills, experience, knowledge, education to work beyond agriculture in more profitable places of employment.

Every 5th farmer has objectives which can be named as development priorities. They want to increase the level of production (mainly in farms with milk cows), purchase new machinery, which will enable them to work more efficiently and gain higher income. Most often, farmers indicated that to fulfil their objectives and priorities they need funds.

b. Main objectives and priorities of SFB for the future

Half of SFB owners want to keep their activity in current status and this is the main objective and priority for the future of their business. Only one among surveyed SFB owners wants to resign from his business. Rest of SFB owners indicated that they want to develop their business. The main factors which are conditioning reaching SFB objectives and priorities is financial support (from EU, national government) but also a “good market” for their products. There is no differentiation between prospects for future regarding type of activity undertaken by SFB.

c. Risk perception by SF

Among surveyed farmers only one person indicated that he does not see risk which can influence his farm. Information obtained from other SF owners let us to classify main risk for the farming activity into three groups:

- economic factors (low economic efficiency, low income from agricultural production, low and variable prices for agricultural products, high cost of production, unstable market, low demand, financial problems),



- environmental factors (weather conditions, problems with predators, seasonality of production, animal disease, low soil quality),
- governance factors (problems with direct sale),
- demographical/social factors (lack of successors, farmer aging and health problems),
- technological factors (old machinery, old technology).

d. Risk perception by SFB

SFB owners were more agreed indicating the main source of risk for their activity. The most frequently risk among them was weather conditions as in most cases their activity was related to local, often self-produced raw material (most often milk). Another important problem was financial issue – they are afraid that in the future financial support from EU will be lower than now. There is no differentiation between perceiving different sources of risks regarding type of activity undertaken by SFB.

e. Food system forecast in 5, 10 and 20 years

General conclusion from FG meeting were that number of SFs is much smaller than National Statistic Office indicated, as a lot of them “exist” only on paper (because of direct payments, because of national insurance system, etc.). What more (in opinion of FG participants) number of SFs will decrease in next years. Agricultural land probably will not be use for food production, what will cause decrease level of food production in RR 21 and share of SF in food production. Selected participants of FG were quite sure that in next 10 - 20 years they will not be SF, as currently most of young people, potential successors are studying, looking for job beyond agriculture.

In the past, as successors of the farm used to be those children, who did not have a chance to find job beyond farming, the most “untalented”. Right now farming is as complicated as running small company (when we think about all law regulation and restrictions, bureaucracy). So effective farming (even in small scale) requires capable people but they are more interested in working beyond farming. Participants of FG mentioned that SF owners support children so they can get higher education, but they know that children will probably not come back to farming.

Lamb production will decrease, as year by year price of lamb is on the same level, and costs of production are higher. There is big problem with people who would like to work as flock masters as such work means living several months during summer time in the mountain or submountain pastures in quite primitive conditions.

Milk production is decreasing year by year. In the past, in each village there were several dozen farms with milk production, right now number of such farms decreases, and this process will continue. More and more consumers (even from rural areas) often prefer to taste of “shop milk” and do not want to buy milk directly from local producers.



Potatoes and cereals production is without significant meaning and next years those plants will be less and less significant in agriculture production in RR 21. Those crops right now are designated mainly for forage for animal in SF, and decreasing number of SFs in next years, as a result of land concentration in the hands of bigger farmers would lead to withdraw from this production.



Annex: List of resources

a. List of key experts interviewed

N°	Institution
1	Local administrators and policy makers: head of village (village within RR 21)
2	Advisory services: former agricultural adviser in RR 21
3	Other programs/initiatives: professor, strongly involved in small farms,
4	Small farmer, employee of Agricultural Advisory Service: small producer of tomatoes. A person working as advisor in RR 21 for thirty years
5	Local administrators and policy makers: head of village (village within RR 21), leader of association rural housewives,
6	Producers' cooperative: For many years involved in sheep production and cheese production, work for Sheep and Goat Producers Association

b. SF and SFB interviews and focus groups information

Stakeholder typology	N° of participants						How were they contacted?
	Interviews			Focus Groups			
	Men	Women	Total	Men	Women	Total	
Farmers	35	22	57	8	3	11	Interviews: with SF and SFB owners we contacted by phone, then we met with them face-to-face. Focus Group: we first sent letters (by post office or by e-mail) with general information about SALSA Project. The second contact was made through letters (also send by post office or by e-mail) with invitation for meetings. Then we made phone calls (at least 2 with each person) to confirm their presence at meeting (FG).
Producers’ cooperatives				2		2	Focus Group: we first sent a letter (by post office or by e-mail) with general information about SALSA Project. The second contact was made through letters (also send by post office or by e-mail) with invitation for meetings. Then we made phone calls (at least 2 with each person) to confirm their presence at meeting (FG).
Slaughtering facilities						0	
Processors (small/large)	6	2	8	1	1	2	
Wholesalers						0	
Retailers						0	
Caterers					1	1	
Other small food business		2	2			0	
Exporters						0	
Importers						0	
Farm inputs suppliers				2		2	
Advisory services				1	2	3	



Agricultural administration /Ministry of Agriculture				1	1	2	
Consumers' groups/organizations						0	
Local administrators and policy makers					1	1	
Political leaders and PMs						0	
Other programs/initiatives				2		2	
Nutritionist						0	
NGOs						0	
Traditional and religious leaders (for Africa)						0	
Total	67			26			



4.22. RR22 Alentejo Central –Portugal– Food System Regional Report



WP3

Alentejo Central (RR 22) –Portugal – Food System Regional Report

Authors: Ana Fonseca, Paola A. Hernández (ed.)



Table of Contents: Food System Regional Report

1) Socio-economic and agricultural profile of the reference region.....	610
2) Key products and regional food balance sheet.....	613
3) Food system: Key nodes and flows and role of small farms and small food businesses.....	614
3.1. Key product 1: Olive oil.....	614
3.2. Key product 2: Wine grape	616
3.3. Key product 3: Lamb	618
3.4. Key product 4: Tomato	621
4) Typology of small farms in the reference region.....	623
5) Governance	624
6) Small Farms and rural livelihoods	629
7) Role of Small Food Businesses.....	630
8) The Future	631
9) Annex: List of resources	634



Socio-economic and agricultural profile of the reference region

Alentejo Central is one of the thirty NUTS III regions of Portugal and is located in the interior-south of the country. With an area of 7 393 Km² (INE 2015), it houses 156 207 inhabitants and has a population density of 21.1 inh. /Km² (INE 2016). Alentejo Central is a region occupied mainly by *Montados*, a silvo-pastoral system composed by an open tree cover of holm and cork oaks, some dispersed shrubs and natural or improved pastures, in large scale farm units. In a mosaic with Montado, there are open pastures and also localized fields of annual crops. In some specific areas there are small and medium farm units with vineyards and olive groves, being the latter both extensive traditional olive groves, and intensive and super intensive, irrigated, olive groves. A small scale mosaic of different permanent and yearly crops is found around cities and villages. The climate is Mediterranean, with rains distributed throughout the year. Maximum rainfall occurs in the winter. Summers are hot and dry. The mean precipitation ranges from about 500 mm/m² to 600 mm/m². The annual average temperature is 15.8°C. Soil conditions vary throughout, being most soils shallow and poor in organic matter.

The territorial distribution of settlements in RR22 is concentrated, leading small farms, olive groves and vineyards traditionally to be distributed mainly around these settlements. Recent vineyard developments as well as intensive olive groves are also distributed outside the surroundings of settlements. Small farms are characterized by olive groves, forage crops, vineyards, cereals, citrus, horticultural crops and fresh fruits.

Alentejo Central produces around 21% of the national production of olives, 9.4% of the national production of wine grapes, 2.3% of the national production of tomato and is an important producer of calves, cattle, pigs and sheep. Cattle for meat as well as pigs are produced in the large scale farms, while sheep are produced both on large scale and small scale farming. Sheep from the region contributes with 15.2% to the national sheep production.

Table 1: Basic data for the region

Indicators	Data per Region - Nuts 3
Land size (km2)	7,393
Population (thousands of people)	156.2
Density (people/km2)	21.1
GDP (thousand USD/inhabitant)	14.91
Total labour force in AWU	10,133
Total number of holdings	8,274
Total Agricultural area (ha)	629,824
Total Utilized Agricultural Area (ha)	575,576
Agricultural Area in Mountain Area	0
% of UAA in the RR	77.90



Average Farm size	76.12 ha
Number of farms by UAA farm size: 0-5, 5-20,20-50, >50ha	]0-5[– 3,212;]5-20[- 1,887;]20-50[– 670; >= 50 – 1,643
Average size of farms < 5ha of UAA	2.57 ha
Area of main crops (ha) (list the relevant crops below)	Forage crops – 57,677 ha; Cereals – 40,509 ha; Olive groves – 34,001 ha; Vineyards – 14,095 ha; Temporary grasslands – 4,540 ha; Nuts – 3,159 ha; Horticultural crops – 1,581 ha; Industrial crops – 1,073 ha.
Area of main crops (ha) in farms < 5ha of UAA (list the relevant crops below)	Olive groves – 6,744 ha; Forage crops – 1,979 ha; Vineyards – 1,299 ha; Cereals – 1,047 ha; Citrus - 218 ha; Horticultural crops - 189 ha; Fresh fruits - 106 ha.
Livestock (LSU) per type (list the relevant types below)	199,097 cattle; 244,474 swine; 310,611 sheep; 27,505 goats; 2,782 equines; 393,162 poultry; 3,243 rabbits and 9,278 populated hives
Livestock (LSU) per type in farms < 5ha of UAA (list the relevant types below)	1,208 cattle; 1,845 swine; 30,124 sheep; 2,601 goats; 349 equines
Annual work units (AWU) by UAA farm size:0-5, 5-20, 20-50, >50ha	]0-5[– 0.6;]5-20[– 0.8;]20-50[– 1.4; > 50 ha – 1.9
Total family labour per farm size: 0-5, 5-20,20-50,>50ha	]0-5[– 9,630;]5-20[– 4,329;]20-50[– 1,546; > 50 ha – 2,786

The farm structure in the Alentejo Central region explains largely the role and position that small farms have on the regional food system today. The region has a dichotomy in **farm structure**: most of the land is under very large estates with sizes between 100 and 1000 hectares, with extensive use, mainly in silvo-pastoral systems; around towns and villages there is a surrounding area of small scale farms between 1 and 5 hectares, in a mosaic of multiple permanent and annual crops associated with sheep grazing.

Small farms could traditionally nourish a family, but today most household income is often supplemented with seasonal work provided by the very large estates close by, as during the harvest season, for example. Conversely, large scale owners may allow locals harvest aromatics and mushrooms, and also to keep bee-hives, in their large farms. There is, thus, a complementarity between large and small scale farms, though presenting specific social dynamics. Large farms perform mainly a dominating social role as employers and are economically stronger. Small farms are many, but tend to produce for self-consumption and informal sales locally, while large farms produce for the national and even global market (cork for example). Small farms have evolved, in the meantime, to lifestyle and residential farms, and only some of them maintain, or are aiming to recreate, a market orientation. These few often remain as “un-seen farmers” in the regional context, since attention from the regime is focused on the large scale and specialized (wine, olive) producers. Small farms today



are extremely important for supporting vibrant local communities, for linking society to the land, and for food production. Besides this, the small farm mosaic characterizes the everyday landscape of the Alentejo Central, considering its population is heavily concentrated in large villages and towns.

Before the **Portuguese Agrarian Reform** that followed the revolution in 1974, the government strongly supported the production of cereal and other crops with protectionist policies, indicating clearly what to produce in the region. This concerned both large scale and small scale farmers. With the agrarian reform, a large number of agricultural production and consumption cooperatives were created. By the end of the seventies, due to national changes in the political sphere, most production cooperatives were dismantled. Consumption cooperatives survived longer, and some are still in force today. Small farms did not participate in the agrarian reform processes and stayed out of the social and economic convulsions during this period. Nonetheless, they have in many cases profited from the services provided by the consumption cooperatives, namely on items for household consumption and farm input products.

Government extension services existed before the Agrarian Reform, but were also gradually reduced over time. The remaining services have progressively focused on supporting with application for farm subsidies within the Common Agricultural Policy framework, which, in some sectors, were replaced by private technical support services. However, there are no extension services available for farmers with multiple products or a traditional small scale production system.

Once Portugal entered the European Union in the mid-1980s, new hygiene and food safety regulations were set up for food production processes, which had a detrimental effect on the survival of many small food producers. **EU food production standards**, for instance, led to the closing of several slaughterhouses, dairies and other small processing units, making it more difficult for small-scale farmers to transform their fresh products on-site or at a reasonable distance from their farms.

Today, **producer cooperatives** exist in Alentejo Central for the olive oil and wine sectors, enabling economies of scale and the transformation of fresh olives and wine grapes legally, and often with high added value (wine mainly). Wine cooperatives provide also technical and administrative support for their members. In contrast, producers' organizations for the sheep, vegetable and fruit sectors do not exist, putting producers at a disadvantage, as they negotiate individually with intermediaries.

A few municipality councils in Alentejo Central have recently started supporting local small farmers by considering them in the supply of raw products for canteen meals, although they still have to face all the constraints posed by national regulations in what concerns food safety.



In what refers to small food businesses, owners claimed that high taxes and complex rules at the national level are difficult to comply with because of their size, which jeopardizes their success and viability.

Key products and regional food balance sheet

a. Key products produced and consumed in the region

The four key products chosen for the analysis of the food system in RR22 are **olive oil, wine grapes, tomato** and **lamb**. These food items are relevant for the region's economy, and also reflect the sectors where food production by small farms is representative. It would be possible to replace tomato by another horticultural product, yet tomato is a richer case to study, as it undergoes various transformation processes. In what concerns the chosen animal product, lamb meat was selected because sheep rearing is very specific to Alentejo Central and also an export product from small and large farms. These four products integrate the Mediterranean diet too, and are strongly present in the regional diet. They are also of great importance for export.

b. Balance of production and consumption of key products in the region

Alentejo Central produces around 95 564 t/y of **olives** (INE, 2015), consumes 7 110 t/y (IAN-AF, 2017) and presents a positive balance sheet of 88 454 t/y. The surplus presented for this product is of 12, which means that the region can produce twelve times the amount of olives consumed by its population in olive oil.

Alentejo Central produces around 77 522 t/y of **wine grapes** (INE 2011; Decenal and PAOJ 2014) and consumes 7 234 t /y (IAN-AF, 2017) in the form of wine, presenting a positive balance sheet of 70 288 t/y and a surplus of 10 times.

The region produces around 47 580 t/y of **tomato** for the industry (DRAPAL 2013, PAOJ 2014), consumes 828 t/y⁴⁷ and presents a positive balance sheet of 46 752 t/y. The surplus presented for this product is 56, which means that the region can produce 56 times the amount of tomato consumed by its population.

RR22 has a consumption of 234 t/y⁴⁸ (1.4 Kg/y) of **lamb** and a production of 7424 t/yr (INE 2009) presenting a positive balance sheet of 7190 t/y and a surplus of 31, being a net exporter for the rest of Portugal and other countries.

c. Official statistics and key products in the region

The last national agricultural survey, at NUTS III level in Portugal, was done in 2009, which creates a gap in official statistical data on food production. More up-to-date data on

⁴⁷ Data in Agroinfo.pt - <http://jovemagricultoremrede.net/balanco-agricola-hortcolas-e-frutas/>

⁴⁸ Data in Agroinfo.pt - António Tavares <http://www.agroinfo.pt/balanco-agricultura-portugal-2013/>



production and consumption at this level were obtained from the sector (i.e. statistics from the producers' organizations of each key product). Data on consumption for olive oil and wine were obtained in the national consumer survey (IAN-AF, 2017) but refer to the whole country without specifying the regional particularities.

Food system: Key nodes and flows and role of small farms and small food businesses

3.1. Key product 1: Olive oil

- a. Nodes in the regional food system: production, processing, commercialization and retail

Olives in small farms are most frequently **produced** in existing old olive trees, randomly distributed in the field, with grazing associated in the tree under-cover. Nearly all small farms in Alentejo Central have olive trees. The **olive harvest** is usually done manually by farm owners using sticks and large cloths and sometimes using supporting labour from friends, neighbours and contracted people. Olives are usually converted into olive oil in **producer cooperatives**. Some few farmers have their **own olive pressers** and transform their own olives- this is a new phenomenon which aims to add value to the product by creating an individual label with guarantee of origin. The olive oil focus group indicated that 30% of the olives produced by small farms are transformed into canned olives and sold directly at local markets or consumed by the household. The remaining is transformed into oil. From the cooperative, the olive oil is sold in **stores, supermarkets** and even **exported**, entering the same selling circuit from olive oil coming from large farms. With regard to other sales points in Alentejo Central, there is a few **specialty shops** that are often associated with other gourmet products such as cheese and wine.

- b. Flows connecting the different nodes in the regional food system

Small scale olive growers specializing in the sale of olive oil tend to gather fresh olives from their own farm and multiple other olive groves (e.g. those of relatives and neighbours) to increase the quantity of oil and increase profit. If the farmer or family members have an off-farm job, they may help with the harvest on the weekend or use their holidays for this work. The agreement for harvesting olives from someone else's land is generally informal, but in general the owner receives a small portion of the production (25%). Once the olives are pressed and turned into olive oil at the mill cooperative in on-farm facilities, part of this oil is consumed at the household level. The remaining is **sold directly** as a side income by the olive producer, either under his own brand in specialty shops and producers' markets or to a mill cooperative, who buys it at a previously established price. Some olive growers **"pay" in kind** (olives or olive oil) to their helpers, neighbours and relatives who help during the harvest – and thus part of the production also circulates locally in this way. A small percentage of consumers buy olive oil directly from the cooperatives, and olive producers linked to these cooperatives are usually also self-sufficient in olive oil. Out of the four key



products selected in RR22, the olive oil food system presents the closest linkage between small and large producers thanks to the mill cooperatives. This occurs because of the cooperatives' historic role in enabling the same commercial lines for SF and LF to meet market needs while simultaneously consumption requirements at the household level.

c. Role of small farms and small food businesses within the food system

Small farms producing olive oil occupy 19.8 % of the total region (INE 2009), and their production corresponds to 11.4 % of the total olive oil produced regionally. Small farms have **traditional olive groves**, while the intensive and super intensive olive groves are mostly part of the larger production areas and apt to use mechanized labour. Few small farmers have recently started to transform their own olives in their **own olive presses**. This is done mainly by **organic producers**, who sell their olive oil in organic shops at niche markets locally and in Portugal's capital city 1.5h away. **Cooperatives** tend to work with small producers and private olive mills press olives mainly for bigger and intensive and super-intensive olive groves. Olive oil cooperatives have long existed in the region, and produce high quality olive oil. However, these cooperatives tend to sell it with no specific quality differentiation and, thus, no added-value even though it is a distinct and high quality product that uses traditional production methods and unique Portuguese varieties. A small portion of olive oil from the cooperatives is distributed directly to **hotels, catering services and restaurants** in the region. Most small olive oil farmers hold little stake in influencing distribution channels because mill cooperatives - their main commercial avenue - decide who to sell to and how based on supra-regional market rules. Moreover, it is common for wine cooperatives to also take up the olive oil processing business and tap into the commercial distribution structure already set up for wine. This allows wine cooperatives to distribute, without much greater investment, another high value product.

d. Importance of household self-provisioning in small farms and small food businesses

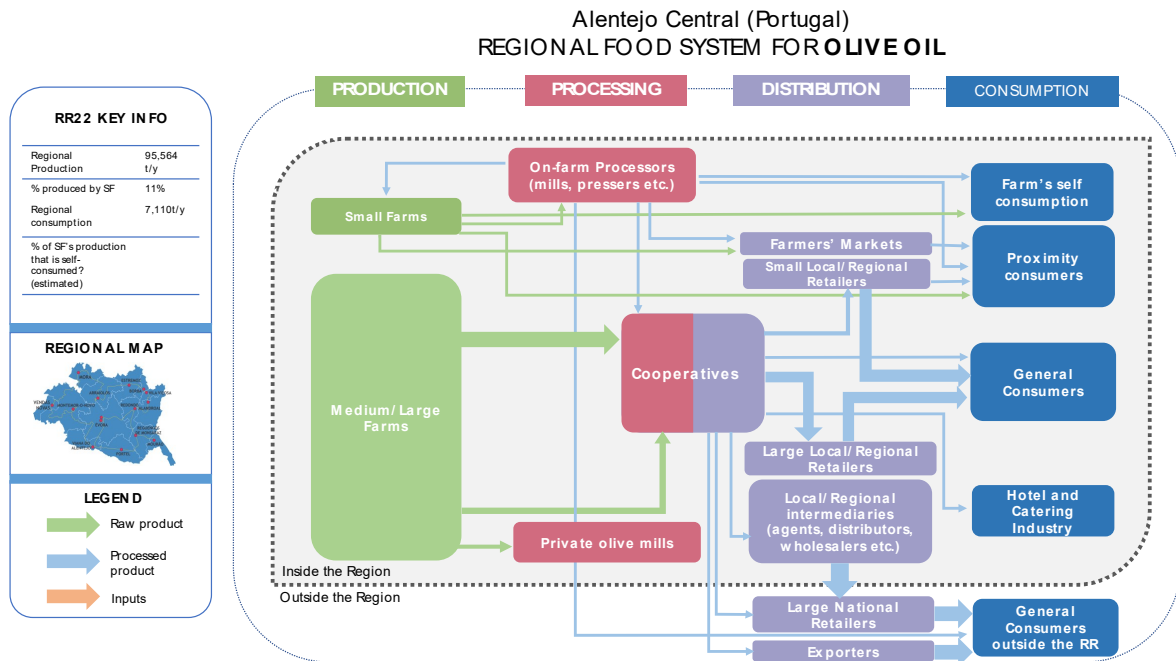
A small portion of fresh olives produced by small farmers is transformed into **canned olives**, in a homemade style, supplying the household all year-round. By the same token, most of the small olive producers pressing their olives in mill cooperatives keep a certain amount of **olive oil for self-consumption** and also to give away to their extended family members and friends. In general, an olive oil producer is self-sufficient in olive oil and sells or gives away only what has in excess.

e. Other relevant information

Olive groves are usually grazed by sheep in Alentejo Central. After the construction of the Alqueva Dam (2002) and its corresponding **irrigation system**, the area with intensive and super-intensive olive groves has increased considerably. In this area, land owners nowadays are totally different from what they used to be before. Most intensive and super intensive producers are enterprises and the source of capital may be foreign. The olive oil food system has, therefore, undergone some rapid changes in the last decade: on the one hand, the



process of collecting and tending the olive groves in this area is done mechanically; and on the other, olives coming from this system are mostly processed at their own mills and destined for export. All of this has recognized impacts over the region's ecosystem, causing degradation of the soil's structure and contamination in the water.



3.2. Key product 2: Wine grape

- Nodes in the regional food system: production, processing, commercialization and retail

Wine producers in Alentejo Central also split into large producers and **small producers** with areas below 5 to 8 hectares. Wine is a seasonal product and very dependent on climate conditions. The mechanization of **wine grapes production** depends largely on the vineyard's size. If the area is below two hectares, it is not worth having machines, so pruning and harvest are done in many cases manually. With areas between 10 and 20 ha, in contrast, grapes **harvest** is done with mechanical support by the owner, family members and maybe 2 or 3 seasonal workers. Small producers organize themselves mainly around **wine cooperatives**, whereas large wine producers transform their wine grapes in either cooperatives or in their own private wine cellars. Wine is sold in wine **cooperative shops**, **specialty shops**, **online shops**, **small supermarkets** and **big supermarkets**.

- Flows connecting the different nodes in the regional food system

Both wine producers' cooperatives and private companies have their **own distribution channels**, using at times national distributors to deliver wine. In general, they **export directly** to foreign distribution companies that are responsible for taking the orders. Alentejo



Central is characterized by having two main distribution circuits for wine – the “**HORECA channel**” that distributes to Hotels, Restaurants and Catering companies, and the “**Modern distribution**” corresponding to supermarkets. Wine prices depend on the distribution channel they enter to, which means that cooperatives and private companies create two different brands (labels) for the same wine, according to the distribution circuit they are selling to. This strategy gives the impression to restaurant owners and other consumers that they are buying two different products. Out of the four key products selected, we could say that the wine grapes food system resembles the sheep's, with regard to its degree of integration in the market and consumption in the household, both entering mainly **large distribution channels** and destined for export.

c. Role of small farms and small food businesses within the food system

Small wine-producing farms occupy 1 299 ha of RR22 (INE 2009), contributing to 9.4% to the national production of wine grapes or 7 144 t/y. From the 110 millions of litres produced in Alentejo Central, **30% is produced by small farms** and 20% of the total regional production is exported outside the region, according to focus group discussions. The production coming from small farms can be transformed by regional wine cooperatives, which also process grapes from large farms. For instance, a large-scale private wine producer that transforms and distributes his own wine could use up to 2% of grapes coming from small producers, in search of distinctive characteristics from an ancient grape variety cultivated only by a few small farmers. **Product differentiation** is, thus, one of the methods used by such producers to develop a competitive advantage in the market and give a higher value to wine.

Large retailers, similarly, also invest in targeting specific consumers. By restructuring their alleys and creating the impression of a specialty shop within grocery stores, they make an effort to raise consumers' interest in **local wines** and promote wine as a luxury item.

d. Importance of household self-provisioning in small farms and small food businesses

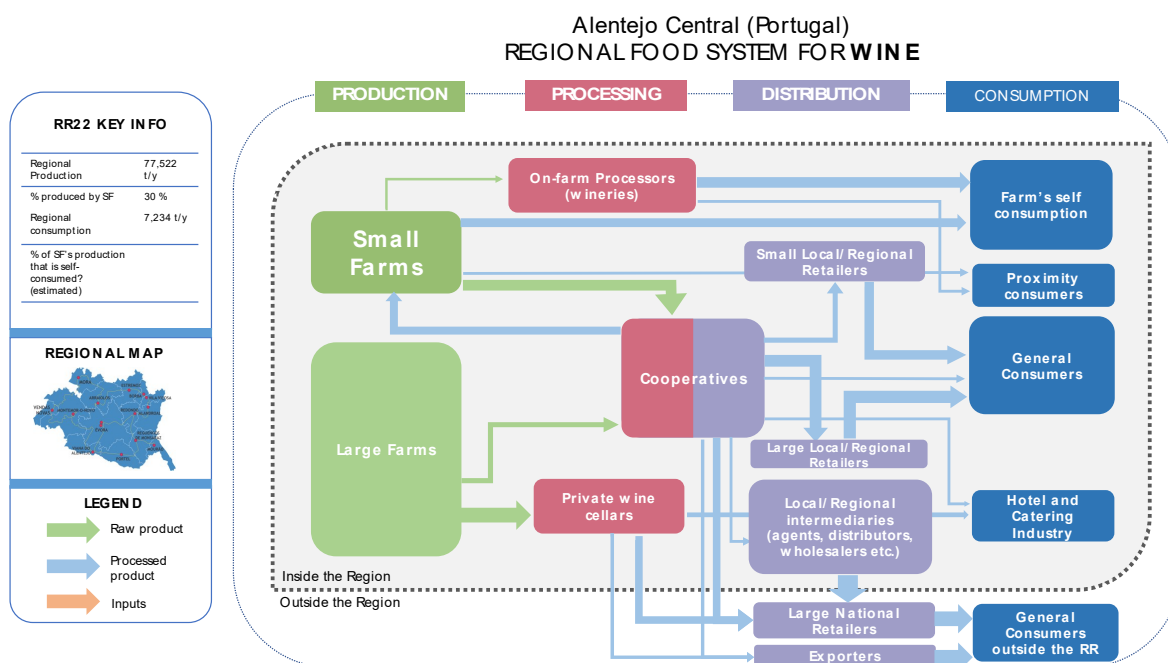
More than 95% of small wine grape producers deliver the majority of their production to the wine cooperative. Some cooperatives have a contract with producers in which they can take up to 5% of the grapes to produce their own **homemade wine** and the remaining must be delivered to the cooperative to ensure commercialization. In such case, small quantities of grapes, the remaining 5%, is transformed at home using **clay vessels or stainless steel tanks**. They carry out the whole process themselves for self-consumption, and some manufacture “*Talha*” wine, which is a homemade wine following a traditional and specific production process.

e. Other relevant information

Fieldwork revealed that small producers would feel a stimulus to start production and join a cooperative if a safe and profitable market could be guaranteed. Some cooperatives were



mentioned to pay higher prices to farmers for their grapes, which resulted in a larger quantity of wine grapes produced by farmers, as well as a higher number of joined members. It is also noteworthy to mention the role of technical support provided by wine cooperatives in Alentejo Central. ATEVA - *Associação Técnica dos Viticultores do Alentejo* (Technical Association of Winemakers of Alentejo) has an office in each wine cooperative and provides **technical advice and support** to wine producers every time they need. This is a sector much more organized than any other in Alentejo Central, favouring small farms as much as medium and larger farms.



3.3. Key product 3: Lamb

- a. Nodes in the regional food system: production, processing, commercialization and retail

Lambs can be reared in *montados*, olive groves, open pastures, and in many different types of farms. Many small farms keep their lambs until they are ready to be sold for consumption. In these cases, lambs are fattened by grazing and supplemented with fodder, when needed. Part of the lambs produced are **sold directly at the farm**, for example during Easter. Lambs are also deployed as payments-in-kind for pasture lease for grazing.

A key actor is the **cattle collector**, who goes from farm to farm buying adult sheep and lambs. This collector is sometimes a service provided by the slaughterhouses, but it may also be an independent person with this part-time activity. Lamb producers can also sell their lambs in an auction – but there are only a few towns with livestock auctions in the region, namely Montemor-o-Novo and Évora.



In other cases, lambs stay in the farm until they are 3-months old and then sold to fatteners, who either fatten them in their **own holdings** or sell them directly to the **slaughterhouse**. **Cattle fatteners**, who are currently undergoing disappearance, buy lambs from different producers and fatten them in their own fattening parks (with limited areas and using processed animal feed) until they reach the desired weight for sale.

Both fatteners and cattle collectors buy lambs and sheep from small and big producers and also at the **livestock auction**, to then send them to the slaughterhouses. However, only fatteners and slaughterhouses sell lamb meat to retail stores. Lamb meat sellers in RR22 include **small butchers, farm shops, big shops** and **meat retailers** located within the region, being the latter where meat from outside the region is also sold. A significant portion of lamb meat in Alentejo Central enters the **export market**.

b. Flows connecting the different nodes in the regional food system

Sheep **intermediaries and collectors** control the sales price, based on the supply and demand of animals they keep in fattening areas and according to the different market needs. They are responsible for bringing the processed product to the market, by selling lamb meat to small and/or large retailers and wholesalers. **Supermarket chains** can also set up **direct contracts** with large producers to purchase lamb meat from them, but small farmers rarely enter this channel. Moreover, there are only three slaughterhouses throughout the Alentejo Central, which limits the possibility to slaughter animals legally in the region. This makes sheep producers more dependent to sell their animals to those buyers capable to take the animals to **distant slaughterhouses**, as well as it increases fuel costs.

c. Role of small farms and small food businesses within the food system

15% of sheep production in RR22 is estimated to come from farms below 5 ha. Apart from a small amount that is consumed by producers, family members and their acquaintances, most sheep produced by small farmers are commercialized through the same distribution channel as sheep produced on large holdings, **without any differentiation**. Sales take place in small and large retailers, grocery stores and wholesalers.

There exist a few producer organizations in the sheep sector around regional pure breeds, but none dedicated for selling and marketing simultaneously, as it occurs for other food products. For this reason, some producers in RR22 have joined Spanish associations that are, according to the focus group, very well organized. They provide a large number of services and technical support, as well as facilitate the sale of animals and lamb meat for sheep producers in Alentejo Central.

d. Importance of household self-provisioning in small farms and small food businesses

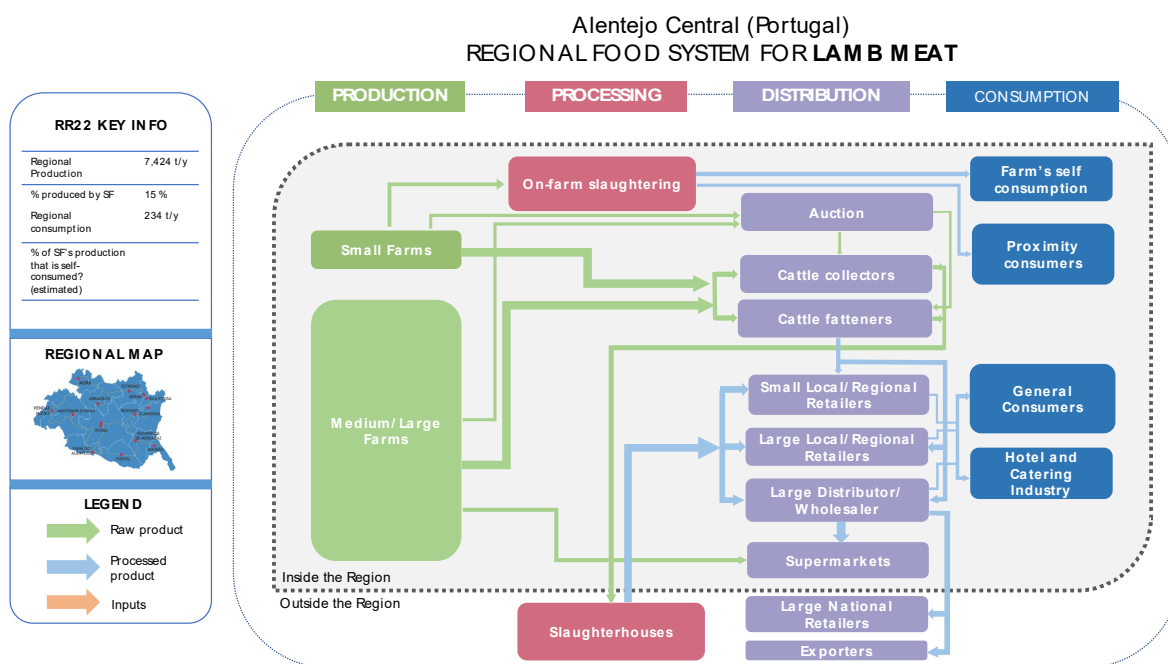
According to the Portuguese law, farmers can only slaughter up to four sheep in the farm and exclusively for **self-consumption**. This is not totally respected, though, as on-farm lamb



sales and slaughtering by producers and consumers is still a common practice. Farmers consuming their own lamb meat eat it continuously throughout the year. Since meat production is seasonal, from Autumn until Spring, with a peak in Easter, most lamb meat comes from outside the region and large-scale holdings to supply the market when there is a shortage. Small farmers are also unable to attend the regional demand, because it is necessary to synchronize estruses and births, and their scale is too small to do this. Only big producers can try to produce consistently.

e. Other relevant information

Lamb meat production can profit from poor quality pastures and is an important activity in the region due to its **co-existence with olive groves** and *Montados*. Sheep are less demanding than cattle and can be produced even in low productivity fields. Sheep have an important function in maintaining olive groves, as they eat and keep under control the growing olive branches around the tree base. They also make good use of the branches and leaves resulting from the pruning of olive trees. In this way it is common to find the production of lamb meat linked to the olive grove, at least in what concerns traditional olive groves. In our surveys, 55% of olive growers also produce lambs on their own, in addition to those that let their neighbours' sheep pass through their olive groves. We found only two sheep producers who do not own an olive grove.



3.4. Key product 4: Tomato

- a. Nodes in the regional food system: production, processing, commercialization and retail

Tomato is a central product of the Mediterranean diet. In Alentejo Central, the growing period for tomato extends throughout the Summer, and even the Autumn until the raining season starts. Despite no tradition for drying or preserving tomatoes at home, fresh tomato is a fundamental element in the region's diet in the Summer. Small tomato producers sell fresh tomatoes **directly to consumers** at the farm, in **producers' markets, specialty shops** or use it for **self-consumption**. A residual amount of them is fed to farm **animals**. Tomatoes can be gifted to friends and relatives or exchanged by other products with **neighbours**. Only recently, thanks to the import of processing methods from Italy and Spain, raw tomatoes started to be **transformed** into products such as sundried tomato, ketchup, and tomato preserves. These are mainly sold in **specialty or organic shops** and producers' markets. Another trend that was pointed out by the focus groups is the emergence of **informal markets** by self-organized and local groups of producers, parish councils and other formal or informal institutions, which grant small farmers a fairer price for their produce.

- b. Flows connecting the different nodes in the regional food system

The tomato production coming from small farms run alongside the industrial production of fresh and transformed tomatoes in Alentejo Central. According to the Tomato Focus Group, tomatoes from big producers are usually transformed and sold outside the reference region while tomatoes coming from small producers mainly stay within the region. This happens because small farms are not selling to the processing industry, while large tomato producers are often exclusively industry-oriented. The two circuits are mostly separated. Out the four key products selected for analysis in RR22, tomato undergoes one of the simplest integration to the market, being **sold directly** by small tomato farmers and with **little or no transformation process** to the **local market**.

- c. Role of small farms and small food businesses within the food system

Small tomato producers play an important role in **preserving heirloom varieties** that are otherwise neglected in the large-scale production. According to the focus group, almost all tomatoes sold in supermarkets come from industrial farming, even if certified organic, and are generally of lower quality. Different from this, small farmers are important in the **provision of high quality tomatoes locally and seasonally** and tend to use less pesticides because their produce does not require to travel long distances. Tomato varieties such as “chucha”, “cherry”, “yellow”, “black”, “heart of ox”, among others, are sold fresh to customers at farmers' markets and specialty shops in RR22.

Distribution channels for small tomato farms hardly interact with those of larger farms. Small-scale tomato producers in Alentejo Central could reach out to more consumers if



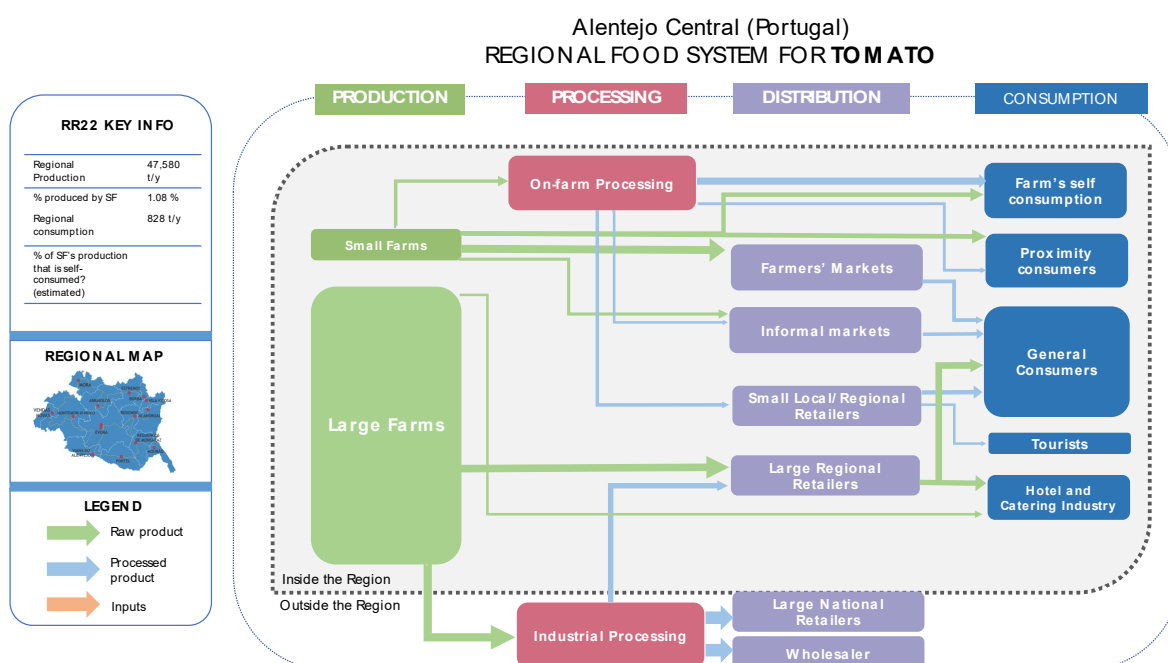
production was more profitable. An increased product differentiation could lead to higher value products (e.g. ketchup, tomato sauces, juice, etc.). This would require small tomato farmers to grow and promote diverse fresh tomato varieties, organize the tomato production via producer organizations to increase yield and cover more markets, or lobby for the investment in transformation facilities to process fresh tomato regionally.

d. Importance of household self-provisioning in SF and SFB

Most tomatoes produced by small food producers in the Region are **consumed at the household** level. Only excess produce is sold at the local market and a minimal transformation process is done for direct sales (e.g. tomato jam, sundried tomato, and tomato paste). Tomato represents an important food element in the Alentejo cuisine. It is consumed in jams, sauces, soups and pastes. However, due to the low profitability in its raw form, SFBs selling tomato-based products are novel and respond to an increasing tourism industry in the region. Such products can be seen at specialty shops and niche markets.

e. Other relevant information

According to the discussions in the focus group for tomato, the share of tomato sales coming from small farmers in RR22 could expand if customers' demand increased. To achieve this, consumers would need to be more aware about the advantages of consuming locally, which, subsequently, may have a positive impact in the production of tomato and small farmers would have an incentive to produce more if sales were guaranteed.



Typology of small farms in the reference region

a. Small farm types in the region

After evaluating the data retrieved from the interviews to small farms and classifying them according to their market integration degree (above or below 50%) and their self-sufficiency degree (above or below 50%), four farm types were identified. These typologies are meaningful and result from the methodology used for sampling during fieldwork.

First, 20.5% of the farms were classified as **Type 1**, meaning that they contribute in a value lower than 50% to household self-sufficiency, as well they have a market integration degree lower than 50%. In this group, 66% of these farmers devote less than 50% of their time to the agricultural activity. The average amount of days they work in the farm corresponds to 180 days, and the average age of these workers is 55.

Second, 44.0% of the farms were classified as **Type 2**, meaning that they contribute to household self-sufficiency in a degree higher than 50%, but present a market integration degree lower than 50%. The average amount of days they invest in the farm is 470, and their average age is 59.

Third, about 20.5% of the farms were classified as **Type 3**. These farms contribute less than 50% to household self-sufficiency, but have a market integration degree higher than 50%. The average amount of days invested by these farmers corresponds to 379 and their average age is 56.

Last, 15.0% of the farms were classified as **Type 4**, which means that a smaller number of farms have both a higher than 50% market integration degree and also contribute to self-sufficiency in a degree higher than 50%. A characteristic of these type is that farmers invest 100% of their time working at the farm, an average time of 616 days per year. It is a full time job. Interestingly, their average age is 52, being younger than the farmers in the first three types.

b. Role of small farm types in the regional food and nutrition security

Types 2 and 4 focus on **household's food and nutrition security**, which means their household members, as well as their neighbours and closest friends, have access to local and fresh food produced by them, even if no money exchange exists. These farms tend to base their food intake on what they grow and sell only their excess produce. Diets in these types tend to be more diverse, as they produce most of what they consume and engage in food exchange with other small farmers. A larger number of farm animals are present in these farms and seasonality is key in their diets.

On the other hand, types 1 and 3 are more market-oriented, which means they have access to more distribution channels and a guaranteed sales market. In Alentejo Central, successful markets are often linked to product specialization and their capacity to reach a wider range of consumers. These farm types focus less in producing food for the household, and most of their investment is given to maximizing yield and outputs. Farm types 1 and 3 produce food consistently to the market, as for instance wine grapes and more exclusive olive



producers. However, the impact they have on **regional food and nutrition security** depends on the availability and accessibility of their products in the region. Despite producing high quality products, these products may not be at reach to all consumers within RR22, for they often enter distribution channels outside of the region and are consumed locally as luxury items by niche consumers.

Governance

a. Main interactions of SF and SFB with governance structures in the region

Main interactions by SF and SFBs with the public administration take place through financial support schemes, social contributions and compliance with food safety and environmental regulations. Small farmers declared during interviews having access to several types of **farm subsidies**, such as: annual payments for traditional olive grove, traditional sheep breed, one-time payment for investment, single payment schemes, agro-environmental measures, compensatory allowances, among others. However, the general perception is that application to such subsidies is too complex and not always adequate for small-scale food producers. Small farmers have often problems in perceiving the kind of subsidies to which they are entitled, how much is the payment and even when the payments are done. Some older farmers are unaware that they can receive such subsidies. Many perceive the existing subsidies demand a series of practices to be adopted that not always make sense and, thus, feel discouraged to apply for them.

The contribution that each active worker is obliged to make to the national social security system is very high in Portugal in relation to the average income, and sometimes unbearable for low income activities – therefore many producers choose not to register their activity. Only when they are retired, as social contribution is no longer due, some farmers may opt to register their activity as producers. This lack of legal registration is strongly hindering market integration, as no legal sales can be done without a lawful status. SF and SFB specifically reported difficulties in complying with **food safety regulations** controlled by public authorities, **tax payments and investment projects**. They also argued the handicaps to fulfil these demands are rooted in the fact that these rules are exclusive in nature and mostly tailored for large food production.

Social norms also shape the way the Region's food system is defined. The nonappearance of sectoral organization in the tomato and lamb meat sectors was hinted at the historically individualized approach by farmers to the activity and the absence of a collective vision. The creation of producer organizations for these products would enable small producers to promote and organize production, attain a better bargaining capacity, and overcome their limitations in terms of securing markets.



b. Levels of governance and their relative importance for SFs and SFBs

Producer cooperatives are **private structures** organized locally around a sector and financed by the contribution of a group of producers. In Alentejo Central, they exist mainly in the olive oil and wine sectors. Such organizations allow farmers to develop economies of scale and carry out the transformation of fresh products collectively following legal requirements. Due to the absence of such structures to support the production of sheep and tomato at the small scale, producers must negotiate with intermediaries individually. Frequently, farmers attain better deals with **private actors** from outside the region, including from another country.

To counteract these challenges, reference was given to the emergence of **informal markets**, which are often self-organized by a group of producers, parish councils or other formal and informal institutions. Sheep producers, for example, organize themselves informally to take care of animals, help with farm work, exchange males, and sell lamb meat to neighbours. Some of these actions would be considered “illegal”, but represent a mechanism small sheep producers have developed to solve some of their handicaps and to make food available to local consumers.

Some municipalities in RR22 were mentioned to make efforts to promote small-scale agriculture and SFBs through **local initiatives** of public procurement (school canteens, etc.); however, they still have to face all the constraints posed by national and EU regulations concerning food safety.

Successful coordination of producers is visible around **organic farming**, though. Even without a formal organization, farmers and food businesses owners appear to be much more connected regionally, talking regularly with one another, combining products, shipping merchandise together for export, and sharing knowledge. Noteworthy, the fieldwork sample shows a higher number of organic small farmers along the Spanish border of the Alentejo Central, mainly seeking to access higher value markets abroad.

c. Constraints impairing full participation in the food system

Small farms face several constraints when seeking to enjoy full participation in the regional food system. On the one hand, **expensive investments** to comply with food safety regulations are sometimes not worth the effort for small producers – this mainly concerns on-farm processing; on the other hand, access to farm subsidies is often limited to a **specific sector, product or farm size**. Market prices also play a role. Prices for wine grapes, for example, have dropped over time and farms deal with this by increasing farm size.

The development of SFB in Alentejo Central has also been made difficult due to the lack of support at the local and national level. Regulations to which these businesses have to comply are often **bureaucratic and burdensome**. As a result, some small food business operate in a grey zone, outside the law, to make ends meet.



Small tomato farmers have **structural difficulties** in bringing their produce to the market, for it revolves mainly around the transformation and the commercialization at the large scale. First, small farms do not produce the amounts demanded by industry buyers. Big tomato producers, on the other hand, depend on the purchasing norms set by the company that transforms fresh tomato and defines the prices and the requirements to accept or reject the product.

The absence of cohesive producer organizations in Alentejo Central for certain products (e.g. for the lamb meat and tomato sectors) also difficulties **small farmers' capacity to organize their production** (including addressing food safety norms), respond accordingly to what the market needs, enter stable distribution channels, and negotiate fair prices. In general, there is a significant lack of successful collective actions that could support the viability of small farms.

d. External policies, decisions and social norms affecting food systems

Interviewees highlighted that some **food safety rules** established at the European level have overseen their impact on traditional modes of food production. Examples include the regulations on the making of *talha* wine and small tomato processing plants, which of course determines the path and trends adopted by small farmers and small food businesses. Alentejo Central has the capacity to produce over 70 wine grape varieties, but only uses 30. The current financial support given to wine farmers encourages them to pull out the old vines and install new ones with modern varieties, thus causing a loss of traditional local varieties that are only valued by sophisticated winemakers.

The increasing barriers and obstacles placed on small slaughter units by the food safety police in Portugal - the ASAE – the **Food and Economic Security Authority**, were also highlighted. It was claimed that in RR22 this has caused the decimation of slaughterhouses for sheep, pigs and cows. These measures have compelled small food producers to travel long distances to process and sell their products, which leads to food export increases, hinders the development of local food systems, and counteracts any strategy to address climate change issues. Similarly, regulatory measures on the transformation of tomato also restrain largely the capacity of SF to process their own production. To this adds their inability to sell for the industry, which has practically become impossible due to the small quantities they are able to deliver, being of little or no interest for the commerce.

Another raised concern is the **conflicting signals** coming from the EU that affect small farmers and small food business. According to them, support is facilitated for large-scale industrial farming and increased food production, while contradicting some of the initiatives that promote short food chains, as well as local and rural development, based on small farming. An example includes the difficulties for locally-based school canteens and public institutions to source their food products from local small farmers. Yet food safety concerns and monitoring are legit considerations to take into account, focus group participants argued such regulation is currently in conflict with any local economic development policy interested in reducing food insecurity.



e. Gender issues intersecting governance issues

Fieldwork revealed that men are more present in farm work in RR22, especially in tasks involving heavier workload and mechanized farming. Women tend to give support with home errands, raising the children and tending the vegetable garden and domestic animals for self-consumption. However, women play an essential role in supporting food production by preparing the produce for sale at the market and food transformation. They are also often responsible for direct sales at local markets. Women are seen to run the farm in single parent homes and if part of younger couples. There is support for female farmers at the European level and sometimes they are given priority during project applications, but the impact is hard to assess.

There appears to be fewer women working in the olive groves, unlike in the olive oil processing mills. It is possible to find women working in oil mills, mainly in packaging, laboratory analysis, and taking orders. During interviews with sheep producers, no woman was found, and female sheep producers are rare. Reasons given for this was that working with sheep is physically demanding and, therefore, the activity is traditionally done by men.

Payment in farming differs by gender if more strength is required for a specific job. At the wine focus group session, the topic about remuneration to men and women working in the vineyards was brought up. According to participants, women receive 25 to 35 € against men receiving 40 to 45 € for the same job. This difference in payment was again linked with the strength required for fulling the job. Importantly, it was mentioned to be less women who are wine producers than men. Women are more present in tasks such as pruning, bottling, quality control, oenology and laboratory, which demand less physical work.

In relation to **inheritance law**, olive groves are usually passed from parents to sons, but not to daughters. Women are always present in the harvest of olives with their husbands.

f. Other actors and processes important for the regional food system

The food system map for lamb meat does not include other by-products from sheep rearing, such as the production of wool and milk. However, for the purpose of analysing lamb meat's food system, these parallel systems were not considered. Approximately 10% of sheep producers in the region produce milk, which does not enter the market as milk, but is transformed into cheese at local cheese factories - most of them small in size. Moreover, a large share of the milk used to make sheep's cheese is imported from outside the RR22, namely from Spain. Wool and sheepskin are residual products with little to no profit.

g. Forms of collaboration and organization between small farms

In some places small farms sell through shops dedicated to local products or promote together farmers' markets. One cooperative was registered to be dedicated to sell local products from small farms – primarily olive oil, vegetables and fruits.



h. Forms of collaboration and organization between small farms and consumers

There are consumers who buy from SFs through weekly food baskets and directly from small farmers in casual markets, shops, cooperatives or at work, and even directly at the farm. **Consumers are nevertheless not organized as consumer groups.** Food baskets are normally organized by the producers. Some municipalities promote sales in producers' markets, in social institutions, canteens and through basket schemes.

i. Relationship between small and large farms, and between small and large businesses

Small and large farms can have **symbiotic relationships** in Alentejo Central, depending on the sector they operate in. For wine, wine cooperatives often buy grapes from both small and big producers. Big vineyards may also buy wine from organic or ancient wine grapes varieties produced in small vineyards to give distinct qualities to their own wines. Similarly, the big tomato industry and small tomato producers link with small sheep producers through the utilization of the tomato waste, since animal feed for these animals is often made with the waste from the big and/or the small tomato production.

Sheep can be utilized in olive groves to help with tree pruning, thus benefitting the development of both sectors. Olive grove owners, both small and big, sometimes maintain their trees by using sheep from large and small producers to pull off branches near the ground, while at the same time, sheep are being fed with this quality food. Likewise, big and small sheep herds can also graze the pastures in-between vineyards after the wine grapes harvest.

Big and small sheep producers often help each other by exchanging animals and sharing distribution channels. For example, big producers can sell older sheep to small producers, who can keep them longer due to their production scale. Acting as a **supporting network**, big and small producers regularly share their contacts with those intermediaries seeking to buy animals.

Wine cooperatives are also contributing to the development of the olive oil production. This is very important for small producers holding traditional olive groves that cannot invest in new facilities to process their olives. Instead, small olive oil producers take advantage of the **commercialization circuits** already existing for wine, which allows them to create an economy of scale.

j. Other governance issues

The role of producer associations and cooperatives in RR22, as well as the challenges and difficulties in forming them, has already been highlighted. 66% of the farmers are part of cooperatives and 58% of them considered them very important or important to their activity. Nevertheless, an additional issue raised during the focus groups points at the restrictions implemented by some of the existing cooperatives on membership requirements, product



standards and contract exclusivity. As it was mentioned, such restrictions can ultimately discourage small farmers from joining them, limit the benefits resulting from collaborative work, and promote a negative image of these structures.

Small farmers have little power in setting up sale prices for all four key products in Alentejo Central. This is because they depend on the prices established by service providers (e.g. cooperatives, animal buyers, etc.) and/or by what consumers are willing to pay. Only small farmers selling directly to the consumer – as in the case of tomato producers – have the capacity to set up the price for their produce. Nonetheless, this is mostly defined based on generic market ebbs and flows.

Small Farms and rural livelihoods

a. Importance of household labour in SFs

Data revealed that small-scale agriculture relies largely on household labour for its success. On average, SF producers work 50% of the time on their farms, allocating typically 234 days per year to this, and rely on family help nearly 140 days per year. Small farmers using paid workforce in Alentejo Central are reduced, and mostly in specialized farming operations. They can use up to 41 days of paid labour from non-family members, adding 3 days to this from non-paid and non-family labour.

79% of the farmers declared to receive support (financial, technical, labour, in kind or other) from neighbours, relatives or technicians. This support includes technical knowledge, workforce during the pruning and harvest seasons, technical support for vineyard treatments and irrigation systems, horse manure, looking for misplaced sheep, and overall work around the land.

b. Farm and non-farm income in the SF's households

Besides working in the farm, family members work on average 358 days per year in other activities outside the farm to complement their household income. In fact, SFs' turnover in RR22 is low, representing more or less 6 010 € annually or 501 € per month. The average income resulting from small farm sales, on the other hand, is 2 937 € annually or 245 € per month. About **29% of the household income comes, on average, from in-farm activities, and 53% of the SF receive farm subsidies**. These subsidies include: agri-environmental measures (traditional olive grove, native sheep, traditional olive grove and organic farming), single payment scheme, sheep premium and compensatory allowances, corresponding to nearly 10% of the farm income. Farmers can access bank loans, but in general they tend to not use them.

c. Shocks and coping mechanisms of SF households

Main shocks experienced by small farm households in the past refer to their exposure against **financial constraints**, which has led some of these farmers to emigrate. In contrast, other



small farmers and farmers' children, who became unemployed as a result of the last global economic crisis, saw farming as an alternative activity and source of income. There are thus cases of return to farming, as a viable activity in times of crisis.

Role of Small Food Businesses

a. Main insights and patterns

Small food businesses were considered by the focus groups as important **drivers of the local economy and tourism**, offering the authenticity that tourists are looking for. They were also pointed out to make high quality food products available. For instance, some SFB invest in promoting **diverse and innovative products**, and help to maintain traditional foods and the regional identity alive. Many of these products are sold in local shops, such as sundried tomatoes, traditional olive preserves, and *Talha* wine, among others.

SFB owners are on average 38 years old. 60% of them have a university degree, while the remaining 40% have a technical or vocational training. The average business time of SFB is 5 years, with the exception of one SFB owner. 60% started their business due to family tradition, and 40% because of a lifestyle change. Business ideas vary throughout Alentejo Central, responding at times to the pressures created by big processing companies. Some of them aim at addressing the lack of organic foods available in the region, while others intend to develop new market models by selling products purchased directly from small food producers.

b. Labour in SFB work

SFB are dynamic actors in the **promotion of local employment**. In general, SFB's managers work an average of 208.4 days, from which 40% of them counts with approximately 307.5 days per year of family help. Generally, 40% of the SFB employ other 4 paid, non-family members, while 40% employs 1 paid, non-family member. Only 20% of the SFB were register to employ 4 non-family members who were paid in kind with meals.

c. SFB income

Activities developed by small food businesses differ in RR22, which ultimately affects their incomes. They included: tourism services, meals and snacks, environmental services, open air activities, nature visits, and machinery rental, among others. For 80% of the SFB, the business represents the totality of their income, while for the rest, it only represents 27%. The average annual turnover of the sampled SFB corresponded to 58 625 € or 4 885 € per month. Actual income is about 10 858 € or 905 € per month with big differences among businesses. 60% of them declared that 100% of their income comes from the business. **None of the SFB interviewed received subsidies** to support their activities.

d. Shocks and coping mechanisms of SFB households



SFB declared main difficulties at the household level related to **budget management**, given the ebb and flow of their businesses. Although 80% of the interviewed SFB reported no particular shocks in the past, the need to adapt to the market was mentioned. Strategies to cope with this included: increasing product differentiation, developing marketing skills, finding a balance between product quality and price, and targeting niche markets (e.g. vegetarian foods).

The Future

a. Main objectives and priorities of SF for the future

Small farmers' age is a determinant element of their outlook about the future. In general, the older the farmer, the fewer interest it has in future investments on farming. Younger farmers' perspectives, on the other hand, go in two ways: either prioritize in **becoming more economically sustainable**, or contemplate leaving the farming activity due to a lack of support. For those wanting to continue farming, some consider opting for increased production, while others for specialized production, in order to secure profitability.

A common belief throughout fieldwork and focus groups' discussions is that small-scale agriculture will disappear, following the current trends in rural emigration, a growing water scarcity, and increased land prices. For example, the traditional olive grove was said to either be abandoned or cut and replaced with intensive olive groves, because this latter production system has a much higher yield.

However, a future for SF's in Alentejo Central was said to depend on their capacity to **organize the sector**, and the role of producer cooperatives to achieve this was emphasized. For small producer organizations to thrive, it was argued, they require attaining the tools to provide the kind of support needed by their constituencies, through an internal and structural organization and the definition of common objectives.

b. Main objectives and priorities of SFB for the future

100% of the SFB interviewed were young in age (on average 38 years old), and, in general, had the goal to expand their business and attain economic stability. **Tourism** was highlighted as an important aspect in the coming years for small businesses. The increasing flow of tourists visiting the region is expected to boost the demand for traditional foods. Since tourists seek out nature visits and local flavours, SFB are betting on local varieties and small food production over the upcoming years.

c. Risk perception by SF

The major source of risk for SF are **climate irregularities**, mainly frost, lack of rain and hail, but also heat. UV radiation was also pointed out as a recent problem. Older farmers emphasize **age and health concerns** as factors limiting their activity. Organic producers



pointed out to **plant diseases and plagues** as risk sources, because they must combat these without agrochemicals.

A **decimation of small farmers** represents a real risk due to the current old population of producers, and the lack of profitability of the activity at this scale. To this adds the expanding tendency to replace traditional crops for new ones (e.g. old olive groves and vines) to install intensive and super intensive production, and the **increasing lack of water**.

d. Risk perception by SFB

SFB's sources of risk vary among them, including: a challenge to change **consumers' mentality, food contamination** risks, compliance of **legal requirements**, and **market limitations** (as it is the case of SFB that deal with niche markets, i.e. organic food products), especially in times of economic stagnation.

e. Food system forecast in 5, 10 and 20 years

The number of small olive oil and wine producers in Alentejo Central is expected to decrease, bearing in mind that traditional olive groves and small vineyards will tend to disappear - if no effort is put into their preservation. Under these circumstances, the flow of raw olives and wine grapes from SF to the mill cooperatives will decrease gradually, which instead will be sourced from medium and large farms. With the increased **mechanization of olives and wine grapes production**, larger quantities of olive oil and wine will presumably be produced, while its quality might decrease. Olive oil and wine production can thus become centralized in the hands of a few larger producers, making competition higher. As a result, it is likely that on-farm and private oil mills will spread, with their own brands and commercialization channels, while collective mills reduce.

Homogenized olive oil and wine products will continue to be consumed regionally, but less likely reach proximity consumers directly. There will also be less food given in exchange for farm labour, as it is done today, because mechanized labour means relying less on family and non-paid labour. Alternatively, olive oil and wine distribution channels in the region could concentrate in the hands of large retailers and wholesalers. A **bid on differentiation** of these two products can presumably respond to these trends, with a larger number of oil mills adopting premium, organic, DOP, or IGP schemes. These higher quality products will target niche markets and continue selling directly at specialty shops and to consumers who can afford it locally and outside of the region. **Online sales** for wine and olive oil are also expected to increase.

Noteworthy is the uncertainty about the future for the wine producing sector in the medium and long-term. Focus group participants deliberated about the **quota system for wine production** to be expected to come into effect by 2030 according to EU regulations, which might have severe effects on the wine food system for Alentejo Central.



In regard to the lamb meat's food system, no major changes are foreseen. The number of small sheep keepers might remain the same, as many producers today argue that they raise sheep to maintain a family tradition. However, the number of sheep keepers can realistically be reduced if no public investment is given to promote the activity and make it profitable. Resilient generations of sheep producers could, however, keep on selling their animals to those intermediaries that can secure a market, even if this means to go on with exporting them. No hint of a sheep producers' association is perceived in the future.

Following the current trends, it is also expected that small tomato producers in RR22 will either continue producing mainly for self-consumption or gradually disappear. Tomato production in small quantities might continue in small plots, but will unlikely gain a protagonist role in the market. If the ongoing food policies and trends persist, only big tomato producers and large processing business will be able to thrive. The only way for this not to happen is if positive discrimination is done to protect small farmers, but this is not probable to occur given the current political set up in the EU and the lack of local pressure.

Tourism is anticipated to carry on in Alentejo Central, as long as the landscape, traditional practices and authenticity continue to attract visitors. Regional efforts would need to invest in supporting small farmers and small food businesses, who are dynamic actors in the development of attractive landscapes for tourists. If mass-produced and mechanized food production prevails and the region fails in maintaining traditional production systems, tourism will tend to disappear over time.

f. Other future related issues

The future of food systems in Alentejo Central will depend greatly on the way consumers respond to these developments. According to one of the key informants, improving **consumers' awareness** about food issues, together with their **purchasing power**, will likely impact their food choices. Informed consumers would buy according to social criteria, supporting the local economy and, therefore, foodstuffs produced by small farmers and small food businesses. By the same token, consumers would acknowledge the complex structures in place today that bring food to the table (namely considering production and transportation costs, health concerns, as well as interdependent distribution chains). Aware consumers may play an essential role in determining the future path of small farmers and small food business if opting for buying local foods. Arguments include the positive effects on climate change from adopting a short chain food supply (because SF and SFB's outputs require less energy to be produced, processed, transported and sold), as well as betting on the **resilience** of rural communities and landscapes.



Annex: List of resources

a. List of key experts interviewed

Affiliation
PROVE – National project promoting short supply chains and local foods (Evora office)
Cooperative of olive oil producers (in Estremoz)
ACORE – Association of Sheep Breeders (<i>Associação de Criadores de Ovinos da Região de Estremoz, Sousel</i>)
Cooperative of wine producers (in Borba)
Olive oil cooperative (<i>Cooperativa Caminhos do Futuro</i>)
Olive oil cooperative (<i>Cooperativa Caminhos do Futuro</i>)
Mill processing organic cereals (<i>Herdade de Carvalhoso, Ciborro</i>)
Regional Directorate for Agriculture and Fisheries of Alentejo (<i>Direcção Regional de Agricultura e Pescas do Alentejo</i>)
MARP – Association of Rural Women Farmers (<i>Associação das Mulheres Agricultoras e Rurais Portuguesas</i>)
ICAAM – Sheep farming professor at the University of Evora (<i>Instituto de Ciências Agrárias e Ambientais Mediterrânicas</i>)
TRILHO – Rural Development Association

b. SF and SFB interviews and focus groups information

Stakeholder typology	N° of participants						How were they contacted?
	Interviews			Focus Groups			
	Me n	Wome n	Tota l	Me n	Wome n	Tota l	
Farmers	30	8	38	3	1	4	E-mail and phone
Producers’ cooperatives				3	2	5	E-mail and phone
Slaughtering facilities							
Processors (small/large)				3	1	3	E-mail and phone
Wholesalers							
Retailers					1	1	E-mail
Caterers							
Other small food business	1	2	3	1	2	3	Directly, e-mail and phone
Exporters							
Importers							Phone
Farm inputs suppliers							



Advisory services				3		3	Directly and phone
Agricultural administration/Ministry of Agriculture				2		2	E-mail and phone
Consumers' groups/organizations				1		1	Directly
Local administrators and policy makers					1	1	E-mail
Political leaders and PMs							
Other programs/initiatives							
Nutritionist							
NGOs							Phone
Traditional and religious leaders (for Africa)							
Total	41			23			

c. References

DRAPAL 2013, Caracterização Agrícola do Alentejo Central

IAN-AF - Inquérito Alimentar Nacional – Actividade Física (2017) (Anexo 1 – Consumo) Tabela A1.2 - Consumo de alimentos por grupos – parte II, para o total nacional (IAN-AF 2015-2016), ponderado para a distribuição da população Portuguesa.

INE 2009

INE 2011, Superfície das culturas permanentes (ha) por Localização geográfica (NUTS - 2002), Tipo (culturas permanentes) e Classes de área (cultura agrícola); Decenal

INE 2015

INE 2016, População residente (N.º) por Local de residência (NUTS - 2013), Sexo e Grupo etário; Anual

INE 2016, Densidade populacional (N.º/ km²) por Local de residência (NUTS - 2013); Anual - INE, Estimativas anuais da população residente

INE Table D.1.1.5 - Gross domestic product per inhabitant by NUTS 3 (current prices; annual

PAOJ - Peritos Avaliadores da Lista Oficial da Justiça. Tabela de Avaliações – Dados Agronómicos, *in* paoj.pt/wp-content/uploads/2014/03/Avaliacoes_Dados_.pdf



4.23. RR23 Oeste –Portugal – Food System Regional Report



WP3

Oeste Region (RR23) –Portugal– Food System Regional Report

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Photo © Paola A. Hernández

Table of Contents: Food System Regional Report

1) Socio-economic and agricultural profile of the reference region.....	638
2) Key products and regional food balance sheet.....	641
3) Food system: Key nodes and flows and role of small farms and small food businesses.....	643
3.1. Key product 1: Chicken eggs	643
3.2. Key product 2: Pear.....	645
3.3. Key product 3: Potato	647
3.4. Key product 4: Wine grape	649
4) Typology of small farms in the reference region.....	651
5) Governance	654
6) Small Farms and rural livelihoods	658
7) Role of Small Food Businesses.....	658
8) The Future	660
9) Annex: List of resources	662



Socio-economic and agricultural profile of the reference region

The Oeste region (hereafter referred to as Oeste and RR23) is since 2015 one of the thirty NUTS3 sub-regions of Portugal. Oeste is located in the western section of the Centro region of mainland Portugal, occupies today 2% of the national territory, and represents 3,4% of the Portuguese population (see Table 1). RR23 is organized in twelve municipalities: Sobral de Monte Agraço, Arruda dos Vinhos, Torres Vedras, Alenquer, Cadaval, Lourinhã, Peniche, Bombarral, Óbidos, Caldas da Rainha, Alcobaca e Nazaré.

The Oeste is a region characterized by small hills and mountains separated by fertile fields, a Mediterranean temperate climate, and mostly sandy and acidic soils. The region is located in the centre, most western part of the country. On the West extends the Atlantic Ocean; pine forests lie on the North and Northeast; two low mountain ranges and the Targus valley in the interior; and on the South, it borders with the Metropolitan Area of Lisbon - where the capital city of the country, Lisbon, is situated.



Figure 4: Oeste Region, Portugal. Adapted map from Territorial Development Programme of Oeste (CIM, 2008)

Oeste is a dynamic region with a vast territory diversity with relatively high population density in relation to the national average, alternating urban and rural landscapes. The blending of urban and rural characteristics allows Oeste to have a calm residential model with reduced traffic congestion, more social cohesion, and traditional economic activities linked to the primary sector. Structurally, RR23 benefits from its closeness to the capital city - mainly in terms of accessibility. A complex web of motorways and the national railway line connect North-South and West-East of Oeste with other regions. Its close proximity to Lisbon creates employment opportunities for a growing population, closeness to the national market and advantages in the access to external markets. Furthermore, the adjacency to the main door in and out of the country prompts foreign tourists' inflow and brings advantages in the access to external markets. Nevertheless, this advantage also exposes the Oeste to the risk of suburbanization against the Metropolitan Area of Lisbon (MAL), causing landscape and environmental degradation and an increased emigration, especially by young people.

Oeste has been known for centuries as an agriculture region in Portugal by excellence. Cool summers and mild winters are ideal ingredients for the production of many fruits and vegetables all year-round. Rurality is a feature far from being negative in Oeste; instead, it is an identity trademark that adds a competitive value to the region.

Table 1: Basic data for the region

Indicators	Data per Region - Nuts 3
Land size (km ²)	2,220.1
Population (thousands of people)	357,868
Density (people/km ²)	161.4
GDP (thousand USD/inhabitant)	18.15
Total labour force in AWU	65,490



Total number of holdings	12,340
Total Agricultural area (ha)	80,074
Total Utilized Agricultural Area (ha)	64,204
Agricultural Area in Mountain Area	n/a
% of UAA in the RR	28.92
Average Farm size	5.22 ha
Number of farms by UAA farm size:	
0-5 ha	9,342
5-20 ha	2,427
20-50 ha	418
>50ha	117
Average size of farms < 5ha of UAA	1.90 ha
Area of main crops (ha):	
Vineyards	13,008
Fresh fruits	14,415
Forage crops	12,751
Cereals	7,188
Horticultural crops	6,735
Potatoes	2,146
Area of main crops (ha) in farms < 5ha of UAA	
Vineyards	3,931
Fresh fruits	3,379
Horticultural crops	1,864
Cereals	1,804
Forage crops	1,683
Potatoes	1,198
Livestock (LSU) per type	
Bovine	16,395
Pig	70,053
Sheep	3,226
Goat	1,324
Horse	921
Poultry	79,969
Rabbit	205
Livestock (LSU) per type in farms < 5ha of UAA	
Bovine	5,012
Pig	38,361
Sheep	1,821
Goat	678
Horse	382
Poultry	48,123
Rabbit	183
Annual work units (AWU) by UAA farm size:	
]0-5[	8,348
]5-20[	4,683
]20-50[	1,838
>=50	1,322
Total family labour per farm size:	
]0-5[	19,288
>=5ha	5,979
Total	25,267



The current positioning of small farmers (SF) and small food businesses (SFB) in RR23 can be understood in the framework of the evolution of the agricultural sector in Portugal during the last few decades. Thanks to the **inflow of EU communitarian funds** since the 1990s and the integration of technology into farming processes, specialization and competitiveness of the agricultural sector in the region increased, paradoxically changing the patterns of rural living and consumption. National efforts have mainly funnelled these funds to address a growing elderly population of farmers –the average age of farmers in Portugal is 65 years old, the oldest in EU28 (INE 2016) – and the lack of professionalism of the activity. By 2009 only 1% of farmers in mainland Portugal had university degree in agriculture and 10,1% a professional training. In 2013, only 20% of farmers worked full-time in their holdings and a culture of management was registered to be little developed. Similarly, circa 94% of holdings do not keep accounting or register systematically their income and expenses (INE 2009).

Agriculture is responsible for 80% of activities executed in the primary sector, with a yearly turnover of nearly 7.5 million euros, employing 12.3 % of the Portuguese population, and with more than 42 000 businesses in the agricultural sector (INE 2011). Improved organization in production systems during the last few decades in Portugal go hand in hand with the increasing role of producers' organizations (PO), mainly in the horticultural and fruit sector, whose role includes accompanying the food chain and providing technical support. For example, the wine sector has undergone major structural modifications through investments via communitarian programmes, such as Vitis, with the selection of better suited vine varieties, improved technologies, and the recognition of new denominations of origin. Agricultural cooperatives in Portugal – and particularly in Oeste – play an important role in the commercialization of produce across the country, especially in the fruit and wine sectors.

Today, there is an asymmetric distribution of Utilized Agricultural Area (UAA) among farming holdings, namely with a large concentration of surface in a limited number of them. In 2016, **small farms represented 71,5% of the total number of holdings** in Portugal, but occupied only 9,1% of the UAA, whereas farms over 50 hectares – representing only 4,2% of the total number of farms – occupied two-thirds of the national UAA (66,9%). The reduction of nearly 6 000 farm holdings under 5 hectares reported in 2016 might be the result of the growing trend in farm size increase and concentration of land, but also of their inability to reduce costs and attain an economy of scale and/or their low bargaining capacity in the food system to reap better prices (GPP 2013:11). This trend is also visible in Oeste.

Organic farming has increased in the last 5-10 years in Portugal, occupies nearly 6,8 percentage of the nation's UAA and presents a mean farm size of 63ha – which is five times bigger than the national mean size in conventional holdings (DGADR 2015). Animal farming, mixed farming and fruit production are the dominating activities in this sector. The distribution of organic holdings appears to be more or less equal throughout the country, with a slighter increase in the less populated Southern and inland regions, and also in areas presenting a higher susceptibility of desertification and lowest GDP per capita (Batista and Batista 2011).

Against these sectoral changes, family farming today is particularly relevant for supporting the livelihoods of many poor, under educated, and elderly people in Portugal. Small farmers



and small food businesses contribute relatively in the preservation of the environment and management of natural resources, the preservation of human and economic occupation in rural areas and social inclusion, as well as in buffering the effects of an economic recession and high levels of unemployment in the short and medium term.

Key products and regional food balance sheet

a. Key products produced and consumed in the region

The four key products selected for the analysis of the food system in Oeste region are **chicken eggs, pear, potato and wine grapes**. They correspond to the environmental and weather conditions and socio-economic and political evolution of RR23, while adequately representing key activities of SF and SFB today in the primary and secondary sectors in the region.

Chicken eggs is a valuable product to analyse the regional food system for three reasons: i) Poultry is the most recurrent type of livestock unit in farms under 5 hectares in the region (see Figure 1); ii) chicken eggs are an important and cheap source of food for farming households; and iii) like in the rest of Portugal, egg-based confectionary is linked with the history and role of monasteries where their recipes initially started. Today, this culinary tradition is kept by small and medium entrepreneurs in Oeste with iconic cultural trademarked products (e.g. pastries and desserts) to promote regional culture and attract gastronomic tourism.

Pear production represents one of the principal agricultural activities in the region and is a significant contributor to Oeste's gross domestic product (GDP). The Rocha Pear is an exclusive Portuguese variety – original to the Oeste region - with designated denomination of origin and corresponding to 95% of the national pear production (Marketing Agricola 2016). Due its increased popularity and appreciation in external markets, plus the injection of adequate structural and financial support in the last decades, the sector has a focused strategy that reflects its own organization and integration of the related food chain. About one quarter of pear producers in Oeste cultivate in areas below 5ha and a growing number of small food businesses linked to pear production are transforming pear into juice, jams, pastries, and fruit snacks, among others.

Potato was chosen to exemplify the prevalence of vegetable small-scale production in the Oeste region. Potato is also an important food source for inhabitants in Oeste, cultivated along other crops, and mostly produced for self-consumption at the small-scale. Squash, kale or onion could have been selected for the same purpose; however, the potato sector undergoes today interesting structural changes. Moreover, medium-sized food businesses in Oeste are transforming this raw vegetable into added value products like potato chips, potato puree, French fries, and frozen pre-cooked potatoes.



Oeste belongs to one of the wine Portuguese regions, the Lisbon region. **Wine grapes** are a predominant agricultural choice for farmers along the Southern part of RR23 in the municipalities of Alenquer, Arruda dos Vinhos, Torres Vedras and Obidos that have a designated denomination of origin. About 33% of wine grapes producers are sized below 5ha and small food businesses focus in developing local wine brands.

b. Balance of production and consumption of key products in the region

Oeste produces approximately 8 014ton of **chicken eggs** per year (INE 2009), which corresponds to the 7.21% of total eggs production in Portugal (INE 2015), and consumes 3,091 ton of eggs, which represents the 2.78% of the national consumption (INE 2015).

RR23 is responsible for producing nearly 87% of the total national **pear** production, or the equivalent to 167,186 ton in 2017 (ANP 2018). However, regional consumption is about 3.5% of the national value, as this fresh product reaches many markets outside the region and the country.

The Oeste region is responsible for about 7% of the total national **potato** production (38,628 ton) and consumes less than 1% of the national potatoes per capita.

Portugal produced roughly 6 million hectolitres of **wine** in 2016 (OIV 2017), from which 860,773 hl, about 14.34% of the total national production, were produced in Oeste (INE 2016); whereas consumption is estimated to be 4.05% of the national amount with 182,380 hl/year (Statista 2017).

c. Official statistics and key products in the region

National and regional agricultural statistics at the NUTS3 level in Portugal are often non-existent or difficult to attain in less prominent sectors, like the chicken eggs and potato, which leads to difficulties when trying to assess the state of affairs at the small scale. Adding to this, statistics on laying hens do not use area size, but livestock units, as these animals are often kept in enclosed areas. Therefore, a notion of the area used for chicken egg production by small farmers in Oeste is unknown.

Data on organic farming is easily available for NUTS1 and NUTS2 regions, but reduced at the NUTS3 level. The Centro NUTS2 Region – where Oeste is situated – presents the largest percentage of female organic farmers (29%) compared to the national average (19%), the largest number of young producers aged between 18-45 years (39%) compared to the national 35%, and the highest level of education for organic farmers, with a 34% of them attaining a university degree in agriculture, when compared to the national average of 28% (Batista and Batista 2011).



Food system: Key nodes and flows and role of small farms and small food businesses

3.1. Key product 1: Chicken eggs

- a. Nodes in the regional food system: production, processing, commercialization and retail

The poultry sector is monitored in Portugal, and thus in Oeste, by the **Regional Veterinary and Food Administration Department** (Direção de Serviços de Alimentação e Veterinária, DSAV), especially for guaranteeing that animals are kept according to EU regulations, animal by-products are processed and transformed following safety and hygiene standards, and consumers have access to safe and secure products.

Small-scale egg holdings are registered according to the number of laying hens they can host, and not their area, into three categories: i) **industrial** (there are five industrial holdings in RR23), ii) **Class 3** (which are holdings that require registration and have a capacity of hosting 100-1153 birds), and iii) **home-made holdings** (with less than 100 birds). There exist two large groups of conventional egg production systems in Portugal: a) the **cage system** and b) **alternative systems**. In the latter, birds may have access to free areas (free-ranged chickens) or remain enclosed in pavilions but have access to the ground (barn chickens). Some producers do a **mixed system**, in which chickens are kept in barns until they reach maturity and then put in cages during the egg laying and rearing periods.

Organic egg production is also practiced by a handful of farmers in Oeste; but production costs using this method are high, which discourage small farmers from adopting it commercially. Conventional animal feed can be sourced regionally and also outside Oeste, with cereals imported from Europe and abroad, while organic feed is mostly imported from Spain due its competitive price.

- b. Flows connecting the different nodes in the regional food system

The production of eggs is a **complex system** that involves a number of stages and actors. **Processing centres** (also known as chicken egg factories) have vertical control of the egg chain from production (including production inputs like animal feed and chicks) to distribution, employing a significant number of people. **Oeste has no processing centres**, thus eggs produced in the region must be treated outside of it. Chicken egg factories might have started as producers' cooperatives initially, but today they are classified as private businesses. Processing centres organize the sector to guarantee product quality and market competitiveness. They establish **direct contracts with farmers**, depending on their activity. Some farmers specialize in the production of chicks. Other farms focus on animal rearing and egg production, where chicks are then delivered to. There exist also animal feed factories that supply farms with chicken feed.



Once eggs have passed all regulatory controls, they are weighted, classified (labelled) and packaged in **classification and packaging centres**. Veterinary and quality control – according to EU regulations - is done regularly to guarantee food safety, both at farms and at the packaging centres' laboratory. From the classification centres, eggs are then distributed through **distribution centres** spread across the country to supermarkets or to the transforming industry directly.

There are two channels small farmers may deploy to sell their eggs in Oeste: i) by establishing a direct contract with the **classification centres**, who take care of commercializing the product; and ii) by registering the holding as a **primary production unit** in which they can sell up to 350 eggs per week (the equivalent to holding 50 laying chickens) at farmers' markets or directly at the farm. Organic egg farmers can be registered as primary production units; however, their market price causes organic eggs to remain a luxury item and consumption is limited to consumers with a higher purchasing power. Organic eggs are mostly sold regionally at **organic shops, farmers' market, farm shops, and specialty shops outside the region**.

Chicken eggs are mostly sold in raw form, but can also be transformed by the **national egg industry** into egg by-products to be sold for the HORECA industry (e.g. liquefied egg, pre-cooked eggs, egg powder, egg spray, among many others). These transforming factories are located outside RR23.

c. Role of small farms and small food businesses within the food system

In Oeste, 81% of the regional number of holdings (INE 2009) are below 5 hectares, corresponding to 3 617 chicken egg farms, out of the regional total: 4 444 units. However, this area size does not mean these holdings are necessarily of small-scale, as their dimension is better understood in terms of their capacity to hold a number of laying hens. Therefore, and in the context of SALSA, we assume home-made holdings with less than 100 birds to be **small farms**, which correspond **nearly to 1.66%** of the totality of egg farms in Oeste. To this date, there exist 74 small-scale holdings registered in the region.

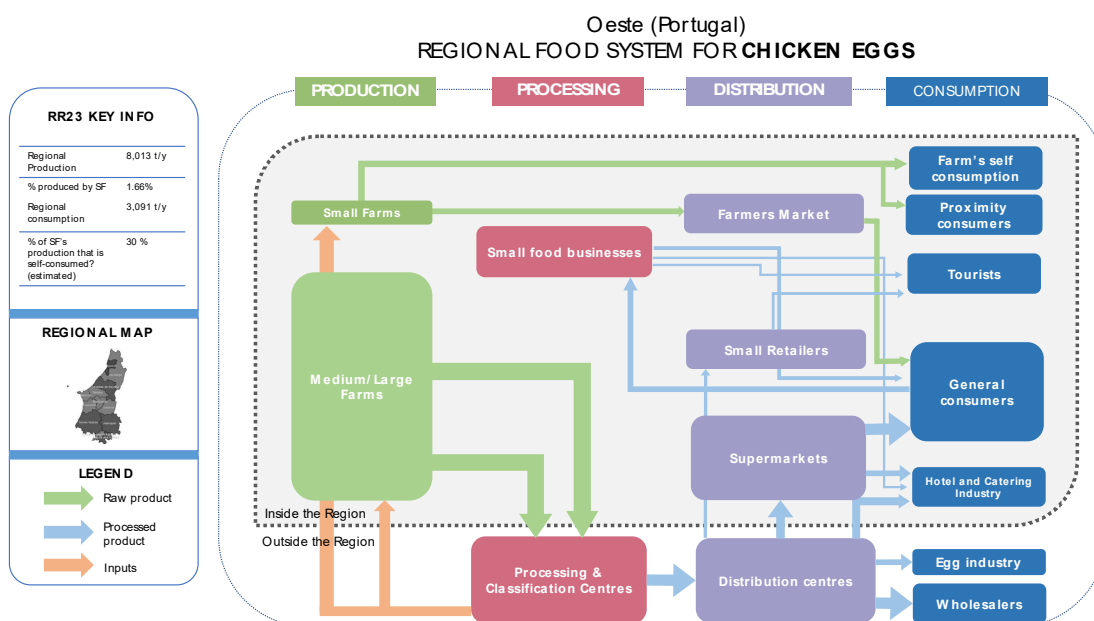
Regional development funds aimed at revitalizing rural areas and increasing tourism in RR23 have helped to boost the number of **SFB** transforming chicken eggs, through the injection of financial resources and technical support in the last decade. SFB in the region's chicken egg sector are mostly family-run businesses with less than 3 household employees. In Oeste, eggs are transformed by SFB into regional desserts like pastries and confectionary sweets and sold to **local residents** and **tourists**, who appreciate these items the most during their visit in the region.

d. Importance of household self-provisioning in small farms and small food businesses

Small farmers raising chickens play a significant role in guaranteeing food security in Oeste. Most of them raise them for **self-consumption** or have a few extra chickens to sell eggs at the farmers' market and **gift to family members and friends**. Buying eggs is a rare concept



for small farmers, meaning that a strong supporting social network can provide this nutritious product that is high in protein to many rural dwellers in Oeste. Only those exclusively farming commercially indicated they bought eggs at the store.



3.2. Key product 2: Pear

- a. Nodes in the regional food system: production, processing, commercialization and retail

The pear producing sector was one of the first food chains to organize itself in Portugal. The Rocha Pear variety has a designated denomination of origin, “Oeste”, turning the **Rocha Pear from Oeste** a brand name known in RR23 and internationally. Producers can be **small** and **large** in scale and also **conventional** or **organic**. Most of the small and large pear producers are specialized in the production of fruits (often alongside apple) and grouped around **fruit growers’ associations**. Farmers associations play an essential role in keeping the sector together. As members of these associations, pear farmers receive technical support and advice, exchange machinery, are capable to attain an economy of scale, and hold a stake in decision-making on collective administration and commercialization. Small producers without affiliation to an association often have just a handful of trees and do not have pear production as a priority or are organic growers. When **harvest** time comes (sometime between June-August), hired labour helps picking the fruits.

Preservation of fresh pears is a key factor for safeguarding the quality of the product along the food chain. Maintaining these chambers, however, represents a high cost in order to guarantee pear supply year-long and overcome the limitation of a one-time harvest per year. Therefore, the role of **fruit growers’ associations and cooperatives** is key in the sector for **storing** fresh pears in cooling chambers after their harvest and **distributing** them



throughout the year to various outlets. The number and size of these associations and cooperatives, thus, reflects their capacity to store fresh fruits along the year.

b. Flows connecting the different nodes in the regional food system

Most of the pear that is commercialized does not suffer transformation. Pear is **sold fresh** by regional private businesses - aka. **fruit cooperatives** – that produce, preserve, standardize, pack and commercialize pear to: a) **wholesalers** who distribute to chain supermarkets and export for several months in the year thanks to the cooling rooms they have; b) **national supply markets** in main cities including Lisbon – MARL, Porto and Coimbra; and c) the **manufacturing industry** that transforms pear into juices, jams or snacks. Non-specialized, non-conventional pear producers (including non-associated farmers and those with organic certification) sell individually their fruit at **local producers' markets** and to **small retailers, specialty shops** or to the **transformation industry** according to the market price. A small percentage of fresh pears is also distributed directly from farmer associations to **school canteens** as part of the regional campaign that promotes fruit consumption by school children. According to the focus group for pear, 50% of pears produced in Oeste leave the country, 48% are sold in the national market, and **circa 2% of pears remain in the region**.

c. Role of small farms and small food businesses within the food system

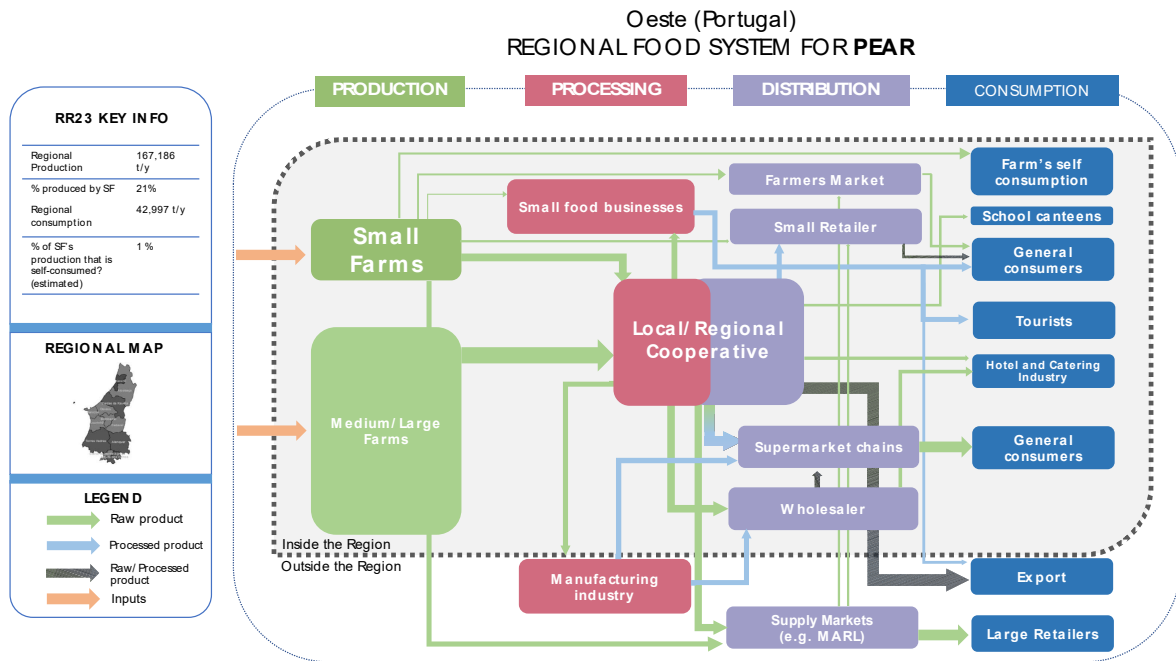
Small food businesses transforming pear noticed they could take advantage of the fruit that is rejected during the standardization of pears and of the access of the sector to foreign markets. Overall SFB are dedicated to adding value to a well-known product, the Rocha Pear from Oeste, by making **fruit juices, fruit jams, pastries, pear in syrup, liqueur, and dried fruit**.

Some fruit cooperatives have expanded their activities by transforming rejected fruit into juices and become successful enterprises known at national and international levels. However, these businesses are mostly larger in size and not considered SFB. In the context of SALSA, we assume SFB in the pear sector as small enterprises with no more than 5 employees, which are a more recent development following the inflow of foreign visitors and regional funds. They consist of businesses making jams, fruit pastries, syrup, liqueur and dried fruit chips.

d. Importance of household self-provisioning in small farms and small food businesses

Pear is consumed in fresh in salads or as a snack – often at the end of the meal –, in juice form, cooked as part of deserts in cakes and pastries, ice cream, pear syrup, dried fruit snacks, and as a liqueur. Pear with chocolate and cooked pear in red wine are regional specialties. Only a few SF gift fresh pears and jams to neighbours, friends and relatives, or consumed by farming households directly. Most of the produced yield enters the market.





3.3. Key product 3: Potato

- a. Nodes in the regional food system: production, processing, commercialization and retail

The Oeste region is a vegetable-producing region by excellence. Its climate, influenced by the Atlantic Ocean, is characterized by its reduced temperature changes, comfortable winters and cool summers, which benefit the cultivation of potato. Potato in RR23 is rarely a farm's primary crop, and it is common to see it cultivated along other vegetables (e.g. garlic, kale, squash, melon), pear, and vineyards.

Potato can be produced all year-round for **seed potato** and for human consumption, **edible potato**. However, there are mainly two harvest seasons in Portugal: around March/April when the 'new potato' is ready, and in July/August comes the winter potato. **Production inputs**, like seed potato and fertilizers, are mainly sourced inside the region. Vegetable cooperatives and small retailers in RR23 often provide seed potato (inputs) directly to the producers with whom they have established a production contract. Out of all potato producers in Oeste, nearly **20-25% are small-scale farmers** and 75% are large-scale. Only small producers who are specialized in potato farming (meaning, those who have allocated a significant farming area to potato production) and have a considerable output per year have production contracts with a vegetable cooperative or a small retailer. Although the area used for potato production at the small scale has suffered decimation in the last decade according to the statistics, productivity has increased thanks to improved technical support and knowledge (INE 2016). This phenomenon can be explained due to the abandonment of the activity or shift by some small producers into larger operations.



Cooperatives and **small retailers** clean, standardize and package potatoes to later distribute them fresh to **storekeepers, supermarkets, large retailers and exporting companies**. Fresh potatoes are also sold to the **transformation industry** that processes and packages potato in vacuum to preserve its innate qualities. According to experts in the sector, potato consumption has reduced because potato has become less ‘attractive’ in Portugal, being replaced by other carbohydrates – e.g. wheat pasta and rice-, thus losing relevance in the market. In response, the **transforming sector** in Oeste and outside the region resorted to creative ways of bringing potato back onto people’s plates and raising its appeal, by producing potato chips, frozen French fries, puree, and ready-to-eat, precooked potatoes.

b. Flows connecting the different nodes in the regional food system

A lack of specific potato producers’ organizations means potato producers in Oeste recur to selling their produce individually or collectively together with other vegetable growers. When part of vegetable producers’ associations, potato farmers receive agricultural training, information about the sector and technical support. Horticultural and fruit producers gain economy of scale by forming **fruit and vegetable cooperatives**, which operate like non-for-profit businesses. These cooperatives organize the production, collect fresh vegetables, and attain a better bargaining capacity for producers in the market. Nevertheless, there are **individual potato producers** who prefer to establish a contract with **small retailers** and **supply markets** (e.g. the Supply Market for the Lisbon Region, MARL) and sell directly to them because they argue they have better returns.

The recent development of a **national association for potato** in Oeste promises organization for the sector and increased competitiveness. Porbatata is neither a farmers’ association nor a cooperative, but an association of all actors involved in the potato food chain. Its main objective is to represent the sector at the national and international scale in order to coordinate efforts and synchronize activities to make potato production as profitable as other sectors in Oeste like pear and wine.

c. Role of small farms and small food businesses within the food system

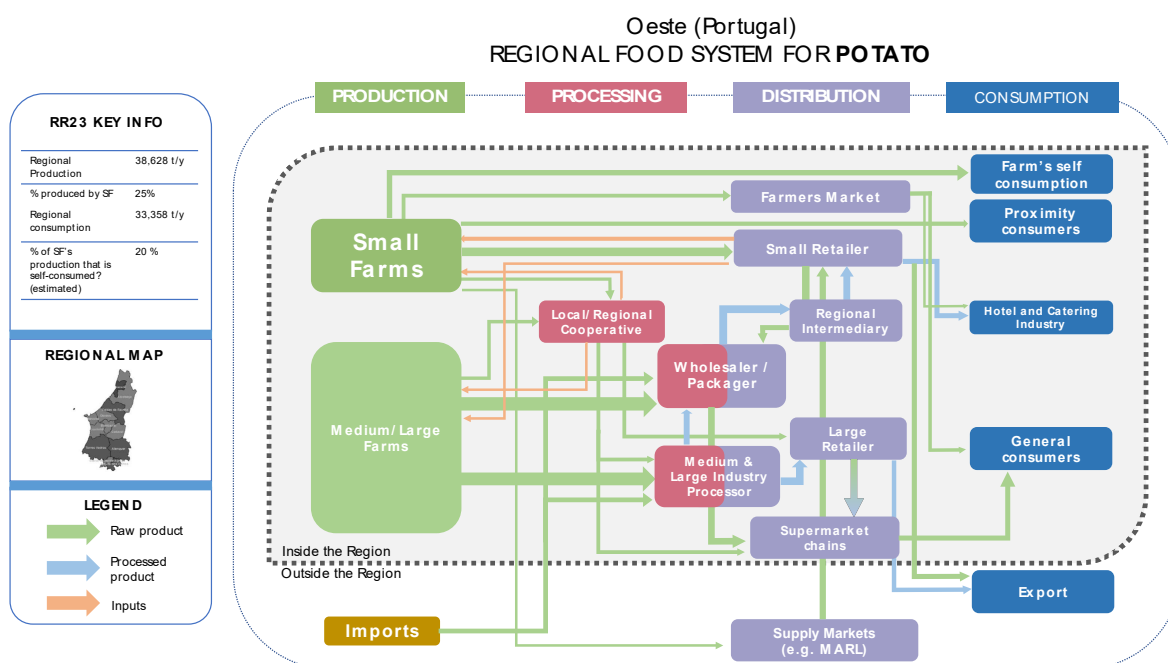
According to focus group participants, approximately 70% of SF in Oeste sell their potatoes to vegetable cooperatives and small retailers. Small retailers might also purchase potatoes from MARL – outside of RR23 – and sell to **local restaurants and the catering industry (HORECA)**. The remaining 30% produced by SF is sold directly at **local farmers’ market**, to the HORECA industry, and to local consumers. On the other hand, large potato farmers in RR23 are said to sell 10% to cooperatives, 40% to the transforming industry and 50% to wholesalers/packagers. The latter two might also import potato from other regions and outside the country if local supply is not sufficient. From there, potatoes are sold to **supermarkets, hypermarkets and large retailers**. The focus group for potato argued that 10% of what is produced in Oeste leaves the region and is consumed elsewhere. The potato that is exported is appreciated by foreign markets (e.g. Spain, Germany, Netherlands, Cape Verde, France, Belgium and Luxembourg, etc.) due to its sensory qualities, namely its texture, which is good for transporting.



According to the potato focus group, Oeste has at least 4-5 businesses – mainly **medium and large enterprises** - that transform potato into **potato chips, frozen French fries, puree, and ready-to-eat, precooked potatoes**.

- d. Importance of household self-provisioning in small farms and small food businesses

Most potato farmers put aside a part of the yield to **consume at the household, give away to friends and relatives and exchange for other products**. Even if farmers are not commercially producing potatoes, they cultivate potatoes for self-provision. This means a highly nutritious and caloric item is consumed broadly inconspicuously by rural dwellers in RR23 without entering the market channels.



3.4. Key product 4: Wine grape

- a. Nodes in the regional food system: production, processing, commercialization and retail

The wine sector has transformed in the last decades and become more competitive, thanks to the allocation of funds toward this. The **support scheme for the restructuring and conversion of vineyards, Vitis**, has promoted the insertion of better vine varieties, professionalization in the production, and mechanization of the harvest. Most specialized small and large wine producers in Oeste organize themselves around **cooperative wineries**, which accompany the production with technical support, transform the grapes into wine, and commercialize the wine. A few producers either keep part of the yield or allocate an area for wine grapes to produce their own **homemade wine**. It exists only a handful of **organic**



wine producers in Oeste; they produce, brand and sell their wines individually, taking advantage of the added value of their product in the market. Wine grapes **harvesting** is increasingly being done mechanically, especially by those producers focused in wine grapes production. When needed, namely when no mechanization is possible or when treating special varieties, labour force is hired during the harvest to aid pick the grapes by hand.

b. Flows connecting the different nodes in the regional food system

Wines from Oeste are classified as part of the Lisbon region according to the **Lisbon Region Wine and Grape Commission, CVRL**, which is a regional association responsible for controlling wine grapes' origin and quality, and to promote wine products holding **DOP - Protected Designation of Origin - and IGP - Protected Geographical Indication - designations**. Wine grapes used to make brandy are also produced commercially in Oeste, namely in the Lourinhã municipality.

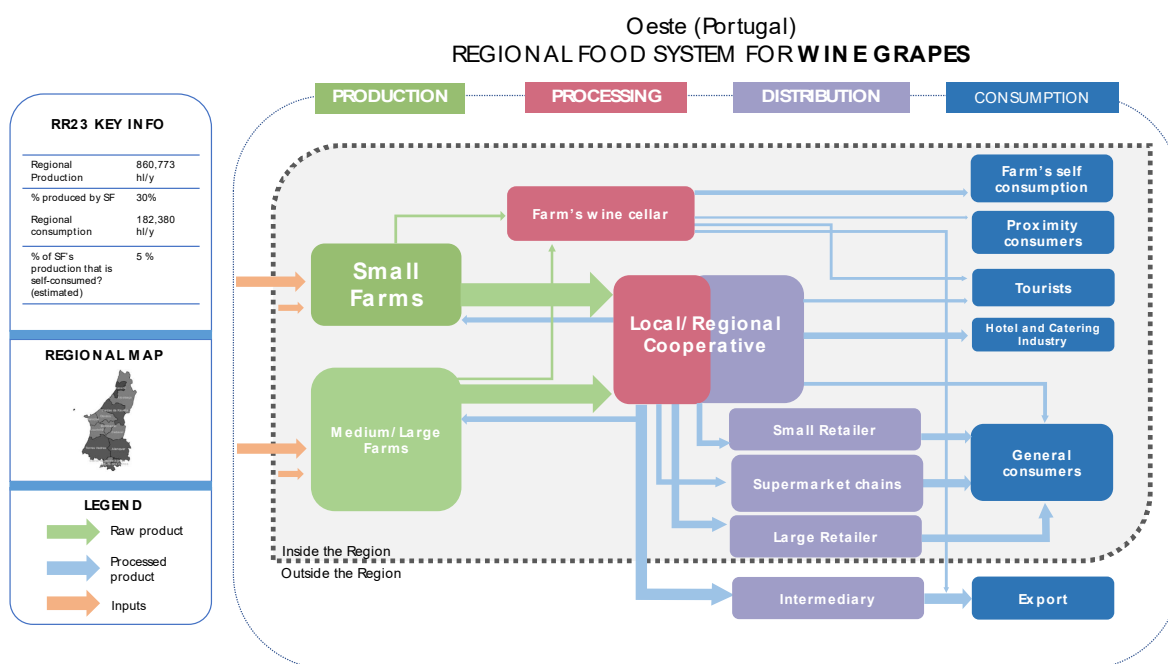
c. Role of small farms and small food businesses within the food system

Cooperative wineries collect the grapes from both small and large producers and make their different wines according to the recipes developed by the **oenologist** in house. They produce, bottle, package, commercialize and distribute the wine, attaining an economy of scale. These cooperatives sell wine directly to the public at their **winery shops**, to the **Hotel and Catering industry**, to **large supermarkets**, and to **large retailers and intermediaries** who sell it outside the region and for **export**. Wine producers commercializing their wine individually are often small in size or organic in RR23 and their number is very low. In this case, these SF must process their grapes and bottle the wine themselves. Sales can occur at the **farm shop or online**, often combined with **enotourism** activities.

d. Importance of household self-provisioning in SF and SFB

Wine consumption at the dining table is a tradition in the region, as much as in Portugal. Consumers can purchase it at small retail shops, in supermarkets, HORECA (Hotel, Restaurant and Catering industries), and winery shops. A few farmers consume their self-made wine. Many wine producers purchase and consume wine from the cooperatives they sell their grapes to.





Typology of small farms in the reference region

a. Small farm types in the region

According to the 2016 national agricultural survey (GPP 2016), **there are two types of farming in Portugal**: i) professional farming and ii) family farming. Professional farming recurs mostly to hired labour to fulfil its activities, taking place mostly in the medium and large scale. This type of farming is responsible for most of food production and occupies the majority of UAA (66.9%), despite the number of farmers are rather the minority in the country (4.2% of holdings). Family farming, on the other hand, tends to be performed by small or very small economic units with a reduced physical dimension. Small farm holdings tend to be less or no specialized, recurring to multiple activities and multiple incomes to secure their livelihood. These holdings rely on family and unpaid labour to survive and are currently run by an aged population. This kind of farming corresponds to the majority of farms in Portugal (71.5% of the national total), but it is smaller in terms of proportion of productivity and utilized agriculture area (occupying only 9.1% of UAA).

Small farming is a common characteristic in RR23 thanks to the history of human occupation and favouring conditions for small farming, namely the region's beneficial weather and climate conditions for horticulture and fruit production, its balanced rural/urban profile, and its proximity to main supply markets in Lisbon (South) and Leiria and Coimbra (North). In Oeste, **74% of the total farms in the region are sized below 5 hectares** (Pordata 2009), and the **average farm size of these farms is 1.9ha** (INE 2009).

Building on the two farming types characterized above in Portugal, **three (3) small farm types are identified in Oeste** according to their production methods, their



commercialization strategies, and degree of self-provision: i) specialized/commercial; ii) non-specialized; iii) alternative. They describe the different kinds of small farming approaches in Oeste, based on the knowledge attained from the research of the four food systems in the study region described in Section 3 (chicken eggs, pear, potato and wine grapes). It is important to highlight this classification is cross-sectorial and all three types are present in each sector, as actors within each sector perform differently in response to their individual physical, economic, social and environmental affordances. However, the distribution of small farms in the region might play a significant role in defining agricultural strategies and policies, and thus shape their role in the regional food system.

i) Specialized farms:

These are farm holdings with **one main income activity** to which most human and monetary resources are channeled; for instance, most of their farming area is dedicated to a single activity. They operate in **well-organized sectors** where regional producers' associations and cooperatives (or private businesses) accompany the food chain, providing with technical advice and a secured market, price and payment to farmers. They could also be named 'professional farms' using the denomination in Portugal above, meaning the food chain benefits from farmers with farming skills, technical support and commercialization knowledge. SFs under this category are more prompt to receiving (and applying for) **financial support** from communitarian funds, either following the advice from farm associations or because of the sector they operate in (e.g. Vitis). In general, most farms in this category **work collectively** with other farmers and actors in the food system to increase their bargaining capacity. They tend to be **bigger** in size, present **less product diversity**, be run by **younger farmers**, and are holdings where agriculture is the **main income source** for the household – although income from other activities or household members is also common. Many pear and wine famers are situated here, as these two sectors have been organized longer in the region and the products are attractive to foreign markets, making the activity more market competitive. These export-oriented, added value products contribute in strengthening the region's small-scale agriculture, promote cultural and heritage identity, stimulate SFB in RR23.

While other activities might be practiced in these farms, they are done with less intensity or priority. Some might have a small family garden and a few domestic animals (e.g. chickens, sheep, rabbit, goats, etc.) for self-consumption, but in most cases **a large portion of the food consumed at the household level is purchased**. Paradoxically, although specialized/commercial holdings might contribute positively to the regional economy, in terms of food security their contribution to the region might be questioned. On the one hand, intense farming promotes heavy use of inputs and mechanization to maximize productivity, causing soil and water degradation, reducing agricultural labour force, but also making produce cheaper. On the other hand, yet a larger quantity of food items is being produced and made available in the market, their quality and accessibility might be criticized. First, produce from these farms is meant to meet market standards (according to their sensory qualities) and not necessarily be safer or more nutritious; and second, it is mainly channeled to regional wholesalers, large retailers and to supply markets outside the region. This means regional products might be (or not) consumed locally. Moreover, these type of



SF depend heavily on the ebbs and flow of a sole market, climate conditions, and funding, making their incomes **potentially vulnerable** in periods of instability.

ii) Non-specialized

This type of farms tends to be smaller in size, produce **diverse agricultural products** and present an **array of income activities** at the household level. Farmers in this category tend to be **older** in age, whether retired from former non-agricultural activities or life-long farmers. However, a few younger farmers (below 40 years old) can be visible here, mainly in **pluri-generational farming households**. These SF tend to have an emotional link to the land they farm, either because it has been a family property for many generations or because it is their life-long activity, which is a strong driver for continuation of their activity.

Non-specialized farms bet on **product diversification**, many of them situated in the fruit and horticultural sector and animal rearing. Application to communitarian or regional funds is unusual by these producers, either due to their **lack of specialization** and/or farm dimension or to mistrust in publicly-funded programmes. Many small potato and chicken egg producers can be placed under this denomination, especially if they farm other vegetable products and recur to **multiple commercialization channels** to sell their products. Some of them belong to a producers' association and/or cooperative to whom they sell part of their produce, while others work individually as **entrepreneurs**, establishing sale contracts with a supply market or selling directly at the farmers' market.

Farm income from agricultural activities for these SF does not represent the totality of their household income. Instead, their **income tends to rely on multiple activities** and diverse household members (either inside or outside the farm) such as forestry and also full-time and part-time jobs in a different sector. State funding (e.g. retirement, sickness, disability, child, or unemployment benefits) appeared to be a noteworthy source of **extra income** for many of these SF.

Despite their low contribution to the region's GDP, non-specialized farms play an important role in contributing to the region's food security. First, they produce a wide range of agricultural products that are suitable for the soil and climate conditions. This means they can have a less damaging impact on the environment, due to their small-scale and low degree of specialization, which reduces dependency on farming inputs and promotes sustainable farming practices, such as crop rotation. Second, some of these farmers make **seasonal and non-standardized food** available to local consumers in farmers' market and farm shops at affordable prices, rescuing local varieties and promoting short food supply chains, social cohesion, and local employment. Last, SF under this category tend to base their diets on what they produce and sell only excess produce. They mostly purchase the food that they cannot produce or receive in exchange from other producers. Excess food is also channeled to family members, neighbors and relatives, in the form of **food gifts** and in work/exchange (for example, farm helpers might receive a bag of potatoes or pears or a few bottles of wine during the harvest). This has a great impact in reducing rural food poverty and promoting fresh food consumption.



iii) Alternative

Alternative farms are those that do not enter the conventional production and trading systems of the two typologies before. Alternative SF are **certified farms that bet on sustainable farming practices and product differentiation** to compete in the market. **Organic farming** is incipient in the four sectors studied in Oeste, but its popularity is expected to increase following change of consumers' habits and rural tourism. Local branding and **denomination of origin** in Oeste (like currently in the wine and pear sectors) has helped boost distinct farm products in Oeste. However, most of these farms are tied with the sector they operate in and are rather undifferentiated. Distinctively, certified organic farms and farms supplying wine grapes to a cooperative making brandy from wine grapes with designated denomination of origin could enter this category, as they have full control over the food chain from production to retail.

Alternative SF present producers with **higher education levels**, when compared with the other two types. In general, these small farmers are single producers that are either **foreigners, retired or young adults** with a side income that provides an economic buffer to remain viable, especially during their starting phase. These farmers tend to **apply to EU funds** that promote sustainable farming practices, which allows them to make investments in their activity. When operating collectively, they often **tie their activity to a SFB**, or organize their production in a cooperative, which allows them to have vertical control over their product, be more independent, and increase profitability. These farms have significant higher production costs as a conventional farmer (i.e. many of the farm inputs come from outside the region – even from other countries), which delimits their capacity to be market competitive. Commercialization of their products tends to take place in **specialty shops, farmers market and abroad. Online sales** are also common in this system.

The contribution of these farmers to the regional food security is yet to increase. Despite producing high quality, safe and environmentally-sound products, their availability and accessibility is rather obscure to the average consumer. These luxury items tend to remain in niche markets that are targeted mostly outside the region or to tourists. This is because organic food prices are not competitive, and/or consumers may lack the knowledge to change food consumption habits and start supporting these alternative food systems.

Governance

a. Main interactions of SF and SFB with governance structures in the region

The interaction with governance structures by SF and SFB in Oeste depends on the type and sector they operate in; for instance, if they operate individually versus as a collective unit. Nevertheless, fieldwork participants in general would agree that acknowledging market rules and consumer habits is imperative to make SF and SFB economically viable. **Grants, subsidies, investments and policies** targeting SF and SFB were argued to follow market trends, which means that those without access to this information tend to take less advantage of them. This was noted, for example, by small wine grape producers, who highlighted the need to apply for the Vitis support scheme to make their yields more efficient through the



installation of newer vines and mechanization of the activity.

b. Levels of governance and their relative importance for SFs and SFBs

Farmers' associations and producers' cooperatives act as local bridges that connect producers with the market and with policy institutions located at the national and international sphere. Well organized SF and SFB advocate that associations and cooperatives, which are non-for profit private structures, aid SF receive updated information about farming standards, subsidy applications, new grants, market offers, and policy regulations. **Regional and rural development offices** (e.g. local action groups and other developmental associations), which are private organizations publicly funded through regional, national and European funds, also support with subsidy and grant applications for SF and SFB. Small farmers and SFB commercializing their products locally tend to interact more with the local administration – who is in charge of local affairs, namely on regulations about producers' markets and local shops. Chicken egg producers have direct contact with the **Regional Veterinary and Food Administration Department (DSAV)**, which informs about the clear set of regulations small farmers must consider when keeping farm animals and on food safety rules at the European level and oversees their compliance.

c. Constraints impairing full participation in the food system

Farming support schemes were mentioned to favour some farming activities over others. During the focus group for potato, participants argued there is a lack of direct support to produce potato in the EU, which was hinted as a possible factor why there are no widespread specialized potato farmers and the sector cannot gain scale in Portugal. Similarly, regarding the support scheme for young farmers, some complained the **degree of specialization** and **farm size** was determinant to receiving support. In general, SF and SFB argued the more specialized the activity, the broader support types are available.

SFB in the egg sector highlighted the institutional difficulties in sourcing chicken eggs from small-scale farmers, given that primary production units are only allowed to sell up to 350 eggs per week. This was either because the amount appears insufficient for some businesses, SF cannot secure a steady egg supply from SF– due to rearing and laying seasons, or for price competitiveness.

d. External policies, decisions and social norms affecting food systems

There seems to be a discrepancy between current agricultural trends and food security and sustainability goals. On the one hand, despite the increasing pressures for economic productivity in the agricultural sector and rural development, current farming techniques were noted to favour more sustainable methods than before. In general, SF who have been in the activity for a while argued there is less use of herbicides and pesticides, as well as there are better and more resistant plant varieties. The chicken egg sector reported safer animal keeping regulations in the EU that protect animal well-being and protect water ways. All of



this makes food safer to be distributed and available in a complex web of food hubs at the local, national and international level.

On the other hand, however, food producing systems and rural demographics respond to the sector's current demands in RR23. There is an identified reduction of small farmers in parallel with an increase in utilized farming areas, as well as a growing specialization of food production. These trends can have multiple consequences. In terms of food security, policies promoting a monoculture and mechanized farming can:

- reduce crop resilience to plagues and diseases against climate change, affecting soil quality and compromising future farming generations;
 - increase dependence on production inputs, making the production systems less resilient;
 - reduce agricultural labour – e.g. many SF opt to invest in machinery to reduce salary costs,
 - oversee regional food supply by prioritizing food export to increase market profitability,
 - decrease food diversity available for local consumption.
- e. Gender issues intersecting governance issues

Both men and women are present in the activities carried out by small farmers and SFB owners in Oeste. Noteworthy, **a larger number of women** was identified in **unspecialized small farms**, as small business owners, and occupying administrative positions. They worked in the fields, took care of the animals, sold their produce at farmers' markets, worked in processing facilities and retail stores, did clerical work at the farm and at the business level, were business owners, provided technical support to farmers, and also worked at the public administrative level in regional offices. **Men**, on the other hand, **were commonly found in specialized farms** (especially in farms utilizing farm machinery), as farming technical support, as decision-making leaders in associations and cooperatives, as large-scale business owners, and in the public administration.

Inheritance and salary norms appear to favour men and women equally in Oeste.

f. Forms of collaboration and organization between small farms

SF from the **same sector and degree of specialization** tend to work in collaboration with each other. This results from small farmers organizing around producers' associations and cooperatives (a clear example is the pear and wine sectors), where they get to meet each other, discuss common issues and concerns, and work synchronically for the well-being of the group and sector. Collaborative work among SF increases their bargaining capacity in the market and these agglomerations act as a supporting social network. Limitations are more visible in sectors where the food chain is less organized and a less clear strategy exists (e.g. in the potato sector)



- g. Forms of collaboration and organization between small farms and consumers

There seems to be no institutionalized collaboration between small farms and consumers in RR23.

- h. Relationship between small and large farms, and between small and large businesses

Relations among food producers in Oeste's food system were sector-based. Producers' associations and food cooperatives generally incorporate small and large farmers as their members - regardless of their dimension, and their produce is processed jointly prioritizing no product differentiation. This brings advantages and disadvantages for SF. Positively, it allows small and large farmers to know each other's different issues and realities in the sector and bargain jointly for better prices and conditions; but on the other hand, SF producing higher quality produce receive a better value for their product only in more complex businesses with different product lines that do product differentiation (e.g. those with DOP, IGP and organic certification). Otherwise, most fruit and wine cooperatives selling in bulk prioritize homogeneity and standardize production.

- i. Other governance issues

The chicken eggs food system in Oeste appeared to be reduced to the activities of small farmers in the primary sector. There is **no association among egg producers** in RR23. The number of SFB in Oeste was meagre and run in separation with the food producing sector at the small and local scale. According to the focus group, the sector is concentrated in the hands of the industry – outside the region, which controls the entire food chain, dictates food prices and dominates the market.

The **lack of representativeness of the potato sector** in the regional and national economy, and the absence of supporting mechanisms at the EU level that promote potato farming, makes the sector's growth unrealistic. Tackling this would require an specialized potato producers' association and cooperatives that helps organize the production, promotes the secondary sector, is able to gain bargaining capacity for better market prices, and impedes the dumping of cheaper potato from foreign markets.

The focus group for wine grapes indicated the region needs to make greater efforts to increase product differentiation to **add more value to local wines**. Today, most wine is exported and paid cheaply abroad. This situation signals the need for local consumers to pay competitive prices locally and also for Portuguese wines to be more competitive in international markets.



Small Farms and rural livelihoods

b. Importance of household labour in SFs

In Portugal, the economic dimension of very small holdings in statistics, refers to farms with an income up to 8 000 euros/year, whereas small farms are those earning 8 000 - 25 000 per year (GPP 2016). The income of some SF and SFB in Oeste comes from **non-farm activities and social benefits**, the latter in virtue of the Special Social Security Scheme for Agricultural Occupations (for farmers), the Non-Contributory Scheme and the Contributory Scheme. Under this umbrella, small farmers receive approximately 250 euros per month, which forces them to rely on household labour and other side income. These benefits fall short to guarantee decent livelihoods, particularly for an aging farming population. According to the National Farm Survey (2016), the farmers' population in Portugal is aging: only 7.1% are 15-44 years old; 33.7% are 45-64 years old; and 54,6% is above 65 years old. Specifically, the national mean age of singular farmers in Portugal nowadays is 65 years old, compared to 64 in 2013 (INE 2016).

c. Farm and non-farm income in the SF's households

Farming is considered a family activity in holdings and family businesses that depend on **household labour**, for example in non-specialized farm types. SF and SFB with no labour support indicated abandonment of the activity and unproductivity, encouraging members to contribute when needed. Household members are most of the times not paid with money for their work on the farm, but receive **benefits in kind** such as food and knowledge about farm activities, while increasing their chance to take over the farm from when the parents or in-laws retire.

Diverse income sources are particularly important in non-specialized farms, mostly from jobs in the secondary and tertiary sectors. Specialized farms and SFB, differently, rely on hired labour, especially during the harvest season.

d. Shocks and coping mechanisms of SF households

Diverse income sources are particularly important in non-specialized farms, mostly from jobs in the secondary and tertiary sectors. Specialized farms and SFB, differently, rely on hired labour, especially during the harvest season.

Role of Small Food Businesses

a. Main insights and patterns

The weight of the secondary sector in RR23 to the regional economy corresponds to 9% and is much higher than its equivalent at the national level 3%. Oeste holds also the fourth highest business density among NUTS3 regions in the country (Ramos 2016). **A large number of**



businesses in the region derive from the primary sector, mainly as they are linked to a much appreciated concept of ‘rurality’ in the region. Food-related businesses are thus not surprisingly located along the major axes of communication (namely major highways) throughout the region, in search of efficient pathways to access distribution channels and retail points.

Small food businesses in Oeste vary in scale and dimension. They are most prominent in complex food systems with a high degree of organization and specialization, and also in alternative farming systems such as the organic sector. SFB benefit from a steady and secure flow of raw products that can help guarantee product consistency. This stable supply can be achieved thanks to the support provided by farmers’ associations and cooperatives in organizing food production systems.

SFB in Oeste are seen processing and transforming fresh produce and also selling them with a **high market value** to tourists, **niche markets** located regionally and outside RR23 (for instance, in Lisbon) and for **export** outside the country. A larger number of SFB are embedded in the pear and wine sectors (in activities including fruit juice, fruit jam, fruit snacks, desserts, brandy wine and small wineries, etc.), sourcing these two raw materials from the region. A few medium-sized food business transform fresh potatoes coming from medium and large farms (i.e. into frozen potatoes, potato puree and potato chips, among others).

On the contrary, only a handful of SFB transform raw eggs – which are most of the times sourced from outside the region - into tarts and traditional confectionary in Oeste. Moreover, the largest portion of the transformation of chicken eggs takes place outside the region. **Small organic farmers** are often entrepreneurs, thus also considered SFB, who tend to create their own product lines, with their own marketing and commercialization strategies, and **accompany the product from the beginning to the end**.

b. Labour in SFB work

Some SFB can be **family-run businesses**, but most of them are **small enterprises that rely on hired labour**. Some SFB started as a collective idea developed by farmers organized in an association to gain an economy of scale, but once they attained a bigger dimension, they became a private business.

c. SFB income

SFB often apply for **EU funds** promoting rural development and innovation in the food sector. This support helps SFB begin with their business idea, upgrade buildings and equipment, and also make investments.



The Future

a. Main objectives and priorities of SF for the future

Specialized SF appear to be positive to upcoming challenges in the future. Most of them hope to keep the farming activity as it is, maintain their farm size or expand, make investments in food production and infrastructure (e.g. plant new trees or buy machinery) to increase productivity, and pass their farm to their children.

In general, **non-specialized SF seem to be less uncertain** about what might happen to their holding in 5,10 and 20 years. Those in retirement age signalled interest in farming as long as “their mind and body allow it” because “farming keeps them alive”. However, many were less positive and could not guarantee continuation of the activity by their children and grandchildren. SF without a successor expressed they would sell out by the time they retire. Younger farmers in this typology suggested they would rather specialize their holding, bet on new markets and products, or recur to more secure non-farm income to support their activity.

b. Main objectives and priorities of SFB for the future

Thanks to the bet by regional administrators on **product differentiation and local branding**, along with an expected increase of tourists to Oeste, most SFB embedded in organized food sectors (e.g. pear and wine) seem hopeful about what the future can bring. A bright future for SFB in Oeste depends on a foreseen increase of productivity by the sector, the continuation of European funds that help promoting **short food supply chains, sustainable agriculture and rural revitalization**, as well as the increased appreciation of local products by consumers. As argued in a focus group, this shift is possible as long as there is an increase of awareness and knowledge about local food products and the benefits to the local economy.

c. Risk perception by SF

SF perceive risk for their farming activity differently. Specialized SF appear confident about commercialization of their products, but expressed fear regarding **climate and weather changes** and new **plant diseases** that cannot be controlled beforehand. Against this backdrop, producers’ organizations play an important role in helping SF adapt to upcoming challenges. Small wine grapes farmers, on the other hand, seemed anxious about the possible establishment of **wine quotas by 2030** and the **end of the national support scheme ‘Vitis’**, which - they argued - makes the activity profitable at the small scale.

Non-specialized SF expressed uncertainty about environmental changes too, **market fluctuations**, an increasing number of **supermarkets that compete unfairly against SF products**, and **land abandonment** due to a lack of agricultural labour to continue small farming.



Alternative farmers might fear negative weather and climate effects, but also the long road ahead to overcome **systemic and bureaucratic limitations** that currently hold them back from attaining an economy of scale and expanding their market channels.

d. Risk perception by SFB

Newly established SFB fear a **slow capacity to place themselves in the market**, which goes hand-in-hand with consumers' reception and interest to their products. Better-established SFB in Oeste have already consolidated their presence in the market and hope to remain as competitive as they are today. However, their biggest concern is **competing markets abroad**, which can at times respond more efficiently to market needs compared to them.

e. Food system forecast in 5, 10 and 20 years

Food system actors expressed uncertainty about how food maps systems could unfold in the near and medium term future, mainly due to rapid changes in rural development and to unforeseen climate and weather challenges. Nevertheless, food systems were not anticipated to change much. Key points on this change include: i) the **shortening of food supply chains**, in response to consumer demand and sustainability concerns; ii) the **consolidation of Porbatata as the national association for the potato sector** - capable of overseeing and accompanying all actors and activities across the sector - would prompt vertical organization of the sector and increase opportunities for SF and SFB in Oeste; and iii) the number of **small farmers will decrease**, because of mainly three leading causes: first, many farmers today are old in age, second, this reduction aligns with current trends in agriculture, and third, because younger people will continue seeking out other income activities in rural Oeste, for example in the tertiary sector (e.g. tourism, SFB, etc.).



Annex: List of resources

a. List of key experts interviewed

Affiliation
COTHN – Centro Operativo e Tecnológico Hortofrutícola Nacional
Louricoop – Cooperativa de apoio e serviços do Concelho de Lourinhã, CRL.
LEADEROESTE – Associação de Desenvolvimento Rural (Cadaval)
DRAPLVT – Direção Regional de Agricultura e Pescas de Lisboa e Vale do Tejo
Biofrade Agropecuária

b. SF and SFB interviews and focus groups information

Stakeholder typology	N° of participants						How were they contacted?
	Interviews			Focus Groups			
	Men	Women	Total	Men	Women	Total	
Farmers	25	16	41	4	2	6	Directly at their farms, through farmers' associations and at producers' markets
Producers' cooperatives	4	1	4	2	1	3	At the cooperatives' headquarters, by telephone and by email
Slaughtering facilities							
Processors (small/large)	3	1	4	2	1	3	At the processing plants, per email, and by telephone
Wholesalers							
Retailers	2	1	4	2	1	3	Directly at their businesses, per email, and by telephone
Caterers							
Other small food business							
Exporters							
Importers							
Farm inputs suppliers							
Advisory services					1	1	By telephone and by email
Agricultural administration/Ministry of Agriculture					2	2	By telephone and by email
Consumers' groups/organizations							



Local administrators and policy makers					1	1	By telephone and by email
Political leaders and PMs							
Other programs/initiatives					1	1	By telephone and by email
Nutritionist							
NGOs							
Traditional and religious leaders (for Africa)							
Total	53			20			

c. List of Acronyms used in this report

Acronym	Portuguese	English
ASAE	Autoridade de Segurança Alimentar e Económica	Portuguese Authority for Economic and Food Safety
IEFP	Instituto do Emprego e Formação Profissional	Institute of Employment and Vocational Training
HAACP ⁴⁹	Análise de Perigos e Controlo de Pontos Críticos	Hazard Analysis and Critical Control Point
GlobalG.A.P. ⁵⁰	Referencial global que certifica o uso de boas praticas agrícolas.	GLOBALG.A.P. - The Worldwide Standard for Good Agricultural Practices
POD - DOP	Denominação de Origem Protegida	Protected Denomination of Origin
ANP	Associação Nacional de Produtores de Pera Rocha	Portuguese National Association of Rocha Pear Producers
IFAP ⁵¹	Instituto de Financiamento da Agricultura e Pescas, I.P.	Institute of Finance for Agriculture and Fisheries
Vitis	Regime de Apoio à Reconversão e Reestruturação das Vinhas	The vineyard restructuring and conversion scheme
RPU ⁵²	Regime de Pagamento Único	Single Payment Scheme
DOC	Denominação de Origem Controlada	System of protected designation of origin for wines, cheeses, butters, and other agricultural products from Portugal
CVRL	Comissão Vitivinícola da Região de Lisboa	Lisbon Region Wine and Grape Commission
BRC	Certificação da norma global de segurança alimentar do British Retail Consortium (BRC)	Global Standard for Food Safety certification by the British Retail Consortium
MARL	Mercado Abastecedor da Região de Lisboa	Supply Market for the Lisbon Region

⁴⁹ In Portugal: <http://www.asae.gov.pt/pagina.aspx?back=1&codigono=54105579AAAAAAAAAAAAAAAAAAAA> . By the FAO: <http://www.fao.org/docrep/005/y1579e/y1579e03.htm>

⁵⁰ https://www.globalgap.org/uk_en/

⁵¹ http://www.ifap.min-agricultura.pt/portal/page/portal/ifap_publico/GC_oifap#.WwaW0IMvy34

⁵² http://www.ifap.min-agricultura.pt/portal/page/portal/ifap_publico/GC_ajudas/GC_rpu_R#.WwbQFIMvy34



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4.24. RR24 Bistrita-Nasaud –Romania– Food System Regional Report



WP3

Bistrița Năsăud (RR 24) –Romania– Food System Regional Report

Author: Raluca Barbu, Adriana Pop, Alexandru Olaru



Table of Contents: Food System Regional Report

1) Socio-economic and agricultural profile of the reference region.....	667
2) Key products and regional food balance sheet.....	669
3) Food system: Key nodes and flows and role of small farms and small food businesses.....	672
3.1. Key product 1: Potato.....	672
3.2. Key product 2: Apple	674
3.3. Key product 3: Cow and buffalo milk and cheese	676
3.4. Key product 4: Pork	678
4) Typology of small farms in the reference region.....	680
5) Governance	681
6) Small Farms and rural livelihoods	684
7) Role of Small Food Businesses.....	686
8) The Future	687
9) Annex: List of resources	689



Socio-economic and agricultural profile of the reference region

Bistrita-Nasaud County is located in the North of Romania, with the counties: Maramures to the North, Suceava to the East, Mures to the South and Cluj to the West.

The county seat is Bistrita, with other important urban centers being: Beclean, a major railway junction, Nasaud, the old cultural center, and Sangeorz-Bai, a spa resort with springs of therapeutic mineral waters.

The territory of Bistrița-Năsăud County presents a varied and complex relief, arranged in the form of a natural amphitheater with a stairway opening to the Transylvanian Plateau, with three relief areas: the mountain area, the hills and the meadow area.

At the level of Bistrita-Nasaud county, the economy is industrial-agrarian type, specialized in the machine building industry, electrical equipment and appliances, metallurgy, food and textile industry. Agriculture is also a basic branch in the county economy, covering 297,600 ha, which represents over 55% of the total area of the county.

The agricultural land is mostly private, the pastures and meadow having the largest share. This division of land determines the structure of agricultural production, dominated by animal husbandry. The arable land holds the most significant share in the hilly area of the Transylvania Plain (the southern part of the county). The agricultural area of Bistrita-Nasaud County represents 2% of the total national agricultural area, placing Bistrita-Nasaud on the 28th place as agricultural importance at national level.

The forests occupy over 30% of the county's surface, with the largest concentrations in Rodna, Năsăud and Bârgău.

Table 1: Basic data for the region

Indicators	NUTS 3 data	
Land size (km ²)	5,355	
Population (thousands people)	329,326	
Density (people/km ²)	61.5	
Total GDP (EUR million)	1,524.0	
GDP (EUR/inhabitant)	4,627.6	
Total labour force in AWU	45,850	
Total number of holdings	72,130	
Total Agricultural Area (ha) - AA	297,600	
Of which - Arable (ha)	98,594	33.1%
Grasslands (ha)	190,212	63.9%
Permanent crops (ha)	8,794	3.0%
Total Utilized Agricultural Area (ha) - UAA	Not available at NUTS 3	
Agricultural area (ha) in Mountain Area	131,170	44.1%
Number of agricultural holdings in Mountain Area	34,210	47.4%
% of UAA in the RR	Not available at NUTS 3	
Average Farm size (ha, total agric area)	4.13	
Number of farms by AA farm size:		



0-5 ha	57,690	80.1%
5-20 ha	14,040	19.5%
20-50 ha	190	0.3%
>50 ha	120	0.2%
Total Agricultural Area on farms < 5ha of AA	105,690	35.5%
Average size of farms < 5ha of AA	1.83	
Area of main crops (ha) - 98.5% of area		
Maize for grain (human + animals)	23,977	37.7%
Perennial / annual forage / fodder	19,604	30.8%
Potatoes	7,313	11.5%
Orchards	6,940	
Oats	4,212	6.6%
Wheat	2,965	4.7%
Barley	2,488	3.9%
Vegetables	2,419	3.8%
Area of main crops (ha) in farms < 5ha of UAA (list the relevant crops below)	Not available at NUTS 3	
Livestock (LSU) per main livestock type	Numbers are recorded at end of year - LSU calculated using published co-efficients (estimated LSU=184,441)	
<i>(numbers shown separately)</i>		
Cattle	63,147	34.2%
<i>No. of Dairy cows (including buffalo cows)</i>	44,691	24,23%
<i>No. of Calves (young beef)</i>	31,605	17,14%
<i>No. of Heifers</i>	4,423	2,40%
Sheep	61,057	33.1%
<i>No. of Breeding ewes</i>	367,030	199%
<i>No. of Other Sheep (end of year)</i>	40,018	21,70%
Pigs	22,327	12.1%
<i>No. of Breeding sows</i>	5,595	3,03%
<i>No. of Fattening pigs</i>	65,684	35,61%
Horses	18,029	9.8%
Poultry	16,420	8.9%
<i>No. of Laying hens</i>	576,964	312,82%
<i>No. of Other poultry</i>	278,082	150,77%
Goats	3,461	1.9%
Livestock (LSU) per type in farms < 5ha of UAA (list the relevant types below)	Not available at NUTS 3	
Annual work units (AWU) by UAA farm size: 0-5, 5-20, 20-50, >50ha	Not available at NUTS 3	
Total family labour per farm size: 0-5, 5-20, 20-50, >50ha	Not available at NUTS 3	

Bistrita-Nasaud Region has been through strong and different influences along the centuries – Austrian-Hungarian Empire, followed by a short time of independence, proceeded by 50



years of communist regime. During the communist regime, the plain area of Bistrita-Nasaud region has been collectivised, while the hilly and mountain ones opposed resistance and choose to organise themselves at community level more independently. Such influences have impacted the way that SFs are organising their activity today – fragmented in the plain area, top down approach and outside intervention required mainly for initiating businesses. In hilly-mountain areas, there is a strong trend for setting up and organising themselves into cooperatives, especially for milk collection and processing. Such profound processes have impacted greatly the mentality and livelihood of communities in the different parts of the region – for the mountain farmers - to collaborate more and to consider that the role they play in society is more important, as farmers are often seen as a pride, while for the plain area farmers - forced to work in former state cooperatives made the concept of “associativity” to become a taboo, inducing a certain unreliability of transactions and generally considers that the farmer's job is injurious. According to the interviewed SFs, only larger farms can be considered useful and respectable.

In the last over 10 years, in Bistrita-Nasaud region – mostly just as in the rest of the country, the situation of SFs and SFBs has been largely influenced by the European funding received through direct payments and rural development programme. This funding has influenced the SFs to increase the number of animals and produce not only for their own consumption, but also to sell to consumers and small processors. At the same time, European funding has led to the development of SFB, accessing European funds to improve their technological endowment and increase their production and processing capacity.

EU funds has been providing both SF and SFB with the possibility to develop and upgrade in terms of maintain the land and the production, but has also brought a high vulnerability in case of a potential reduction of these grants, the most exposed being the SFs, whose existence depends now on the provision of such financial support, while their capacity to access and sell on the market hasn't improved too much , but rather maintain a self-sustaining. In the absence of financial support, the production is expected to drop significantly – due to the increase dependency created - and in consequence the activity of the SFBs, along the food chain, would suffer as well.

Key products and regional food balance sheet

a. Key products produced and consumed in the region

The four key products identified for the region, on the preliminary report are:

	Approximate amount produced in region per year	Approximate amount consumed in region per year	Balance (consumed - produced)	% surplus-deficit on total consumption
Potatoes (tonnes)	104,791	32,373	72,418	224%
Apples (tonnes)	33,013	8,530	24,483	287%



Cow and buffalo milk and cheese (litres)	142 million	80.2 million	61.8 million	77%
Pork meat (tonnes)	6,075	10,308	-4,233	-41%

The statistics based on which the selection of the four key products was done, shows a clear significant production of potatoes – also, an important source of starch in the region, which together with the apples are representing the key products produced mainly for “export” (leaving the region). The cow and buffalo milk and cheese is of a particular importance at household level due to its quick revenue (fresh cheese is sold on informal markets), along with pork – which traditionally is grown for Christmas time – both key products representing the main source of protein for the region.

Interviews and discussions in focus groups confirmed the relevance of these identified key products, at the same time the statistical data identified during the period 2000-2016, according to which the predominant crops are cereals for grains, corn and potatoes. The average production per hectare of the main crops in 2016 places potatoes on the first place with a production of over 34000 kg / ha, followed closely by sugar beet, white cabbage and alfalfa. In terms of fruit production at county level in 2016, apples have recorded a production of more than 35,000 tonnes, accounting for 72% of the total fruit production.

The livestock stock held at the county level is dominated by 4 categories: cattle, pigs, sheep and goats. The animal production obtained in 2016 cattle and pigs in the first positions, in terms of meat production pigs dominate with a production of over 6000 tons, followed by cattle with a production of over 4100 tons, and in terms of milk production, cow's milk and buffalo recorded the highest production, over 1500 hl, accounting for 86% of total milk production.

b. Balance of production and consumption of key products in the region

The great majority of these are subsistence and semi-subsistence therefore **own consumption / self-provision** is a key element of the regional system. However, there are methodological issues regarding the quantification of self-provision which need clarifying – especially where self-provision includes a significant degree of distribution within extended family networks. This is a general characteristic of the SFs sector in Romania, but remains much more pronounced in a predominantly remote rural region such as Bistrita-Nasaud.



In Bistrita-Nasaud region, SFs are characterized by diversity, not solely specialized just in livestock breeding or plant cultivation generally mixed activities are carried out within each farm. Potatoes, as well as cereals and other vegetables are grown for both household self-provision, but also for animal husbandry. Such mixt farming system is providing the household with vegetables, meat, milk eggs.

Potatoes are sold directly in markets for farmers or intermediaries who then sell the goods in markets within or outside the region. Potatoes, also used at farm level as exchange, offer potatoes to receive cereals - corn in particular. Small potato producers have failed to penetrate supermarkets or supermarkets in the region, taking into account small potato areas and supermarket requirements linked to the quantities required to be delivered.

Small potato farmers in Bistrita-Nasaud are not organized in any form of association to ease their penetration into large sales markets, individuelles sales to intermediaries and directly to consumers in the markets remain the main selling point. Of the categories analyzed, the sale of potatoes is made the least, and they are mainly used for own consumption in the household and animal feed.

At the level of Bistrita-Nasaud County, the apple culture is a centuries-old tradition, the county being a reference fruit basin, at the level of the county and within the county residence being symbolically placed apples, thus confirming the reputation of the county. The apple production of small farmers is partly preserved for household and livestock consumption, and considerable quantities are sold to the main processor in the juice production area. Also, the production is sold in markets and fairs directly to the consumer. Processing apple activity is done less, small farmers preferring to sell directly to processors.

Cow and buffalo milk and cheese represent another important key product that requires much more detailed examination with both the major dairy company in the region (processing and formal sales) and the SFs and shepherds (self-provision, processing and informal sales).

Much of the amount of milk produced in the county is sold directly without being processed, but a part is processed and sold as fresh cow's cheese, and there are also some intermediaries that collect the cheese from the farm gate. Of the cows breeders, they have sales contracts with local or regional intermediaries, and some of them sell directly to some processors, others sell to some intermediaries and very little sell in the markets. In terms of milk consumption within the household, farmers consume milk, samantha, cow cheese, only from their own production, they buy very little.

A culturally / socially important product with most small farmers buying and fattening at least one pig per year to produce a wide range of traditional products, especially for the Christmas period and winter months. At the same time, the region is also characterised by the presence of an important local meat processor with a chain of local retail stores selling a wide range of traditional pork products. Many of the pigs slaughtered and processed are from the company's own farms, but significant quantities also appear to be imported to meet the



41% deficit in total pork meat consumption in the region. In 2018, the pig farms benefited of a extended funding from the state budget, aiming to support farmers to improve breeding activity, resulting in increasing the number of pigs in the county of Bistrita-Nasaud.

While having the production supported, selling the pigs is a big problem for farmers, their only option being intermediaries, not having the opportunity to sell directly to processors in the region. Also the low price is a problem in the sale of pigs, some farmers opting for the online sale of pigs.

Small farmers typically sell their animals directly in specially arranged markets, selling to other intermediaries, or intermediaries buy the animals directly from the farm gate. After sale, farmers can no longer track or identify their destination, some are probably exported or others sold to slaughterhouses in the region.

c. Official statistics and key products in the region

At the level of Bistrita-Nasaud county, the institution specialized in collecting, processing and analyzing data is represented by the Regional Statistics Division Bistrita-Nasaud. As far as Agriculture is concerned, annual reports are made on the cultivated agricultural area, namely the main crops, agricultural productions, livestock holdings.

At national level, the most recent agricultural censuses were carried out in 2002, respectively in 2010, the latter being the first agricultural census carried out by Romania as a member state of the European Union.

At the level of macroregions, development regions and counties, the Structural Surveys in Agriculture, the most recent one was published for the year 2016. Analyzing the data provided by the National Statistics Department Bistrita-Nasaud, referring to the use of the agricultural area and the main crops used and the yields obtained, four categories of main products can be distinguished: vegetable production is dominated by potatoes and apples, and animal production of swine and bovine meat and the production of cow's milk and buffalo milk, even if sheep are kept a greater share in the number of livestock held.

Also, at the farm size class, 80% of the farms are small farms under 5 hectares, in the county of BN, according to the Agricultural Survey in Year 2016 there were 72292 agricultural holdings, 80% being under 5 hectares.

Food system: Key nodes and flows and role of small farms and small food businesses

3.1. Key product 1: Potato



- a. Nodes in the regional food system: production, processing, commercialization and retail



In terms of potato production at the level of the analyzed farms, all those interviewed cultivated potatoes, obtaining an average production of 1 t / ha. Potato cultivation is not the main agricultural activity of farmers as a source of income, potatoes are mainly grown as a source of food for households but also for animals besides the garden with vegetables, which provide the necessary vegetables during the summer, but also a

part during the winter.

At the Bistrita-Nasaud County level, it was not possible to identify certain regions where potato cultivation is a predominant activity, the potato being the main vegetable in the diet, so it is cultivated at the level of each farm.

As a crop, potato is often affected by drought or abundant rain. In Bistrita-Nasaud region, there are no irrigation systems on the farm, or in the control of the farmers, the production of potatoes being strongly affected by both weather conditions - resulting in low production and prices to be addressed on the market.

- b. Flows connecting the different nodes in the regional food system

The main destination for potatoes is for both own and animal consumption, potato cultivation being an important source of food for the locals. In relation to the processing of potatoes, there were no methods of processing identified, the potatoes being used only for the consumption within the household.

The market addressed for selling the potatoes are represented by farmers' markets or intermediaries/middlemen who are collecting the potatoes and sell them directly or to other entities (local shops, retailers) sell the potatoes to markets.

- c. Role of small farms and small food businesses within the food system

The main activity of potato-related farmers is sorting by size categories:

- Small - for animal feed - for pigs in general, cows.
- Media - keep for seed - used the next year to set up new crops
- Large - intended for their own consumption

- d. Importance of household self-provisioning in small farms and small food businesses

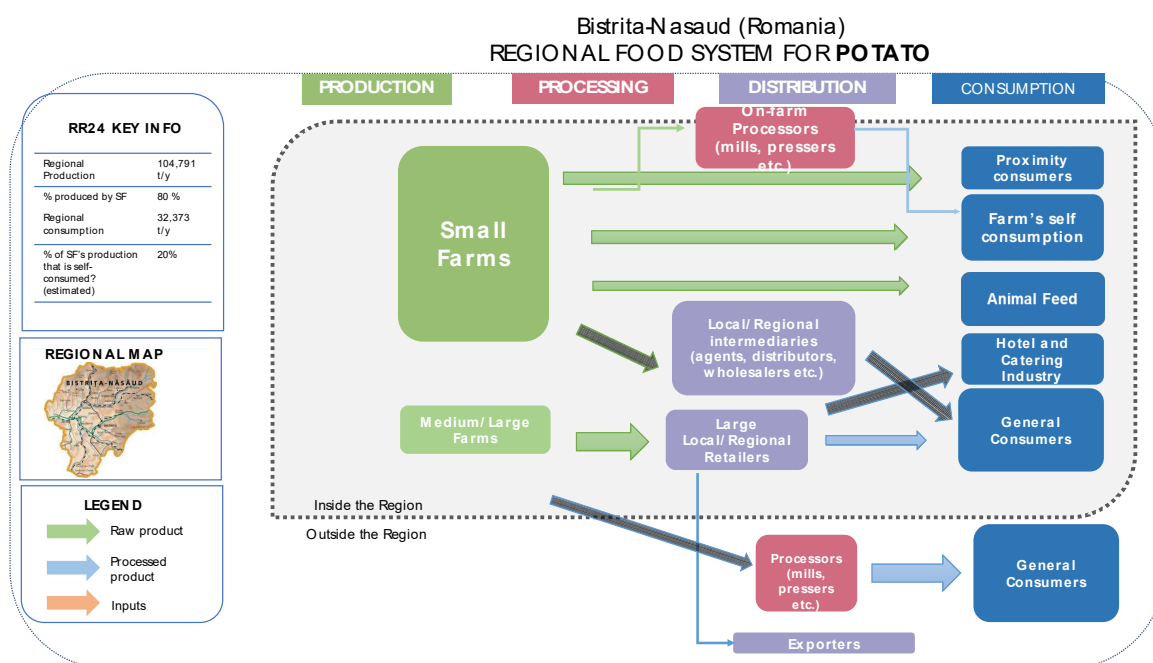


The importance of producing and assuring potato consumption within the household is the main reason for the potato cultivation, the potato being the most important source of starch in the region.

At the regional level, potatoes are part of the “kitchen garden” which is either placed around the household or in the field, and where as a crop is accompanied by beans, onions, carrots, peppers, tomatoes, cucumbers, etc., which provides considerable independence from the food system - the way of ensuring the necessary food every day especially in the hilly-mountain parts of the region, considering that the small shops in the villages only provide food with processed foods: sugar, oil, pasta, sweets. Potatoes are used by SFs as an “exchange-coin” for getting corn.

e. Other relevant information

There are no SFs cooperatives or associations on potatoes organised in Bistrita-Nasaud for accessing the markets, its commercialization being very poor. From the categories analyzed, the sale of potatoes is made the least, and they are mainly used for own consumption in the household and animal feed.



3.2. Key product 2: Apple

- a. Nodes in the regional food system: production, processing, commercialization and retail

Bistrita Nasaud county is recognized for its large number of orchards as well as for apple production. Apple production is often affected by unfavorable weather conditions: cold, frost, hail, drought, and farmers sometimes have very large losses.





Landscaped orchards have entered a decline due to major deforestation, many of which were necessary due to their aging and lack of profitability, the decline being caused by deforestation, without these orchards being rebuilt.

In the past, in most orchards, the Jonathan variety was cultivated, being highly appreciated and considered to be the king of apples, but consumer tastes are changing, too few people in the country buy this variety of apple. Thus, the fruit growers in Bistrita had to change their cultivated varieties, the most appreciated variety being Golden and Starkinson.

Another threat on the Romanian market is the market penetration of apples from countries like Poland, Hungary, Bulgaria, Moldova, at very low prices and very large quantities, small farmers failing to cope with the competition, given that the production of apples in the region is mostly made up in aged orchards, and the final aspect of fruit is not as attractive to consumers as the imported ones.

b. Flows connecting the different nodes in the regional food system

The apple production of small farmers is partly preserved for domestic consumption and feed, and considerable quantities are sold to the main processor in the Pombis area for the production of juices. Also, the production is sold in markets and fairs directly to the consumer. The processing of apples by small farmers is done less, especially in the form of jams and compote, farmers preferring direct sale to processors, at county level there are no established fruit processing areas.

The importance of small farms in the production and marketing of apples in the food system is due to the need to eat and have access to food, small farms supply apples to small markets and fairs where consumers have permanent access to fresh fruit and vegetables. Also, small farmers support processing by processors who, even if they own apple orchards, can meet the demand of consumers buying apples from small farmers, thus having a high competitiveness on the market both small farmers' small businesses / processors are in close contact.

For this analyzed category, there is no cooperative or association of small producers in order to sell their production as a whole and to negotiate and obtain the best-selling price, each of the farmers selling on their own or certain existing intermediaries.

c. Role of small farms and small food businesses within the food system



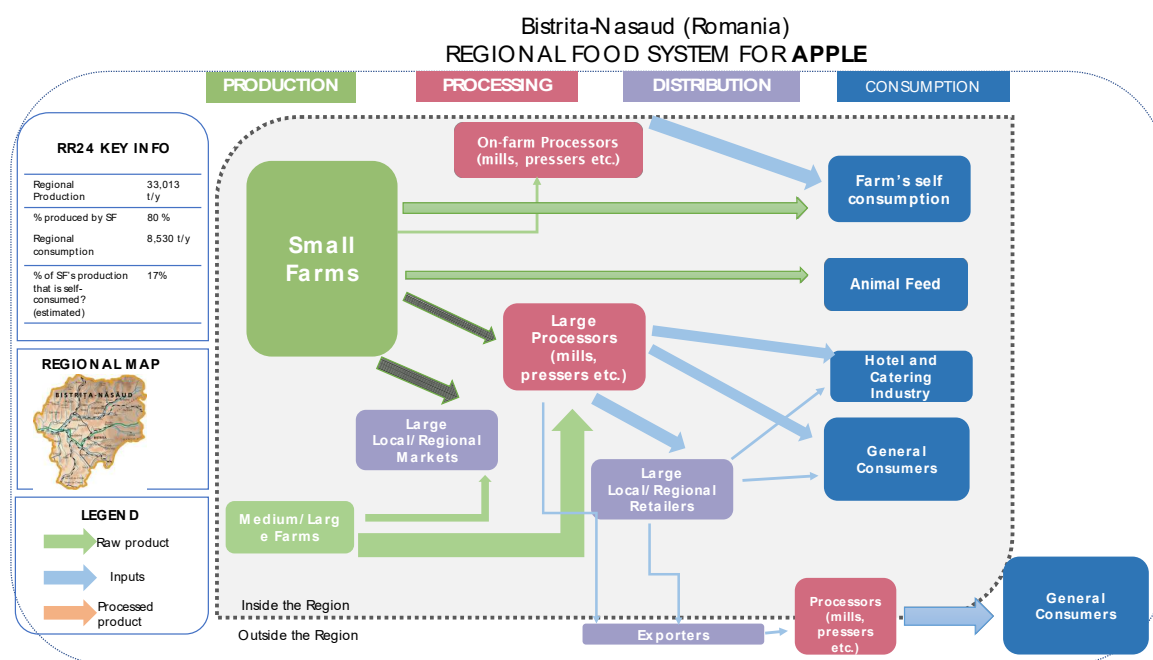
Fruit growers in Bistrita Nasaud believe that the reconversion and rejuvenation of the plantations is the main objective for the future, in order to cope with the competition and to obtain apples of high quality and higher production.

A special feature of Bistrita-Nasaud County is the fact that small farmers, besides the traditional farming of animals and the cultivation of potatoes and / or cereals, have small apple orchards.

The main apple processor, Pombis, has an area of approximately 145 ha of apples, and 44 ha of plum and 8 ha of cherry, monopolizing apple production at the county level.

- d. Importance of household self-provisioning in small farms and small food businesses

As far as the provision of food is concerned, the small farms have a very big impact, because in the villages of Bistrita-Nasaud county and the NV region, the population has inherited the tradition of agriculture, so each rural household ensures its own production of the necessary baby food.



3.3. Key product 3: Cow and buffalo milk and cheese

- a. Nodes in the regional food system: production, processing, commercialization and retail

At the level of the interviewed farms, a small number of farmers have buffalo households, most of them own cows, mainly Romanian breeds: the Romanian Baltata. The interviewed farmers are mainly raising cows for both milk and calves, both products being valued mainly



on informal networks (village level or nearby towns/cities) and retained for household consumption.

The number of cows on a farm differs depending on the area, in the area of the meadow people have on average 1-2 cows, but in the mountain area their number increases. In the mountainous area, animal husbandry is the best method of capitalizing on steep terrain, using the grassland and pastures.

b. Flows connecting the different nodes in the regional food system

24% of the interviewed SFs producing milk have sales contracts with local or regional intermediaries, while 37% of them sell directly to processors (i.e. Monor) in the region or outside the region (Cluj region), just as others sell very little in the markets.

The interviewed SFs declared that, when sold, 37% of the milk is sold directly without being processed, while 48% is processed and sold as fresh cow's cheese, or there are also some intermediaries who collect the cheese from the farm gate. The rest is retained for self-consumption.

SFBs interviewed at regional level are dependent on the raw material provided by small farmers in the region, ensuring that milk collection is produced and collected daily through their own collection networks.

The price for the raw milk is the genuine “Achilles heel” for both farmers and processors, farmers say the price is low, but SFBs said that they have to run couple of tests for checking the compliance standards, adding additional costs for every farmer.

The price for raw milk has determined 290 SFs from Tarlisua area to come together and set up the Tibles-Somes-Meles cooperative, the cooperative aiming to collect and deliver together a larger volume of milk, for which they should get a better price.

c. Role of small farms and small food businesses within the food system

While, there are processors appreciating the uprise of such associations/cooperatives, hoping that in this way they will get a standards compliant milk, and that the cooperative will educate farmers about how milk is delivered, there are also others – namely the middlemen who are collecting the milk from SFs and deliver it to the big factories (esp. Campina Friesland) in the area who did not appreciate the upcoming of new cooperative, launching certain threats that they would no longer buy the milk of those farmers that would associate with the newly established cooperative as they are losing now money from collecting and intermediating for the processors.

d. Importance of household self-provisioning in small farms and small food businesses

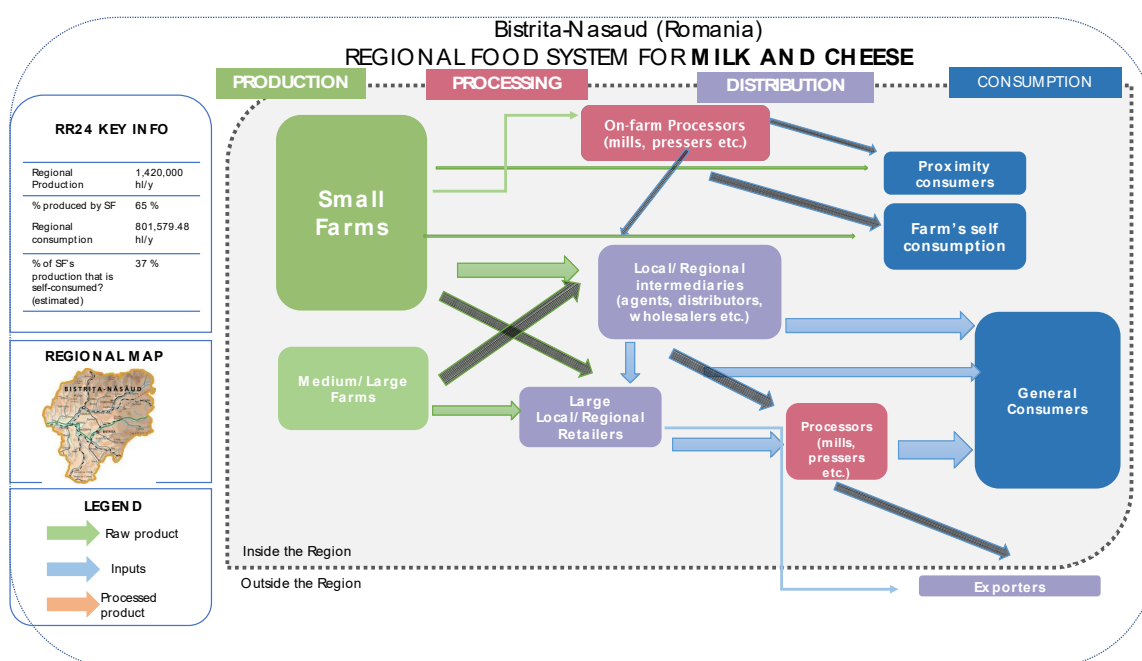


Over the household, the milk is consumed raw, processed as sour-cream, cow cheese. In addition, they buy rarely yoghurts with fruit for children, other types of cheese or processed dairies.

e. Other relevant information

Another problem encountered by small farmers is the sale of cattle, selling usually in markets to intermediaries, farmers claiming they cannot sell animals directly to the abattoirs in the region.

In the future, both small farmers and SFBs aim to grow, hoping for a better collaboration between the two parties, avoiding sales through the intermediaries.



3.4. Key product 4: Pork

- a. Nodes in the regional food system: production, processing, commercialization and retail



The breeding of pigs in Bistrita-Nasaud County is an agricultural activity kept from generation to generation, each household ensuring its own pork meat production, one year farmers sacrifice in a household at least 1 pig during the holidays of winter.

Beyond the tradition of raising pigs for their own consumption, farmers grow pigs for marketing purposes, both for breeding and slaughtering pigs. The increase of the pigs for the purpose of commercialization is more common in the meadow /lowland, in the mountain areas the main activity of cattle breeding is cattle.

Farms breeding pigs got an extended support from the state in 2018, helping farmers for the breeding activity, which has increased the number of pigs in the county of Bistrita-Nasaud.

b. Flows connecting the different nodes in the regional food system

There are several big meat processors at the level of the regions, one of them having their own pig-breeding farms, mostly ensuring their own meat production needs, but they are also processors who buy pigs from the region.

Small farmers typically sell their animals directly in specially arranged markets, selling to other intermediaries, or intermediaries buy the animals directly from the farm gate. After sales, farmers can no longer track or identify their destination, some are likely exported or sold to slaughterhouses in the region, the slaughterhouses belonging to the region's processors.

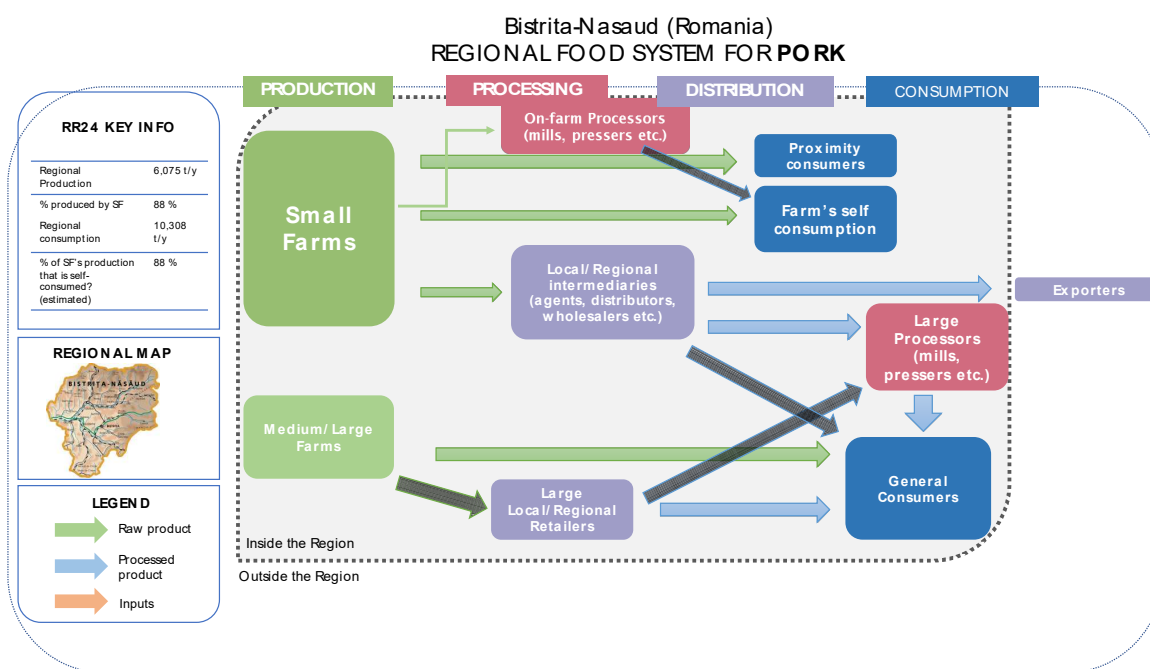
c. Role of small farms and small food businesses within the food system

Selling pigs is a big problem for farmers, their only option being intermediaries, not having the opportunity to sell directly to processors in the region. Also, the low price is a problem in the sale of pigs, some Bistritan farmers opted for the online sale of pigs to consumers, this practice is not encouraged by local institutions due to the fact that the meat, after slaughter, is usually not checked from the sanitary point of view.

d. Importance of household self-provisioning in SF and SFB

Pork consumption is high in the regions, with most farmers slaughtering at least one pig in the household, and other consumers in the urban area buy pork either from big chain stores or from specialized processors in the region who have distribution chains in the region.





Typology of small farms in the reference region

a. Small farm types in the region

In Bistrita-Nasaud County, as in any other county, small farms can be divided according to the type of production (predominantly mixed farms), by productivity or economic efficiency, etc. However, during the research two other criteria could be observed, according to purpose and location. Thus we have:

By purpose:

- farms that represent a business opportunity - the goal is to obtain profit and only secondary to obtain food
- farms that do not represent a business, but whose owners have other sources of income - is a pleasure, habit or complementary source / alternative food and income
- farms that do not represent a business and whose owners have no other significant sources of income - represent an absolute need both for food production and as a source of income (especially from subsidies)

b. Role of small farm types in the regional food and nutrition security

Regardless the classification taken into account, small farms are meant to provide the farmer's family with food. Differences begin to occur when farms are viewed by category. In this way we can draw the following conclusions:

Classification by type of production:



- Vegetable farms produce to a greater extent for their own consumption, very little being selling;
- Zootechnical farms tend to make more use of their production so they contribute to regional nutrition security;
- Mixed farms meet both traits. However, it should be noted that almost all existing farms are mixed, with the following situation: Potatoes and vegetables are used almost exclusively for their own consumption, cereals and fodder plants for animal feed, and products of animal origin (milk, meat, dairy products, eggs) are also marketed and used for domestic consumption.

Classification by purpose:

- Business farms: contribute to regional nutrition security
- Farms that are not regarded as business: contribute to food security at family level and sometimes at community level (by selling in neighboring countries, offering gifts, sending food packages to children left in the region, etc.)

Governance

a. Main interactions of SF and SFB with governance structures in the region

The most direct interactions between the SFs and the governance structures are those with local authorities, especially when concerning funding opportunities, subsidies. For most of the SFs, farming is a living style. Therefore, sometimes complining with various standards, conditions – especially when these are not clear or are miss-communicated by local/regional offices of national authorities – SFs find them too beurocratic and not very encouraging for becoming more entrepreneurial.

However, higher level of education or training is clearly contributing to a better understanding by SFs of importance of good governance and policies. They are also the ones more inclined to start a business and to be more active on the market, setting a different type of interactions and dynamics. In Tarlisua, the interviewed ones mentioned that they would like the local authorities to be more involved in supporting their activities by funding better roads ensuring better access to land (esp pastures on stip slopes) and connectivity with the other localities, by finishing the cadastral process (no clear boundaries between properties at the moment), support the cooperatives with space for setting up the collecting point or for the processing units. An active mayor, on another hand, like in Magura Ilvei, can make a big difference and become they depend and listen much more on the local institutions, as they are trying to work more for the community.

It's more likely for the SFBs to interact more often with the local authorities.



Despite the good conditions favorizing milk production, the lack of roads and accessibility to land make difficult for farmers to easily collect and process the milk for the market. SFs interviewed identified this aspect as a significant obstacle for a better valorization of the milk and dairy products in the market (into towns and cities). This is bringing tensions between farmers and mayors, at local level.

Nevertheless, the natural conditions are becoming also increasingly vulnerable in front of climate change effects (droughts or abundant rain fall) affecting the fodder production for feeding the cattle and intrinsically the milk production. On another hand, SFs also noted that there are difficulties due to the rules imposed in the agri-environment packages (for which they obtain subsidies), related to the mowing after a certain the period of the year, July 1, because climate conditions are in a continuous change being much harder to anticipate.

b. Levels of governance and their relative importance for SFs and SFBs

SFs and SFBs is a strongly connected in the region, depending on the others, to the same extent, for farmers lack of SFB would lead to the impossibility of capitalizing on the raw materials - milk - in Bistrita-Nasaud County established until now associations of small farmers to set up processing units of milk and have a distribution network.

To the same extent, the lack of SFs and implicitly of raw materials would make it extremely difficult to operate existing processing units.

The major problem in selling milk is the low price, the existence of numerous intermediaries, the major price differences from winter to summer, as well as bringing the milk from other regions to the region, removing the milk produced in the region from the area.

Of the four activities that are the subject of this study, cattle and pig breeding are the ones with the greatest economic impact. They also have the most interactions with entities outside the farm. First of all in domains, the number of associative structures is much higher. This is partly due to the economic potential of these sectors and, on the other hand, is a consequence of the market. The size of the processors is very large and their number is low. So they want large amounts of milk or meat, which a single farmer can not realize. This aspect, together with the large number of intermediaries and some practices similar to those of the cartel, is unfavorable for both farmers and entrepreneurs who want to open small processing units. Moreover, the correct igneous conditions, but very restrictive for the small size of the farms, represent a constant and strong pressure for farmers and an advantage of the intermediaries in the negotiation process.

As regards the production of potato and apple, the cooperatives are virtually non-existent, but their economical improbability for the small farmer is almost zero, the products being mainly destined for household consumption.

Local authorities and organizations such as Local Action Groups have a particularly impressive role. Professionalism and dedication can be key issues for small farmers. On the



Ilvelor Valley, they offer, besides access to financing sources, the information needed for development, bring together various interested groups (eg representatives of agricultural universities, NGOs, etc.), as well as some organizational aid. On the other hand, other areas of the county are much less active, and farmers have to deal with themselves.

c. Constraints impairing full participation in the food system

The size of the farm is relevant for receiving subsidies and accessing non-reimbursable funds, according to existing policies. But these aspects are normal and do not really affect the farmer. However, their size becomes really important when they enter the market, when access is aggravated by the policy of the big companies in the field, who want strong suppliers and who can constantly offer those products. Also, the ability to negotiate prices is much lower, as is the power to be heard in local politics.

d. External policies, decisions and social norms affecting food systems

When being asked, farmers tend to recall the too drastic application of food safety and security policies and the rigidity (and the intentions and doubtful preparation) of institutions that have to govern this sector locally. These are, of course, crucial aspects. However, in reality, the problem is more complex, since the farmer does not always understand these rules (for example, the fact that storing manure in specially arranged platforms is not required only in the case of application for some financing measures, but in any situation), to which can be added the lack of dialogue and interest from institutions that have attributions in the sense.

Probably the most urgent question is the subsidies. These have a completely different meaning and relevance to the farmer over the institutions that have regulated them. Many of the farmers questioned said that without them they could not continue the agricultural activity, which is extremely serious. An even more alarming alarm about these is that for those for whom the farm is not a business, but an absolute necessity, subsidies are often the only significant income. Taking into account that reality, we can say that this mechanism is now deeply damaged, but that a radical change in subsidy policy can cause a devastating shock for small farmers. A solution is necessary and obligatory, but it must be implemented with great care.

e. Gender issues intersecting governance issues

No differences were found between women and men in terms of access to the market and land ownership. However, in rural areas in Romania, and implicitly in Bistrita-Nasaud county, some conservative aspects, characteristic of patriarchal societies, have been preserved. These issues are becoming more and more rare and occur only within the family. Men still have some control over internal decisions. However, this aspect, along with the differences in role in the household, are becoming less and less important, often women being the ones who bring bigger revenues into the house.



f. Forms of collaboration and organization between small farms

The only form of collaboration between small farms are the help the farmers give each other. This could have the form of work or products, but can be considered a way of life. Most of the time this do not have a strong economic purpose. There are also situations where employees of a farm do not have a formal and legal employment contract, but they are not as common as they used to be. Usually they are poor people from the village, that are paid with food, money, cigarettes or alcohol.

g. Forms of collaboration and organization between small farms and consumers

As said before, the help in form of food exchange or food gifts are a common practice. A farmer who obtain a good production, that represents more than the average consume of his householding, is likely to give the extra part to relatives or firends, both from the village or nearby cities. Of course, it is not done by a donation contract, but can be argued that the quantities are too small and insignifiant.

h. Relationship between small and large farms, and between small and large businesses

In the case of the SFB that work in dairy production there is an unhealthy relation between the two groups. The larger businesses tries to get rid of the small competition through price polices. They also work in that regard with milk collectors, which prefer to control the market and work only with the strongest partners.

Small Farms and rural livelihoods

a. Importance of household labour in SFs



Household labour is crucial for small farms in Bistrita. The current activity within them is carried out almost exclusively by unpaid members of the household. The workforce outside it is present only in the case of more important activities, requiring a large number of people (for example, for the harvesting activities). This can be paid, but in a large number of cases,

the „mutual aid method” is used.

In the case of SFB, due to the nature of the activity, the employed staff is much more met, but in this case a significant percentage of the work is provided by the members of the household.



b. Farm and non-farm income in the SF's households

Farmers generally do not distort the income / budget of the household and of the farm. For them, the farm is a normal part of life, and it is meant to satisfy the need for food and to provide some minimal or complementary incomes to wages. These revenues generally come from two directions:

- Incomes from the sale of farm products (youth, milk, eggs, dairy products, fruits, vegetables, etc.)
- Revenue from subsidies

In general, they can be divided into three categories: those for whom the farm is a business opportunity, those for whom it is not a business, but which have other sources of income, and for those who do not represent a business or have other significant income sources.

The first category tends to obtain much more revenue from the sale of products, this being generally the main source of income. In Bistrita-Nasaud County, milk and dairy products are the main products marketed for this purpose, followed by the sale of juveniles and pigs for meat. Potatoes, cereals, vegetables and fruits (apples) are generally used for their own consumption. They also receive income from subsidies, but they are not the main source of income. Sometimes farm and household incomes can be observed, but these are just exceptions to the rule.

The second category of farmers are those who do not regard firmly as a business and just as a way of life as a necessity. This category includes people employed in other sectors or people who hold other businesses (for which farming is a habit or hobby). These people tend to have smaller, easier-to-maintain farms that are aimed either at completing food and income sources, or as an alternative food source (natural or, as they say, "of superior quality"). The income from the sales of the products and subsidies is generally small and is confused with household income.

The third category is the people for whom the farm is not a business and they have no other significant sources of income. These people depend almost entirely on the income of the farm, which is also the main source of food. Generally, this category includes the elderly, with low pensions or disadvantaged categories (with a low level of education, without a qualification on the labor market, etc.). In this case, income from subsidies is generally the most important, without reaching the limit of survival. Production is sometimes sold, but in much smaller quantities (reported in the first category). Generally, this is the use for your own consumption. This category least respects the principles for which subsidies are granted, but for which they are of the highest importance. Removing subsidies can cause a much greater social problem, so any approach in this direction must be treated with great care.



c. Shocks and coping mechanisms of SF households

At farm level, the most significant threats are caused by climate change and the loss of work capacity due to aging or illness. If the first factor leads to a short-term shock - loss of crop, additional costs etc. - the second has, in general, a long-lasting effect. In this case, the problem becomes very serious because not only farm income is affected, but also life and food security of the households.

There are other factors at the community level and even in the county. The emergence of large farms, which produce at a much lower cost and impose impossible (quantitative) production standards for small producers, the huge number of people left to work abroad, the drastic decrease in the number of skilled or willing to work in the agricultural field, along with the factors mentioned above, have a devastating impact on small farms.

There is some mobilization to solve these problems. Farmers are starting to look for more information and to collaborate more, reaching the formation of cooperatives (a very rare fact in the not too distant past, especially in the case of those who lived in the communist era).

Role of Small Food Businesses

a. Main insights and patterns

At the level of Bistrita-Nasaud County, the majority of small business interviewed started as a new business opportunity, gradually expanding and expanding its production capacity, mainly by accessing European funds for the development of small businesses.

All small businesses have developed over time their own brand, initially selling products only in the region, and now the trend is to expand to the neighboring and national regions, but also to improve its share promotion and marketing, which so far has not had an allocated budget.

b. Labour in SFB work

Regarding the labor force, most SFBs have difficulty in finding staff, especially seasonal staff, to find people outside the county. It also faces difficulties with the high price of raw material, considering it is too high, while small farmers think the price is very small.

F

or SFB, the presence of small-scale farmers and supply of raw materials is very important for the business, SFB considering the lack of raw materials as the main source of risk for their business.

c. SFB income

SFB's day-to-day revenue is secured from sales, revenue that helps them maintain their business and cover their operating costs, but in terms of development investment, SFB needs



support from other sources of funding, these being largely represented by European non-ambassador funds, with a 50% contribution from SFB. Another source of financing for business development is credit.

The main expenses besides those with the raw materials are the personnel expenses - wages, followed by the expenses for distribution and transport

d. Shocks and coping mechanisms of SFB households

The main shocks experienced by SFB households were the development of production capacity by building new buildings, developing brands and introducing them to the market.

A major problem for processors in the dairy industry is the representation of products in supermarkets because their products are displaying prices / kg instead of being displayed per piece, which is a major disadvantage for selling the products.

The Future

a. Main objectives and priorities of SF for the future

The future objectives of these farms are most often provided by the purpose of the farm, with some influences caused by their location. Thus, the farms that represent businesses have as main objectives the expansion, the purchase of machinery, the development of the production capacity or even the access to non-reimbursable financing. Farms that do not represent a business have the objective of maintaining the current situation, as long as labor power allows, following a gradual decline.

b. Main objectives and priorities of SFB for the future

SFB usually aim for a small but constant grow. They seem to be affraid of big changes, but this is not the case of the touristic pensions. Most of them are build with european funds, and they are willing to take more risks, and extend not only the main activity, but also in other areas.

The food production businesses preffer a much more safe approach, trying to extend their production capability step by step. They wish to use european funds, but tend to be more cautious.

c. Risk perception by SF

The main internal risk is valid for most of the farm categories, namely the loss of work capacity. This is probably determined in the case of businesses by the lack of labor force in the market (the farmer is thus responsible for the whole activity), and in the case of farms that are not business, by aging and the decrease in health.



Another major internal risk is the lack of resources. This is also constant, whether we are talking about technological resources (old equipment or the lack them), or about financial resources.

Major external risks are considered to be climate change (especially natural hazards) and political and fiscal instability in the country.

d. Risk perception by SFB

For SFB, the main risks identified in talks with owners, as well as in talks with experts, are related to the market and the ability to sell production. This risk is due either to poor marketing, or to the poor purchasing power of people, or even to both.

Another identified risk source is the lack of resources. Host companies and restaurants have greater financial strength, but manufacturers have a much worse situation.

e. Other future related issues

During the focus groups and regional workshop, the following concerns have been raised by the participants:

- Loss of work capacity through aging or illness, urban-oriented exodus and large farm development lead slowly to the loss of small farms. This loss will cause a number of important issues:
- Loss of sources of income or food, which will be almost impossible to replace for former farmers, causing huge social problems;
- Loss of important cultural products;
- Change of sociology and typical village image, already rarely found in other parts of the country and Europe;
- Replacing a consumption of natural products (not certified as organic but actually having this status) with a doubtful product;
- Degradation of agricultural areas;
- Loss of the typical HNV aspect and the cultural and natural values it offers;
- Loss of the landscape.



Annex: List of resources

m. List of key experts interviewed

Institution
Local Action Group
University of Agricultural and Veterinary Sciences
University of Agricultural and Veterinary Sciences
University of Agricultural and Veterinary Sciences
AFIR Cluj
Sanitary-Veterinary SA BN
Agricultural and Rural Development Directorate Bistrita-Nasaud
Chamber of Commerce and Economy
Research Institute for Apple – Bistrita-Nasaud
Association “Produs în Bistrița-Năsăud”
Slow food Turda
Civitas Foundation
Nutritionist
FoodNews
SC Carmo-lact Prod SRL
Vinca Lact – milk processor
Pombis SA

n. SF and SFB interviews and focus groups information

Stakeholder typology	N° of participants						How were they contacted?
	Interviews			Focus Groups			
	Men	Women	Total	Men	Women	Total	
Farmers	36	24	60	12	11	23	Field interview/phone/e-mail
Producers' cooperatives				1	0	1	Field interview/phone/e-mail



Slaughtering facilities	3	0	3				Field interview/phone/e-mail
Processors (small/large)	5	0	5	1	0	1	Field interview/phone/e-mail
Wholesalers							
Retailers							
Caterers							
Other small food business	2	1	3				Field interview
Exporters							
Importers							
Farm inputs suppliers							
Advisory services				1	1	1	Phone
Agricultural administration/Ministry of Agriculture				1	0	1	E-mail
Consumers' groups/organizations				0	1	1	
Local administrators and policy makers				1	0	1	E-mail
Political leaders and PMs							
Other programs/initiatives							
Nutritionist				0	1	1	E-mail
NGOs				2	0	2	E-mail
Traditional and religious leaders (for Africa)							
Total	71			33			



4.25. RR25 Giurgiu –Romania– Food System Regional Report



WP3

Giurgiu (RR 25) –Romania– Food System Regional Report

Author: Raluca Barbu



Table of Contents: Food System Regional Report

1) Socio-economic and agricultural profile of the reference region.....	693
2) Key products and regional food balance sheet.....	696
3) Food system: Key nodes and flows and role of small farms and small food businesses.....	697
3.1. Key product 1: Wheat	697
3.2. Key product 2: Sunflower.....	700
3.3. Key product 3: Tomato	701
3.4. Key product 4: Chicken eggs	703
4) Typology of small farms in the reference region.....	705
5) Governance	707
6) Small Farms and rural livelihoods	709
7) Role of Small Food Businesses.....	711
8) The Future	711
9) Annex A: List of resources.....	714
10) Annex B: Additional socio-economic background of Giurgiu region for better understanding of the SFs and SFBs situation in the present	715



Socio-economic and agricultural profile of the reference region

Giurgiu RR is situated on the Southern part of the Romanian Plain. The landscape is flat, crossed by small rivers. The southern part is the valley of the Danube which forms the border with Bulgaria. The city of Giurgiu is one of the Danube's harbours placed 1.5 km from the Black Sea port, and 45 km away from the Romania's capital city – Bucharest, on the route to Istanbul.

Besides agriculture, there was developed a textile sector, food industry and clothing industry. Giurgiu county relief is typical of the plain and meadow. And it is characterized by a variety of forms, the specific positioning along the river Danube: meadow, terrace areas, islands, swamps, canals.

Hydro graphic network is made up of rivers that collects the county waters, the Danube is the general collector and a length of 72 km separating the district of Bulgaria, the largest lake Comana, surrounded by 630 ha Comana forest - a SCI Natura 2000 site.

Natural resources are few: the oil fields in the northern part of the county, and the gravel and sands extracted mainly from the Danube. The road infrastructure network traverses Giurgiu County is in a strong state of degradation, limiting its accessibility and easy connection between rural and urban areas.

The region's geographical position is in favour of agriculture which represents the main economic activity in the region (57%). Over 93% of the farms are less than 5 ha. Arable land is representing 94% of the UAA. According to EUROSTAT Standard Output data, an

estimated 65% of all farms are subsistence holdings, 29% are semi-subsistence and 6% are small commercial. Less than 1% may be considered as medium-large commercial. The crops produced in the RR: wheat, maize and of sunflower are



Map 1 Giurgiu reference region on Romania's map

predominant. Other grown plants: barley, two-row barley, soybean, rape, vegetables, fodder plants. The livestock sector is declining, cattle, pigs, sheep and poultry are the



most representative. Giurgiu is a significant vegetable basin of the country.

The level of GDP (4900 EUR per inhabitant) is one of the lowest at national level, which is already at 53% compared with the EU one [?].

Table 1: Basic data for the region

Indicators	Data per Region - Nuts 3
Land size (km2)	3,526
Population (thousands of people)	275
Density (people/km2)	81.4
GDP (thousand EUR/inhabitant)	4,900
Total labour force in AWU	82,000
Total number of holdings	83,820
Total Agricultural area (ha)	275,611
Total Utilized Agricultural Area (ha)	NA
Agricultural Area in Mountain Area	-
% of UAA in the RR	NA
Average Farm size	3.29
Number of farms by UAA farm size: 0-5, 5-20,20-50, >50ha	83,670
Average size of farms < 5ha of UAA	1.4
Area of main crops (ha) (list the relevant crops below)	Not available at NUTS3 level
	Wheat 83,583
	Maize for grain (human + animals) 51,957
	Sun flower 32,646
	Barley 22,548
	Rape 21,490
	Perennial / annual forage / fodder 15,818
	Soy 3,610
	Peas 1,486
	Vegetables in open field 2,282
	Vegetables under politunnels and greenhouses 360
	Vegetables in kitchen gardens 1,733
	Vineyards 3,452
	Potatoes 580
	Fruits (orchards) 293
	Oats 668
	short term fallow land 143
Area of main crops (ha) in farms < 5ha of UAA (list the relevant crops below)	Not available at NUT3 level



Livestock (LSU) per type (list the relevant types below)		
	Cattle	17,310
	No. of Dairy cows (including buffalo cows)	
	No. of Calves (young beef)	
	No. of Heifers	
	Sheep	11,057
	No. of Breeding ewes	
	No. of Other Sheep (end of year)	
	Pigs	27,495
	No. of Breeding sows	
	No. of Fattening pigs	
	Horses	7,651
	Poultry	46,522
	No. of Laying hens	
	No. of Other poultry	
	Goats	3,025
Annual work units (AWU) by UAA farm size: 0-5, 5-20, 20-50, >50h		Not available at NUT3 level
Total family labour per farm size: 0-5, 5-20, 20-50, >50ha		Not available at NUT3 level

The current situation of SFs and SFBs in Giurgiu region has been shaped by processes occurring along fifty years of communist regime - multiple changes in the agricultural land structure and infrastructure (deforestation, drainage of wetlands), confiscation of farmers' rights over the land, forced farm co-operatives and stripping over the entrepreneurial skills, social, cultural and spatial aspects of farming in the region, just like in many parts of the country.

A very fragmented farm structure, characterized by the presence of bi-polar type of farms (very big vs very small), highly laboured, relative low productivity type of farming was the outset in the clear majority of Romania's rural areas, start occurring after 1990's. And Giurgiu was not an exception.

Following the fall of the communist regime, Romania embarked upon a series of social and economic reforms that were unique in its history and aimed at transforming the country from a highly-centralized administration into a democratic and market-oriented economy, SFs and SFBs finding their way on a competitive market. Initially resistant to get associated, to regard farming as a business, SFs in Giurgiu are slowly finding their way in accessing the market.

For a better understanding of the morphology that shaped Giurgiu RR current state of farming, entrepreneurial up-take, its very fragmented farm structure, or the SFs interaction with the market, Annex B contains more details.



Key products and regional food balance sheet

a. Key products produced and consumed in the region

The selection of key products for Giurgiu Reference Region derived from analysing the existing data, interviews with key informants. The preliminary list of key products was then grouped on main food groups (cereals, vegetables, fruits, animal products). According to the data out of national census (www.insse.ro), in terms of volumes, the key products are:

- **cereals**, namely: **wheat** (with a surplus produced-consumed - of 545,7%), **maize** (with a surplus of 1546,5%);
- **oil crops: sunflower** with a surplus of 1981,6%
- **vegetables**, with: **white cabbage** (surplus of 45,5%), **tomatoes** (surplus of 51,3%), while peppers and potatoes are showing a significant deficit (43% and 72,9%) (although most of the farmers interviewed are perceiving that they are producing some potatoes, way too little in comparison with their needs)
- **fruits**: the list identified of plums, apples, cherries, apricots, grapes – recording strong deficits (over 80%)
- **animal products**: **cow and buffalo cheese** (surplus 114,3% and 330%), **while sheep and goat cheese** is recording a deficit of over 90%, same available for meat based products – **beef, pork and poultry** – with deficits of over 90%. The animal product that has the highest surplus is **eggs with 472,8%**.

Out of this preliminary list of key products we have identified four relevant for the Region of Giurgiu:

1. **Wheat** – few preliminary rationale is necessary to be mentioned here: bread (bakery products) is the mostly consumed starch product in the region (bread is widely consumed) (interviews, consumption data). On another hand, about 90% of the wheat produced in Giurgiu region is animal feed type, leaving the area mostly right after harvest;
2. **Sunflower** – the huge surplus is given by the fact that the conditions for producing this crop are very favourable and there are already routes for sending it directly for processing outside the region, with a good revenue;
3. **Tomato**: a product that is both produced and consumed in the region, but which is also paying for the family farms (SFs and SFBs) to have a life in the region. Producing tomatoes is long tradition of the region.
4. **Eggs**: the highest surplus from the animal products range. Although over 90% of the production is provided by big poultry farms, the presence of chickens in the SFs yard has always been a tradition. Along tomatoes, egg is the product that has always



been self-supplied by SFs, sold on informal market niches, shared with family, relatives or neighbours.

b. Balance of production and consumption of key products in the region

The balance of production and consumption of the key products in Giurgiu region (wheat, sunflower, tomatoes, eggs) shows that the production potential is significantly exceeding the level of demand (consumption) for all the key products in the region.

The surpluses for the four key products are looking impressive (exceeding even 1000% level). But while statistically the food balance is positive for all four key products, and theoretically, in a food security debate, the balance would look positive, we shouldn't overlook the self-consumption figures showing much lower. While the destination of the key products is mainly outside the region, at household level the consumption is covered with products from outside the region (esp. cereals and oil crops which are leaving the area as raw materials and come back as final processed products).

c. Official statistics and key products in the region

There are sensible differences between the reference year used for analysing the data, especially as some data in EUROSTAT are available at only at NUTS 2 level, while Giurgiu is a NUTS 3 one, so sometimes data are based on some estimations. In such cases, we have used national census for determining the consumption in Giurgiu region. Estimating production and consumption for SFs was the most difficult as there are no distinct available data on this target group of the rural population. For consumption, we used solely national census, reporting the data available at national level to the number of inhabitants in the region (www.insse.ro). At regional level, data and the statistics were not consistent or having the same reference year to be reliable for the report.

Food system: Key nodes and flows and role of small farms and small food businesses

3.1. Key product 1: Wheat

a. Nodes in the regional food system: production, processing, commercialization and retail

The soil and climate is favourable for cereal production in Giurgiu RR, providing high levels of yields. Wheat covers 34% of Giurgiu's UAA, being produced on big plots, requiring mechanisation and inputs, for which investments are necessary to be done. Over 90% of the land is private, fragmented, and the vast majority is own by SFs with a low capacity to invest in big agricultural equipment necessary for producing cereal on their own, especially the plots outside the village (fields). After 1990, cereals producers' associations (interbranch



associations of cereals producers – SFs are not members or shareholders, neither employed, but which are running contracts with SFs for renting the land for producing cereals) have started to raise up and to operate a land consolidation process, in symbiosis with SFs – they are working land owned by SFs for producing cereals, and in return the SFs are “paid” in wheat (or other grains). According to the official statistics, SFs own the land and wheat is recorded as being produced on their plots. Association size can vary between 150 ha – 3000 ha, sometimes having foreign citizens owning the association or Romanians with long vocational training in agriculture, knowledgeable in crop rotations and technologies.

b. Flows connecting the different nodes in the regional food system

The representative of a 1300 ha cereal association interviewed in Giurgiu region (Singureni commune), declared that works the land of about 1000 small owners (bringing in plots of 0,35 - 1,2 ha), land that would remain abandoned otherwise. The seed is most of the time sourced from the big agricultural inputs providers in the region. The association done the effort to invest in storage spaces and therefore can sell the wheat in out-of-season (December-January) – time when they can charge better prices (150-180 EURO/tone). In return for the rented land, they provide SFs with 1%-5% of the yield obtain on the plot (in 2017, 1100 kg of wheat for every rented ha). The association is selling the wheat (mainly animal feeding type) directly in the Constanta harbour (Black Sea), the wheat being shipped for export (most of the time with very unknown destination, the small interviewed association from Iepuresti declaring that sometimes the boats loaded with Romanian wheat is coming back after two-three weeks spent on the sea, with the same wheat being this time recorded as imported wheat).

Another association, much smaller - 150 ha (Iepuresti commune), working the land of about 50 SFs, declared that, due to much small level of quantities produced, they prefer to purchase the bakery type wheat seeds from the research institute nearby Bucharest and to sell the (durum) wheat to a small bakery products factory just outside the region, or to the grain aggregators in the region.

The consumption of bread is in high demand in the Giurgiu region and the main source of starch (which, in a food security discourse and food basket composition could give important indications). Despite this, there is a small range of breads offered, available at the local shops or in the supermarkets. When interviewed, the owner of a big bakery factory in Giurgiu region (Hotarele commune) declared that 90% of the flour used for bread and bakery products is coming from outside the region and even import as the technology process requires certain quality standards of the flour which are not available in the region. Therefore, as it can be observed in the map below, over 75% of the wheat produced is going out of the region through the branches of national/large distributors for export, while over 65% of the wheat for bread is imported from outside the region.

The interviewed SFs mentioned that there used to be small milling units (SFBs) at every few villages, where they were taking their grains to, the wheat or maize flours being used for the household consumption or various mixed of flours for animal feeding. The chain of mills



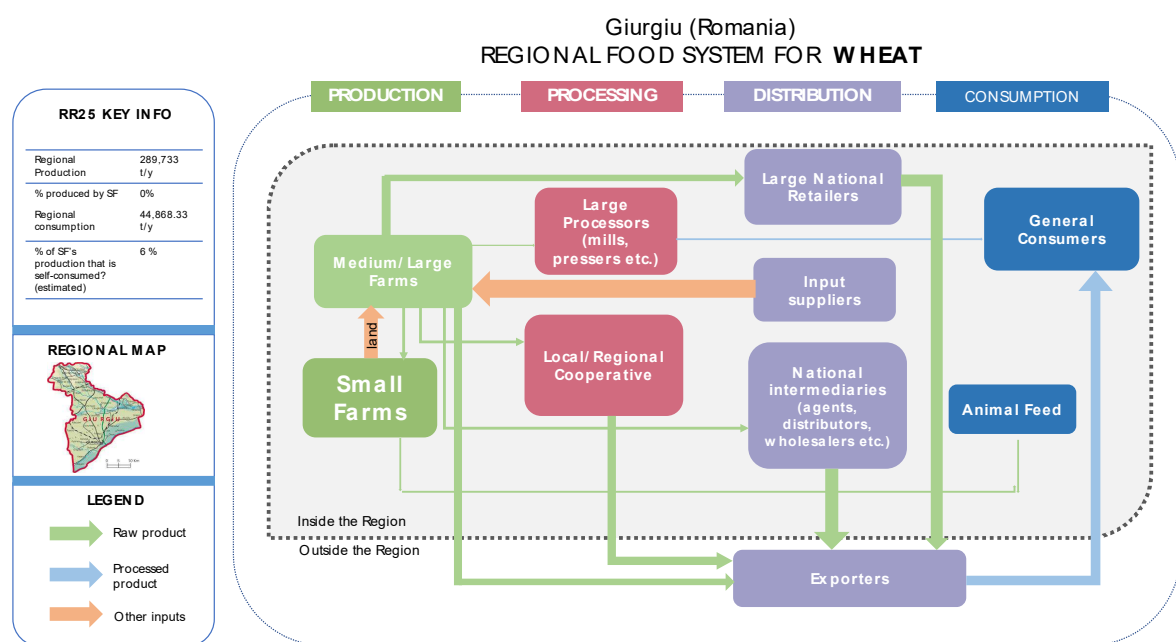
units was state managed, and after the communist regime fall they have declined rapidly, currently only very few are still operating, mainly for producing animal feeding purpose flours.

c. Role of small farms and small food businesses within the food system

It must be mentioned here that, cereals /grains associations are the ones applying for subsidies under direct payments or winter cover measure in agri-environment programme, in other words the vast majority of revenue (production and public support) is retained by them. They contribute to prevent land abandonment in the region, but they are equally maintaining a certain level of vulnerability of SFs in the food system, as the value supply chain for wheat is heavily dedicated to export (no clear transability and control of the seeds, no clear connection between regional production and consumption of processed products – bread, bakery products, most of the respondents were not willing to talk about the route the wheat takes after leaving the area). SFs and SFBs are over 90% dependent on wheat (flour) imported outside the region.

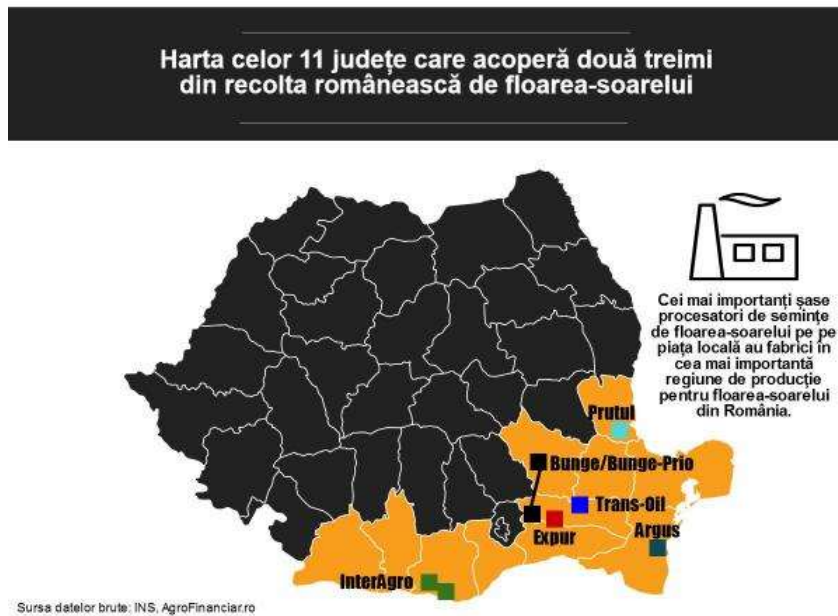
d. Importance of household self-provisioning in small farms and small food businesses

Overall, the wheat in Giurgiu region is used either as a base for animal feeding in the households of SFs, either leaves the region as raw agricultural output. There are also situations where SFs produce their own wheat on the small plots, for which they turn to associations or other individuals in the community who dispose of agricultural equipment to perform the required agricultural works. The wheat is solely produced for self-providing (feeding animals) and very little for doing their own bread (about 3-5%).



3.2. Key product 2: Sunflower

- a. Nodes in the regional food system: production, processing, commercialization and retail



Map 2 - Distribution of sunflower processing units

Sunflower is produced on 12,36% of Giurgiu's UAA. Just as wheat, it is produced on big plots by the grain / cereal associations, working the land of SFs, Giurgiu region being one of the top 15 regions of Romania for sunflower production.

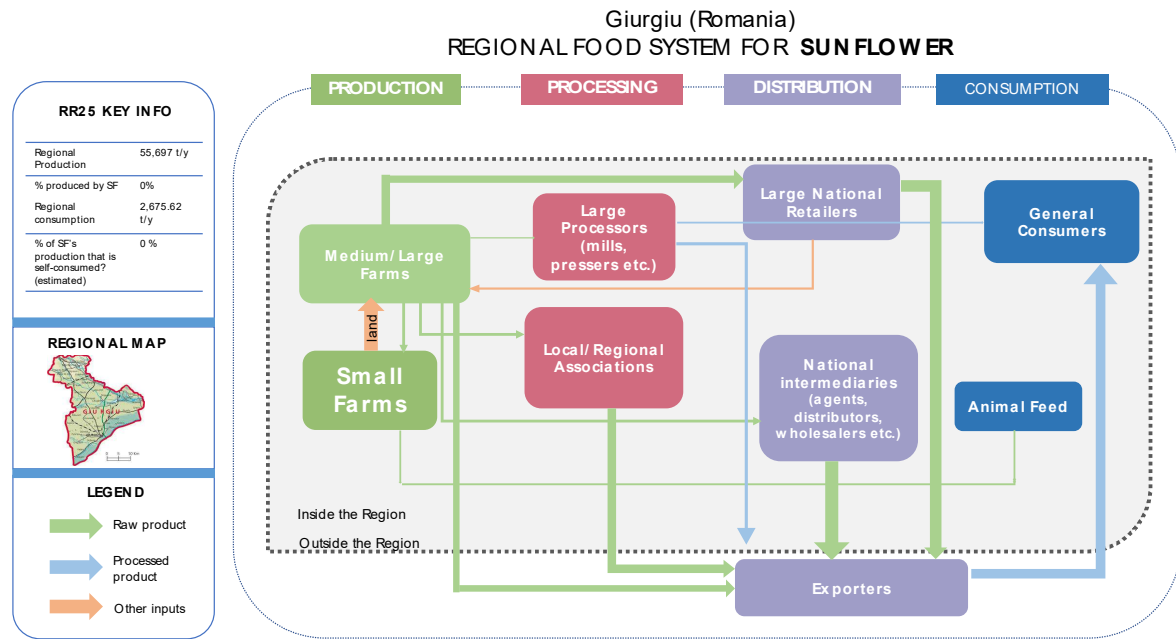
The road that sunflower follows after being harvest is

very simplistic, linear in Giurgiu region. The sunflower is mainly leaving the region as raw material, taking the destination of one of six processing units placed in the most fertile area for sunflower (see map 2). Sunflower oil comes back in the region, through supermarkets and local shops. There is one sunflower oil factory (40 tones/day), which is part of a bigger business, in combination with a pig farm and grains storage. Over 75% of the oil produced is going out of the region.

- b. Flows connecting the different nodes in the regional food system

SFs are using sunflower as an ingredient for animal feed recipes, milling it in mixtures with other grains, but in small quantities (1-25%). After being harvest, SFs are buying it from the aggregators in the region or directly from the associations of grain producers managing the agricultural lands (medium/large farms). There is one sunflower oil factory (<http://www.valceanca.ro/index.html>) (40 tones/day), which is part of a bigger business, in combination with a pig farm and grains storage. Over 75% of the oil produced is going out of the region – in other parts of the country or for export throughout the large national retailers or intermediators which have branches in the region.





3.3. Key product 3: Tomato

- a. Nodes in the regional food system: production, processing, commercialization and retail

Vegetables and kitchen gardens are occupying about 1,8% of the agricultural area in Giurgiu region, produced by SFs on farms that, in most of cases, don't exceed 2,5 ha, providing the highest revenue for the SFs. The tomato is a trademark of the area, recognised once for its very particular flavoursome taste. About 80% of the SFs interviewed are integrated on the market.

- b. Flows connecting the different nodes in the regional food system

The politunnels are usually placed around the household, on small plots (1000 – 7000 sqm), managed by family farms (2-4 generations) - "the veggie gardeners". After 1990 and till recently, the seeds used for production were sourced by the input companies active in the region providing non-Romanian seeds, not adapted to the pedo-climatic conditions of the region. The Varasti cooperative is gradually re-connecting research with farming and market, by sourcing the seeds from the Buzau Vegetable Research Institute, a priority of the cooperative, alongside planning the production based on demand. So far, they have introduced five new varieties of tomatoes, keen to bringing back the taste of Giurgiu tomato.






80 de familii produc legume pe 60 ha pentru prima cooperativă agricolă fondată alături de un retailer!

Drumul cel mai scurt de la producător la consumator este **linia dreaptă: din pământ – la magazin – la tine**. Carrefour lansează **COOPERATIVA AGRICOLĂ CARREFOUR VĂRĂȘTI**, un proiect de anvergură, care aduce mai aproape producătorii agricoli cu experiență și oamenii care apreciază produsele românești de calitate, cu super gust și la prețuri avantajoase.

Fii și tu parte din acest proiect și cumpără legume proaspete și gustoase provenite de la **COOPERATIVA AGRICOLĂ CARREFOUR VĂRĂȘTI!**

ÎMPREUNĂ CREȘTEM PENTRU TINE

Some other farmers declared they have contracts with other supermarkets (MegaImage), which impose a so called “production kit” (seeds and inputs). Other selling channels for tomatoes are the gross market in Bucharest, from where the small shops at village level in Giurgiu are sourcing fresh vegetables from, or direct selling at farm gate, a fine line delimitating SFs and the SFBs.

The Varasti cooperative has raised up afterwards the SFs had been bankrupted by various middlemen on the chain (just as many other SFs), between SFs and Carrefour supermarket. Middlemen were cut off, and Carrefour become a member of the cooperative, investing in a warehouse and equipment. Such partnership has been triggered by the legislation (Law no. 150) put in forced in 2016, according to which the

retailers (supermarkets) should provide 51% food sourced from Romanian producers. Currently, the Varasti cooperative is providing over 5.000 tones of over 40 types of vegetables, covering 100% of the demand for fresh products in the Carrefour chain, promoting the direct connection from producer to consumer. There are prospects for extending the cooperative’s activities with processing the unsold or lower quality vegetables.

The production goes for the domestic market in the region (less than 25%), but mainly outside the region (over 75%). The distribution is done by SFs (over 50% to the grass markets, farmers markets, to supermarkets storages - MegaImage) or by the logistics put in place by the supermarkets (esp Carrefour) (less than 25%), or other distributors (individuals who are collecting vegetables from SFs and deliver then to aggregators in Bucharest (about 25%). There is no processing unit in the region or nearby the region.

c. Role of small farms and small food businesses within the food system

Even though Giurgiu is a vegetable net producer, there is no aggregator or processing unit in the region. There is no processing or added value attached to tomatoes production.

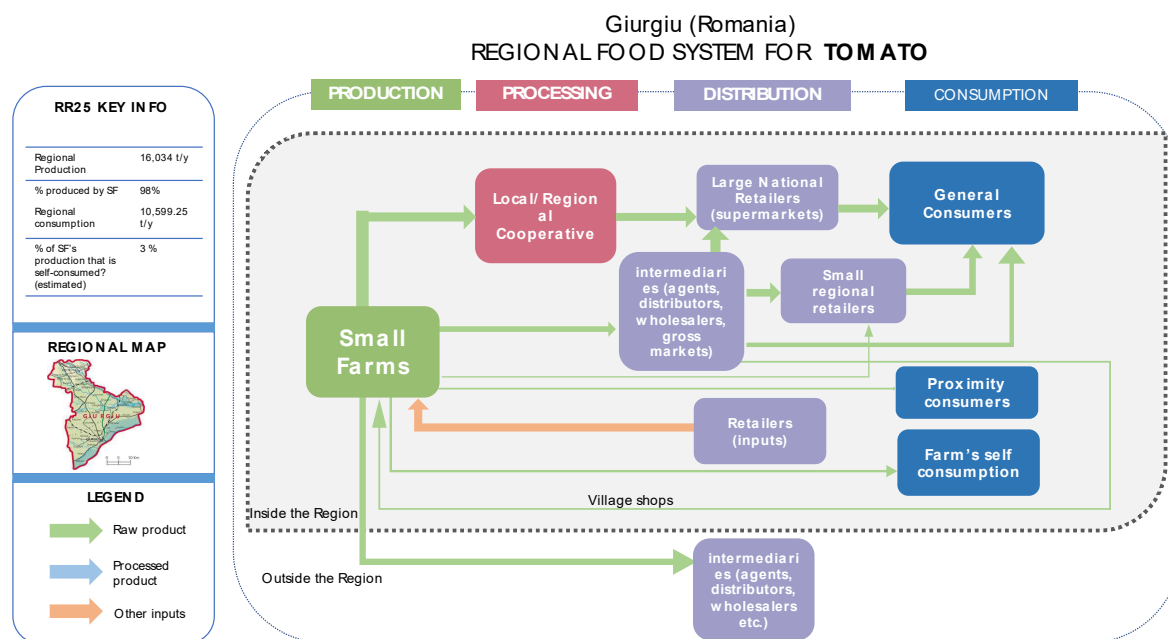


- d. Importance of household self-provisioning in small farms and small food businesses

The interviewed SFs declared they consume small amounts of fresh tomatoes (3-5%), in comparison with the quantities sold. They processed tomatoes with other vegetables for the self-consumption, turning them into preservatives – customary for every household in Giurgiu region.

- e. Other relevant information

All the growing vegetables interviewed farmers have identified the climate as a risk. They mentioned that, due to the sudden change of temperatures and air pollution in the region, apart from cabbage and some types of peppers, the rest of the vegetables are currently produced in politunnels (covered systems).



3.4. Key product 4: Chicken eggs

- a. Nodes in the regional food system: production, processing, commercialization and retail

The eggs production in Giurgiu region is dominated by the big intensive poultry farms, while individual households (SFs) are producing 33,44% of eggs (82 mil eggs per year). In high season (summer), SFs are selling or offering the surplus informally to networks (neighbours), relatives. The chicken raised on the farms are mixed breeds – for eggs and poultry. Most of the time SFs are producing their own breeding stock.



b. Flows connecting the different nodes in the regional food system

There is potential to increase the eggs production over SFs, that could provide additional income, especially with feeding conditions by hand (cereals). Nevertheless, due to the complex hygiene standards and food safety conditions, SFs feel discourage to engage in producing and selling eggs for the market. Lack of advisory services and clarity on how SFs could meet the conditions for selling eggs are contributing to this situation. Besides, the eggs market is dominated by two poultry farms (Avicola Mihailesti, Denver Com – Joita, and Poultec - Branistea) in the region which are providing supermarkets with eggs at very competitive price in comparison with SFs. Except supermarkets and few local shops, there are no other market niches for eggs in the region.

c. Role of small farms and small food businesses within the food system

In terms of SFBs, there is a trend emerging in the region – integrating the production within other products offered farms which are producing for their own restaurants like Cocosu Rosu farm from Ulmi commune (<https://cocosuros.ro/ferma/>), with both restaurants in Bucharest.

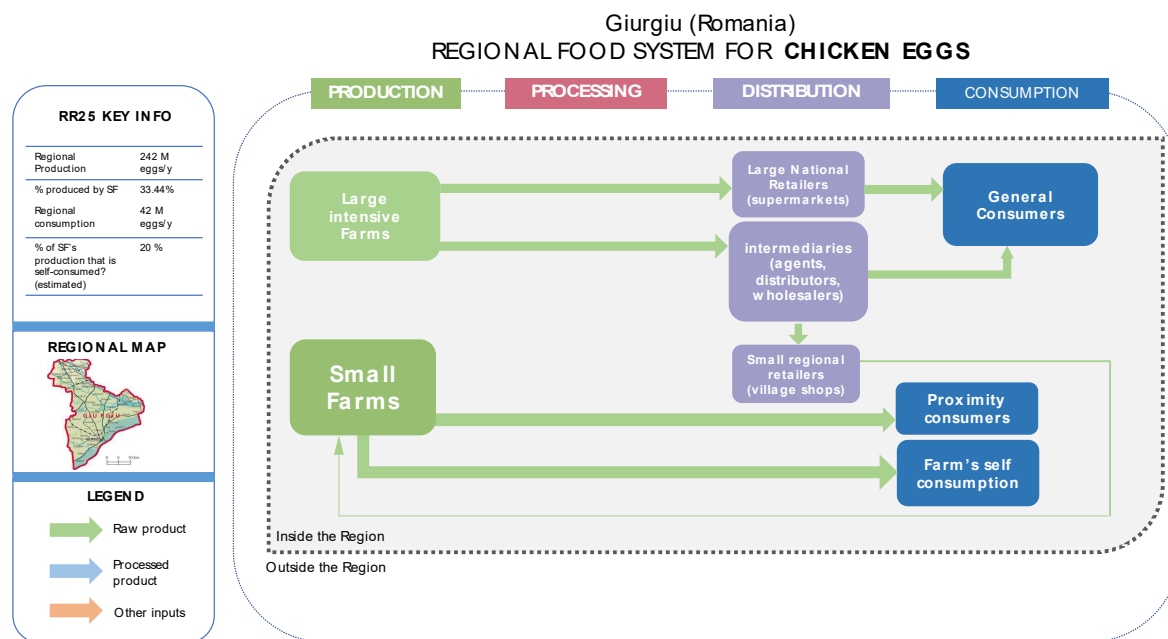
d. Importance of household self-provisioning in SF and SFB

99% of the interviewed SFs, regardless full time or part-time involved in farming, declared they raise chickens for eggs on the farm, solely for the household self-consumption. The eggs self-provision is over 55%. The system practiced by the SFs for breeding chickens is a free range one.

e. Other relevant information

In the statistics, under the generic “adult laying hens”, there are other egg producing breeds like quails considered. There are few small-medium size quails farms (like Ograda Vesela – Bolintin Vale - www.prepelite-si-oua.ro, or Ferma cu Pasari – Herasti), which are selling eggs on line or delivering directly to shops in Bucharest.





Typology of small farms in the reference region

a. Small farm types in the region

We based the small farm typology in the region mainly upon the data and interviews, using the two suggested criteria: (1) the level of their market integration calculated as a proportion of sold production and (2) the degree of farm self-sufficiency measured as the share of the farms' own food production in a households' food consumption.

Proposed small farm typology in analysed regions

Specification		Degree of self-sufficiency	
		< 50%	> 50%
Degree of market integration	< 50%	Type 1	Type 2
	> 50%	Type 3	Type 4

Type 1: (19%) Production is mostly multidirectional, with no specialization. It corresponds to subsistence farms or to those living in the rural areas as either a living style or being the only available option. Type 1 farmers are commuting every day for jobs in the city (age rank - 20-45 years old) but continue to be living in the countryside as “they wouldn't imagine themselves living elsewhere”. Incomes are supplemented by pensions, social assistance. They produce some crops, vegetables and fruits and possibly smaller livestock for self-consumption. They are mostly not integrated with the market and the farm output usually



serves for self-supply of the family. The level of self-providing is about 28%, represented mainly by the vegetables from kitchen gardens and the poultry or pork.

Type 2: (18%) The category of high degree of self-sufficiency and poor or no formal market integration. There is no form of specialization. These are typically mixed farms growing vegetables, feed crops (cereals etc), and some livestock (poultry, cows, pigs) on the same farm. They are mainly the ones with farm size just over 2 ha, very focused on producing their own food, willing to extend, but not equipped enough for working the land (esp. cereals) on their own or have access to capital to become more specialised (i.e investments in polytunnels for vegetables). The income of a Type 2 farm is often supplemented by out farm income (out farm jobs, pensions). Often these farms are managed by older farmers, recorded as the farms owner – as successions/property transfer hasn't been done. There is a clear trend showing that young farmers are expanding and maturing their farms, focused on stable selling channels. Their main challenges: limited production capacity for maintaining regular supplies, but also food standards constrain or poor capacity for producing more attractive products (no packaging, labelling, storage or transport capacity). Alongside adaptation to climate change, advisory services are one of the biggest gaps identified by this type of farmers in becoming more specialised and market orientated. Direct farm selling is mostly practiced.

Type 3: (32%) Low self-sufficiency, but high market integration is characteristic to more specialised small farms. Type 3 farms are vegetable growers, especially tomatoes under polytunnels, over 50% of the total productions being sold outside the region. Fruits (berries) have been traditionally maintained for being cultivated and sold outside the region as a habit introduced during the communist regime, the market channels targeting now, not the export, but big cities, creating or finding certain market niches. Still, in the absence of a regional (vegetable or fruit) aggregator that could contribute to collecting, storing, processing, the products leave the area as raw materials, the returned value to the household being in consequence impacted. Type 3 farmers mostly sell their products directly on farm or by farmers' markets, or to wholesalers, intermediaries. In one of the commune, the vegetable growers set up a cooperative in direct collaboration with a big supermarket chain, collecting most of the vegetables and herbs produced at a commune level. The supermarket supported the cooperative in setting up a central depot.

Type 4: (31%) farms with high degree of self-sufficiency and high degree of market integration. Type 4 farms tend to be more specialised in what they produce for the market (vegetables or fruits), but very preoccupied by maintaining and improving their kitchen gardens (often with traditional varieties) or the livestock with traditional/local breeds. They are also practicing mainly the mixed farming and which seem to understand the so called “circular economy” principals at the household level. 1/4 of small farms in Type 4 indicated simple processing (cleaning, sorting and packing products). Farms in Type 4 are much more integrated with the market than farms classified in other Types, mainly selling directly to intermediaries, gross markets or even supermarkets in Bucharest or cross the Carpathian Mountains, two farmers being part of a “local producer” scheme provided by on big supermarket.



Governance

a. Main interactions of SF and SFB with governance structures in the region

There are over 78.000 farms under 5ha in Giurgiu region (out of 83.670 farms). The average size of these farms is 1,4 ha. The only programme dedicated to funding rural areas is the EU funded – National Rural Development Programme (pillar II of the EU CAP), which includes only one distinct measure dedicated to small farms (semi-subsistence farms). Most of them are not meeting the eligibility conditions for applying for subsidies (direct payments – pillar I of EU CAP), so SFs income is depended on food sales and out of farm jobs.

b. Levels of governance and their relative importance for SFs and SFBs

This situation is generating an obvious tension between the available institutional capacity at regional level and the SFs. The regional agricultural and rural development directorate disposes of a small capacity to deal with such huge number of SFs to be advised and guided. Besides, the agricultural advisory services have been increasingly cut off as a distinct structure under the coordination of the Ministry of Agriculture. The most active farmers, registered for producing for the market are time and a while informed about various funding opportunities. We can say that there is genuine insufficient interaction going on at regional level between SFs and governance structures in Giurgiu region.

There are no food quality schemes or brands available or promoted in the Giurgiu region. There are very few options in terms of non-farm activities – tourism and services. The social statues of “farmer” (SF) is not benefiting of any social assistance (pensions, medical or educational services). In this context, SFs are making a living from selling fresh vegetables, competing on a free market with imported products.

While big farms are represented by various associations or unions speaking to the ministry on one voice, there is no association or entity representing SFs’ interests at national or regional level.

c. Constraints impairing full participation in the food system

The investments measures are mainly targeting the modernisation of big farms, while support for small farmers is aimed at supporting production, expanding the farm. There are SFs applying for subsidies under direct payments for surfaces between 1-4 ha, but the impact on their budgets is not significant.

Overall, the policies aggregating financial and institutional resources addressed to SFs are targeting production and sometimes farm growth, but nothing on integrating on the market the SFs or SFs’ associations/cooperatives.



On another hand, there are concerns regarding the impact of various programmes and policies. Some informants shared the fact that subsidies and support for semi-subsistence farms offered through the National Rural Development Programme are risking turning into social subsidies, if such support is not accompanied by promoting SFs for accessing the market with premium added value products. It was mentioned by multiple responders that food standards and hygiene conditions for producing processed products are not clear or accessible for SFs. More advisory services close to the SFs are extremely necessary.

d. External policies, decisions and social norms affecting food systems

Giurgiu region is part of the Giurgiu – Ruse Euroregion for which the municipalities have developed a strategy to identify, on a consultative basis the investment, opportunities in the region and establish the strategy and concrete actions to exploit them. The strategy is mentioning that the potential of this (food production) sector is still insignificantly used compared to the major agricultural resources in the area, because there are no processing facilities for vegetables and fruits, grapes, sugar beet, sunflower and rape seeds, soya beans and tobacco. The setting up processing units is mentioned as a priority.

Giurgiu is a region covered by EU Danube region strategy – a window through which the region can get connected with other regions along Danube. The strategy is bringing together new important macro-regional projects which have either started or been further developed (e.g. in the fields of navigability and climate change). By bringing together different stakeholders from different levels, the strategy has contributed to an improved culture of cooperation and helped to develop a multi-cultural dialogue. It has also helped to strengthen coordination and develop synergies between policies and institutions at the national level, and supported intensified thematic cooperation with the non-EU countries, and between existing international organisations in the region. Giurgiu is regularly affected by severe floods, agricultural land being the most affected land use in the region.

e. Gender issues intersecting governance issues

In Romania, most rural areas are characterised by a patriarchy (4 women out of 26 interviews), although both men and women have in principle the equal rights over land or access to the markets. Usually the woman is following the man by marriage, inheriting whatever the parents can afford offering to her, trying to consolidate the land if both coming from the same village. The funding programmes are prioritizing both men and women under 40 years old, and only sometimes women get higher scores.

f. Other actors and processes important for the regional food system

The dynamic of relations between SFs at community level is very diverse. The food maps don't capture the very intensive trades between SFs at local level (vegetables versus meat or eggs), or the food gifts (fresh or cooked) offered to the children studying in Bucharest or relatives other cities. Also, there is still the case of SFs "paying" with food (vegetables,



cereals) for goods brought by producers from other parts of the country bringing fruits (apples, water-melons) or clay pots and wooden kitchen objects.

- g. Relationship between small and large farms, and between small and large businesses

At the community level, SFs and large farms are interacting more than what the statistics can capture. They learn from each other and there is a system of interactions between them. A relatively advantages relation is the one where SFs are renting the land to the larger cereals farms, getting in return wheat and other cereals. In the absence of large farms in the region, the land would remain abandoned. Nevertheless, the large farms are also the one taking the subsidies for managing the land, while SFs are still the ones paying the tax on land.

Small Farms and rural livelihoods

- a. Importance of household labour in SFs

According to the statistics, 67,5% (184.821 inhabitants) of Giurgiu region population live in rural areas. Even though, agriculture is the main economic activity in the region, the data also showing that only 17,64% (32.600 inhabitants) (<http://statistici.INSSE.ro/shop/>) are registered as working and paid in agriculture – a paradox, placing Giurgiu region as one of the least developed regions in Romania.

All the interviewed SFs declared that they are working together with their families, which sometimes consists in 2-4 generations, some of household members having also other out of farm jobs. In pick season, everybody is involved with farming, and in addition they hire, informally (not official), between 2-8 persons – labour which is increasingly more difficult to source as lots of active people either left for the city or abroad. SFs can create jobs if the context is supported. When being asked if they are counting their own time as labour, the response was unanimously “no”. The ones involved exclusively in farming don’t benefit of any social assistance (pensions) after the retiring age of 65 years, their only source of income being revenue from selling the products. *“We are working as long as we are physically able to work. After that we rely on children”* (Buturuga Dorel, SFs Varasti commune). This dynamic keeps some families trapped into a vicious circle between remain to develop the farm and remain because being forced by the context.

“Non-paid farmers” has been a red line of our focus groups and workshop in Giurgiu region, provoking debates. It’s about the misplaced role of SFs and their social statue within the society and economy of rural areas they gain during the communist regime time. As Dumitru et al. (2004) explained, “In the communist ideology the village was perceived as a reservoir of labour force and a source of cheap food and other primary production for the expanding urban economy. Development of rural areas was random and almost exclusively based upon an exogenous model of rural development where the main forces of development were emanating from outside the rural area”. In other words, SFs are a marginalised segment of



the rural society, this being reflected in the lack of salaries, support after retiring age, no medical services guaranteed, no clear framework and support for running small businesses – prevailing a certain level of poverty. While the authorities are sustaining that farmers should first contribute to the social funds to benefit of them later, farmers feel strongly injured and ask for a farmer's status review, compensation for maintain agriculture land and landscapes, for producing food or at least to be supported to have better access to the market.

b. Farm and non-farm income in the SF's households

In terms of non-farm activities, there are few areas in Giurgiu region developing as touristic destinations – Comana National Park and Greaca area, with a small beach area on the Danube. Tourism facilities are poorly developed in these two places, not having a significant impact over the household income of SFs around, with tourists come mainly from Bucharest (40 minute away).

There is not a great difference between farm budget and household budget for SFs. When asked how much they estimate the income from selling is like, or how much the various forms of subsidies (EU or national) count, the answer was very evasive. The SFs producing vegetables in Giurgiu region are either not eligible for subsidies (less than 1 ha), either not benefiting of direct payments (CAP subsidies on surface bigger than 1 ha), most of them having the arrangement with cereal association to manage the land, the associations getting the subsidies. There are also farms that have between 2-5 ha of land, but only a fraction of it is eligible for direct payments – too little to have as significant share of the budget. Three of the interviewed farmers declared they have benefited of EU funded project for young farmers or semi-subsistence farm support. One out three had to interrupt the project implementation due to issues regarding land ownership (the boundaries have been contested by his neighbour, and new documents attesting the ownership had to be done). “Nobody has advised me how to proceed with preparing the project after the implementation started.” (SFs – Valea Dragului).

Two years ago, Ministry of Agriculture have initiated a national programme to support tomatoes growers to get on the market at the end of winter, to compete with the imported tomatoes coming the country from Spain or Turkey. The government offers 3.000 EUR for having the production ready in March. Although, couple of SFs declared they have applied, they equally expressed the disappointment of experiencing such programme – the tomatoes are forced with inputs, great efforts to keep the politunnels warm over winter, no promotion done for raising awareness among consumers – the support doesn't cover the costs. The general feedback was that they won't apply again. “It doesn't feel natural! The tomato is forced! Costs are too high! I don't like producing such product! Besides, we still don't have clear market niches for tomatoes!” (Traian Alexandru, Letca Veche).

c. Shocks and coping mechanisms of SF households

Land fragmentation, alongside lack of advisory services, poor infrastructure and no support to access the market are the main shocks/bottlenecks suffered by SFs in Giurgiu region. The



fertile land areas productivity declined sharply with the break-up of the previous collective farms. Consequently, despite the excellent natural conditions and abundant agricultural labour force, Giurgiu, like many other regions in Romania, quickly became trapped due to lack of land ownership documents, lack of land successions, low level of incomes in rural areas, poor infrastructure and farm modernisation. The SFs statue, producing food and taking care of the land, started to be associated with unproductive and marginalised.

SFs are often regarded as blocking the agricultural development and the exploitation of its considerable competitive advantage, by impeding structural adjustment and modernization due to the extreme fragmentation of land ownership and the significant lack of financial capital for investment in better crop and animal production technologies.

On the other hand, the same sector was also acting as an important socio-economic buffer against the effects of the transition period by providing a basic livelihood for a significant proportion of the rural population including the elderly and those made redundant by urban industries (90 of the factories created by the communist regime have been closed down in Giurgiu), the majority of whom were also experiencing poverty and enduring the poor social and technical infrastructure of the rural areas.

Role of Small Food Businesses

a. Main insights and patterns

The role of small food businesses can take different shapes. Some (wholesalers) are playing an important role in connecting the region with outside, bridging between SFs and consumers. Some others are processing the food based on traditional recipes and sell vegetable preservatives in informal networks directly to the consumers in Bucharest. They are having an important role in maintaining the traditions which otherwise would get lost. They can contribute to creating jobs for the locals and to the local economy. There is plenty of room to improve the potential of SFBs in the Giurgiu region to add value to the products and to develop market niches.

The Future

a. Main objectives and priorities of SF for the future

The main objective and priorities of the interviewed SFs were to continue farming at least at the current level, to maintain the farm. As a general insight, most of SFs declared that they would like to increase the farm capacity to produce more food or to increase the size of the farm. Lack of labour was the first impediment identified, together with lack of investments and advisory services to support a better orientation to the market. There is a series of structural aspects pending to be addressed for creating conditions for farms' growth – like successions of the land and farms from one generation to another. While interviewing the farmers, the ones around 40-50 years old declared that what made the difference for them



to take over the lead and invest in the farm was the clear support and encouragement of their parents.

According to the agricultural directorate, the focus group discussions, it is noticeable that the 25-35 years old segment of the SFs, active in rural areas do want more – they have already applied or looking to apply on EU funded projects (rural development programme) for growing the farm capacity to produce, looking for new technologies, seeing farming and food production as a clear business opportunity. Nevertheless, there is a huge need for advisory services in the region for supporting the uptake of project funded investments.

b. Main objectives and priorities of SFB for the future

In the case of SFBs, maintaining the business is the most important priority, and to the ones at the beginning start-up phase, they are already looking for prospects to grow and diversify. The trend shows that they are connecting with newer technologies (hydroponic greenhouses on small plots and computer control inputs – Vochin Ionut - SFB in Novaci).

c. Risk perception by SF

There are different types of risks identified by SFs and participants at the focus groups. Some intrinsic risks are concerning the farm capacity to produce. The severe weather changes have reduced the capacity of SFs to produce vegetables in open fields, but equally the politunnels are impacted by strong winds and storms. There are no insurance schemes available for SFs, especially for the ones with “temporary buildings” – as politunnels are framed in the legal terms.

Another risk is the lack of farm successions – mentioned in more details above. The costs of carrying out the cadastre and succession are very high and completely up on the SFs, leaving the farms with elder people that cannot afford such costs.

d. Food system forecast in 5, 10 and 20 years

It's difficult to predict how the role of SFs will look like in the future. They would like to continue farming, but they cannot predict it for sure. The small vegetables grower (tomatoes) and eggs producers sense that the way that policies and food standards are designed are mainly supporting the big farms to produce food. The vast majority of food produced by SFs goes out of the region as raw materials, with very low level of revenue for SFs. But SFs are not just individuals working with their families, but they represent communities.

It will be essential therefore that support for SFs does not focus solely upon the individual SFs themselves and the challenges that they face. Attention must also be given to the wider needs of the SFs community. As a minimum, this implies an integrated approach to rural development which not only strengthens and diversifies the opportunity for a safe and secure living from small-scale agriculture, but also improves the quality of life for the small-scale farmers and their families, by bringing social services (education, medical services) closer to



the SFs. By this, rural area would be attractive for young people (including SFs children) to remain and produce food.



Annex A: List of resources

a. List of key experts interviewed

Institution
Agricultural and Rural Development Department Giurgiu
Paying Agency for Rural Development Giurgiu
County Council Giurgiu
Rural Development Department – Ministry of Agriculture and Rural Development
Advisory Services – Ministry of Agriculture and Rural Development
National Rural Development Network
Romanian – American Foundation
Romanian Centre for European Policies
World Vision Romania
Agricultural Economy Institute
Agricultural, Sanitary and Veterinary Science University Bucharest
Consumer Protection Association
Agricooltural Singureni – Organic Vegetables Farm
Comana Natural Park (protected area) Giurgiu
Cocosu' Rosu Farm (farm – restaurant - shop – tourism))
Danubius Transborder Business Centre
LAG Centrul pentru Dezvoltare Rurală Giurgiu
Tarell Import Export
Carrefour (Purchase department) – retailer
Chamber of Commerce, Industry and Agriculture Giurgiu
Proecologic System – Organic Farming Certification and Inspection
Sheep Breeders Association – Giurgiu
Cooperative “Prisaca” Giurgiu
Farmers' Cooperative Varasti – Giurgiu
Egis Romania
Holland Farming – Romania
BioProd Colibasi – Cooperative
Auchan – retailer
Vidra Cooperative
Foundation for Social and Community Development Romania
Senator Roamian Parliament – Agriculture Committee
Hotarele Townhall – agricultural advisor
Nutritionist



b. SF and SFB interviews and focus groups information

Stakeholder typology	N° of participants						How were they contacted?
	Interviews			Focus Groups			
	Men	Women	Total	Men	Women	Total	
Farmers	22	4	26	30	9	39	In person
Producers' cooperatives				15	4	19	In person
Slaughtering facilities							
Processors (small/large)							In person
Wholesalers	4	2	6				In person
Retailers				1		1	In person
Caterers							
Other small food business		1	1	2		2	In person
Exporters				1		1	In person, by phone
Importers							
Farm inputs suppliers							In person
Advisory services				1		1	In person, by phone
Agricultural administration/Ministry of Agriculture				1	1	2	In person, by phone
Consumers' groups/organizations				1		1	In person, by phone
Local administrators and policy makers				1		1	In person
Political leaders and PMs							In person
Other programs/initiatives				1		2	In person
Nutritionist							
NGOs					2	2	In person
Total	33			70			

Annex B: Additional socio-economic background of Giurgiu region for better understanding of the SFs and SFBs situation in the present

Along the years, Giurgiu Region has been through multiple ruling regimes which have impacted greatly on the region's culture, landscape, economy and governance, stretching from over 500 years of Ottoman empire presence in the region, to 50 years of communist regime and over 10 years of adopting the European Union principles.

The fifty years of communist regime have fundamentally changed the region's fibre, and shape its current way of functioning. **Following elements of such times have contributed**



to the current situation/condition of SFs and SFBs in the region and influenced farming styles and food production:

- **Multiple changes of agricultural land structure and infrastructure.** During communism, small scale fields were replaced by large plots through land reclamation consisting mainly in deforestation and drainage of the wetlands (Danube's flood plain). The plots in the villages for private use of cooperative farm members (for feeding themselves, mainly kitchen gardens turned later into politunnels for growing vegetables) were reduced in size from 0.30 hectares in 1962-1969 to 0.15 field pattern were in the run up just before communism: 1953 – 1969 (Ioan, 1996). Around 1950, the communist regime intensified the conversion of forest area into agricultural land, because of large scale reclamations for agriculture. With the introduction of a centrally planned communist regime in years 1947, the intensification of agriculture also led to the replacement of the fine-grained land-use mosaic, and thus diversity of crops. The push to a centrally planned production system led to changes in the parcellation pattern over the course of communism (1947 – 1989), creating mono-functional and enormous patches of arable land. The communistic innovation resulted in a landscape with new infrastructure. New irrigation channels and drainage systems were introduced in the fields, and upgrading of the system caused the water systems to become more regulated.
- **Confiscation of farmers 'rights over the land, forced farm co-operatives and stripping over the entrepreneurial skills.** The main objective of socialist agricultural systems was to achieve production targets. Input and output prices were centrally controlled to have maximum control over production, land was confiscated from the people and reorganized into mainly state and collective farms, which regulated all agriculture. Through the nationalization of agriculture, the sector expanded and large companies took over the fields, increasing grain export rapidly, and turning the landscape into a more productive landscape. The land became marked by state-run and collective farming. The vegetable sector (and in few cases fruits production – mainly berries) were traditionally produced in huge "cooperative gardens". The state, though its regional units, was in charge of organizing the contracts with various markets (mainly Bucharest, preservatives industry, export), therefore farmers never been engaged in interacting directly with the market. In the region, there used to be several state-run aggregators, with all the logistics in place for collecting the fresh, processing and producing final vegetable and fruit preservatives – with selling contracts agreed by the state, closing therefore the food circle.
- **Social, cultural and spatial aspects of farming in the region.** The villages were forcibly modernized, as many of them were identified as 'irrational', meaning that the villages were too small for cost-effective servicing, too remote for daily commuting or not in use anymore as a result of the formation of large cooperative farms (Dawson et al., 1987). Not only village numbers, but also village structures changed. Centralized planning created new blocks of flats in village centres for cooperative workers, which also led to the abandonment of houses elsewhere. A quarter of all



rural dwellers moved to the towns and only the selected villages grew into small cities, resulting in an out-migration and continuing depopulation of the rural areas. The changes in landscape were immense, as the built up area increased in some areas, and decreased in others. The depopulation of the villages led to a degradation and disappearing of individual farmsteads, with apprentice/vocational farming schools set up by aristocratic families before the communist regime, severely declining.

After the communist regime. The most important post-communist land use changes were large-scale cropland and abandonment. The main reason for this were “people’s uncertainty with regard to **landed property, the precarious financial condition of the new owners, the inadequate farm structure, the high proportion of elderly people among the group of individual farm owners, the lack of materials and money to work the land, insecurity in selling the surplus of products at prices allowing resumption of the process of product in, and last but not least, the lack of prospects in the conditions of an adverse economic milieu.**” (Balteanu & Popovici, 2010). The two trends seem to be the result of a **shift in ownership** and secondary processes such as changes in **parcellation pattern**, which also caused a decay in infrastructure and water systems, as the central organization was transferred to individual management. “Before 1989, Romania was one of the countries with the largest physical size of agricultural holdings in Eastern Europe; after 1989, it became one of the countries with the smallest physical size of agricultural holdings.” (Popescu, 2010).

Land abandonment in the region is less severe than in the rest of Eastern Europe. On the other hand, **land fragmentation** is relatively higher in Giurgiu compared to other parts of the country (or Eastern European countries) due to the privatization of former collectivized land and restitution of the land to the former owners. Average property is split into ten to twenty parcels, which can be located in different parts of the landscape where small plots with private crops surround the villages. However, the agricultural land may look more homogeneous than the statistics assume, as the land owners are not always also the land users (personal communication – interviews). Several land owners can rent out their land to one farmer (esp. cereals association), who consolidate the different small patches to one. In return, the SFs are receiving between 1-5% of the production obtained on its land. This is creating an interesting dynamic at community level, as in the absence of mechanised services provided by cereals association would have led to abandonment of agricultural land. Although land fragmentation has a negative influence on agricultural productivity, landscape diversity does benefit from it (M. H. Snoeijer, 2014). However, since 2008, scaling in agricultural land structure has been observed (interview with Agricultural Directorate representative), as investors cultivate big surfaces for high agricultural yields and to receive more subsidies from the European Union, as Romania joined the EU in 2007. Also, more Western European investors consolidate land patches for large scale agricultural production. After the land retroceding process, some of the most fertile agricultural land is under state property (i.e. Greaca commune), mainly the land that used to be under water (Danube floodplain) under contracts with big foreign farming companies on duration of 49 years. The land restitution was entirely carried out by individuals, at very high fee levels resulting in lack



of successions of the land from one generation to another, many of the young people still relying on the family/parents' approval to work the land.

The heavy legacy of the communist regime consisting in dramatic **state intervention and the state driven local economy setting**, , Giurgiu region has been suffering of **low entrepreneurial uptake, poor infrastructure and farmers' reticence for joining in cooperatives, with young people choosing to leave the region for working in the city**. Nevertheless, the **vegetable sector**, run mainly by SFs, has succeeded to take off and to start producing for the market, due to the **region' proximity to Bucharest and increase interest of the supermarkets in providing local products** (imposed by legislation). When interviewed, most of the SFs declared that accessing the market is a tough process as they are competing on an open market where cheap vegetables and fruits imported from abroad are "allowed" to flood the market. Due to the collapse of fruits and vegetables aggregators which were collecting from SFs in the region, in conjunction with lack of advisory services and with a complex/inaccessible food safety standards system for SFs, products are being sold only fresh, directly from the farm or through one intermediary on the product chain.

Food industry is represented by companies active in the **milling and bakery (the source of durum wheat is not always transparent, mostly coming from outside the region)**, dairy and meat products manufacturing (one big poultry farm in Mihailesti town, and few smaller ones) and one close circuit sausage factory sourcing the primary meat (pork) from its own farm. The potential of this sector is still insignificantly used compared to the major agricultural resources in the area, because there are no processing facilities for vegetables and fruits, grapes, sugar beet, sunflower and rape seeds, soya beans and tobacco. Two new investments have been recently announced in Giurgiu, one in the milling and bakery field, and one in tobacco processing (according to the director of Chamber of Commerce), but none on vegetables or fruits.

After couple of attempts of setting up vegetable cooperatives, dismantled by lack of management and marketing skills, trust and cooperation between members, in the last years, **supermarkets are increasingly filling the gap left by the state in addressing the structural issues in farming and food production, by providing some advisory services** (imposing though the seeds and input production kit), or creating (by investing) warehouses (deposits) in partnership with SFs association/cooperatives and ensuring the selling based on contracts.

In the most inhabited villages (2000-3000 inhabitants) there is a natural shifting process occurring at community level – **the young people are willing to take over the farmers and turn them into a business opportunity**. Although the natural birth rate is decreasing, the age structure of the rural population is relatively balanced, with the 15-40-year-old group representing 33% of the total rural population, while the 40-65-year-old group represents 30% and the retired ones (over 65-years-old) – 19,4% (www.insse.ro). Among the last two categories, there are the ones who had left the villages in Giurgiu in the communism, for making a life or a job in Bucharest (in most of the cases). After retiring, a significant



proportion has come back to the parents' household, subsistence farming, producing food for themselves or families.

Thus, integration of these holdings to the market has continued to represent a challenge due to non-conformity with food and hygiene standards, lack of investments and modernisations

The 65 years of land reclamation workings (deforestation, drainage) have led to **severe weather conditions** affecting the production potential of the farms (fields are not protected by forest belts, landscape features removed, change of pedological conditions etc), raising the vulnerability of SFs. Severe floods and strong winds are time and awhile testing the dams built during the communist regime, destroying sometime entirely the productions. Floods are alternating with severe periods of draughts or strong winds. The intense traffic occurring in Giurgiu region (commercial node between Europe and Asia for trucks and boats) is increasingly impacting by polluting the capacity to produce vegetables in open fields (according to the interviewed farmers there is a range of vegetables that are not effectively produced anymore) by affecting the leaves and flowers, and they are expecting like all the vegetables to be under cover (politunnels) soon. There are no insurance schemes for such hazards, SFs covering all the damages on their own.



4.26. RR26 Castellón –Spain– Food System Regional Report



WP3

Castellón (RR 26) –Spain– Food System Regional Report

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Table of Contents: Food System Regional Report

1) Socio-economic and agricultural profile of the reference region.....	722
2) Key products and regional food balance sheet.....	725
3) Food system: Key nodes and flows and role of small farms and small food businesses.....	727
3.1. Key product 1: Olive oil.....	727
3.2. Key product 2: Pork	730
3.3. Key product 3: Citrus fruits.....	733
3.4. Key product 4: Almond.....	736
4) Typology of small farms in the reference region.....	738
5) Governance	739
6) Small Farms and rural livelihoods	744
7) Role of Small Food Businesses.....	745
8) The Future	746
9) Annex: List of resources	749



Socio-economic and agricultural profile of the reference region

Castellón is a relatively small province in Spain (6,662 km²), on the Mediterranean coast. It has a population of 594,423 inhabitants, and an average population density of 89.23 people per km². This population is unevenly distributed in the region and mainly concentrated on the coast, where most economic activities are located.

With a UAA representing only 28% of the total land, agriculture employs around 3.7% of the working population in the province, while services employ around 59%, and industry around 20% (with a significant presence of the tile industry which accounts for 94% of the Spanish tile production).

Castellón's territory is clearly divided between coast and in-land due to its physical features, and this divide is reflected on the socio-economic profile of the two distinct areas and on the distribution of the different types of agricultural activity.

The low-land strip along the coast is where the main economic sectors are located, including tourism and industry, and the largest urban centres (Castelló de la Plana, Vila-real, Vinarós), hence concentrating most of the region's population. The agriculture activity in this area is mostly irrigated and is dominated by citrus crops, mainly clementine, with some horticulture in the North of the region.

In-land Castellón is predominantly a mountain area, although altitudes are not very high (generally below 1,000 m), with low population densities. Agriculture in this area is mostly rainfed, dominated by almond and olive trees, which often are part of mixed farms that combine different crops depending on the area (cereals, pastures, other tree crops), or animal farms (mainly intensive pigs or poultry, and some semi-extensive cattle and sheep).

Table 1: Basic data for the region

Indicators	Data per Region - Nuts 3
Land size (km ²)	6,662
Population (thousands of people)	594.42
Density (people/km ²)	89.22
GDP (thousand USD/inhabitant)	22.48 (thousand €/inhabitant)
Total labour force in AWU	14,032
Total number of holdings	26,175
Total Agricultural area (ha)	252,083
Total Utilized Agricultural Area (ha)	188,364
Agricultural Area in Mountain Area	55.04%
% of UAA in the RR	28.27%
Average Farm size	9.63 ha
Number of farms by UAA farm size: 0-5, 5-20, 20-50, >50ha	25,907
]0-5[	19,503
[5-20[	5,038



[20-50[	800
>= 50	566
Average size of farms < 5ha of UAA	1.72
Area of main crops (ha) (list the relevant crops below)	159,036.87
Dried (& fresh) legumes for grain	94.72
Cereals for grain	6,872.04
Wheat Total	908.35
Barley Total	4,518.06
Oats Total	886.26
Rye Total	179.01
Rice Total	126.17
Maize Total	42.76
Other cereals Total	211.43
Permanent grasslands for pasture	72,159.08
Forage crops	1,561.90
Potatoes	141
Industrial crops	28.51
Horticultural crops	1,581.30
Fresh fruits (tree crops)	1,597.40
Citrus (irrigated)	35,258.59
Nuts	27,998.78
Olive groves	28,422.68
Vineyards	705.98
Other tree crops	4,958.95
Set-aside	6,078.62
Area of main crops (ha) in farms < 5ha of UAA (list the relevant crops below)	33,351.78
Dried (& fresh) legumes for grain	42.91
Cereals for grain	167.90
Wheat Total	22.54
Barley Total	66.39
Oats Total	36.84
Rye Total	2
Rice Total	1.50
Maize Total	2.09
Other cereals Total	36.54
Permanent grasslands for pasture	815.54
Forage crops	48.75
Potatoes	41.32
Industrial crops	2.62
Horticultural crops	463.64
Fresh fruits (tree crops)	586.54



Citrus (irrigated)	14,583.70
Nuts	6,890.37
Olive groves	7,854.32
Vineyards	144.84
Other tree crops	1,011.15
Set-aside	698.18
Livestock (LSU) per type (list the relevant types below)	289,544
Cattle	15,949
Dairy cows	210
Pigs	165,817
Sheep	12,971
Goats	2,224
Horses	1,647
Poultry (except ostriches)	89,529
Rabbits	1,197
Livestock (LSU) per type in farms < 5ha of UAA (list the relevant types below)	134,536
Cattle	2,122
Dairy cows	0
Pigs	71,381
Sheep	2,858
Goats	735
Horses	462
Poultry (except ostriches)	56,192
Rabbits	786
Annual work units (AWU) by UAA farm size: 0-5, 5-20, 20-50, >50ha	14,030
Without UAA	347
]0-5[	7,440
]5-20[	4,164
]20-50[	1,177
>= 50	902
Total family labour (AWU) per farm size: 0-5, 5-20, 20-50, >50ha	11,580
Without UAA	165
]0-5[	6,748
]5-20[	3,473
]20-50[	670
>= 50	524

There are many historical factors that contribute to understand the current situation of SF and SFB in the region, as well as their vulnerabilities and strengths. Probably the most relevant one was the rapid process of de-agrarisation and rural depopulation that took place



mainly between the 1950s and the 1970s. These processes are linked to a transformation of the regional economy, in which the development of the tourism and manufacturing sectors in the coastal plains gave rise to a marked territorial and economic duality: the inland mountain areas (with low and declining population densities, high nature value, weak economic fabric) and the coastal plains (densely populated, economically dynamic). The farming systems located in both areas were affected by these overall transformations (in terms of land use competition, available labour, part-time opportunities, access to markets).

Key products and regional food balance sheet

a. Key products produced and consumed in the region

The selection of key products made according to the criteria set by the SALSA guidelines included:

- (i) two products that are both produced and consumed in the region and that are relevant for smallholders and the territory, particularly in-land Castellón, which are olive oil and pork meat;
- (ii) citrus (mainly clementine), as the most relevant export crop in the region, which is irrigated and cultivated along the coast;
- (iii) almond, a crop mainly cultivated in in-land Castellón and historically used as a cash crop to complement farm income, with a role in the maintenance of the agricultural activity in the rural areas.

The interviews and focus groups confirmed the relevance of the products' selection. Interestingly, the SF interviews have made evident the close relationship between some of these products at farm level. Many of the analysed small farms produce more than one of the selected products⁵³. It is noteworthy that the three selected crops for the RR are permanent crops.

b. Balance of production and consumption of key products in the region

The products selected for Castellón are produced within the reference region (RR), but then sent outside the province for some steps of their value chain. This is the case of pork, as most pigs from the region are being slaughtered outside the RR due to the insufficient number of abattoirs. Almonds are cracked mostly within the region, but most of them are then sent for further transformation and packaging to other provinces. Citrus for fresh consumption are calibrated and packed in the region, but then sold outside, either to national

⁵³ This combination of activities has meant additional difficulties to identify farms below the maximum size threshold, since they were selected because of having less than 5 ha of a certain crop, but the interviews revealed some of the farms to be larger when adding all their plots together. Olive and almond are the two crops that were more often found combined on farms in the interior of the RR. These are usually on different plots, and the proportion of each vary depending on climatic conditions and the farmer's strategy. Moreover, pork farms combine animal production with crops (frequently also almond or olive trees) as they need a minimum land area to dispose of manure.



markets or (mostly) to export markets inside and outside the EU. In the case of olive oil, the lower quality oil is first milled locally and then sent to refineries outside Castellón, while the extra virgin olive oil is processed within the region and sold and consumed more locally, although some areas in the South of the region have their market in the neighbouring province of Valencia.

Products	Approximate amount produced in region (ton/year) [B]	Approximate amount consumed in region (ton/year) [C]	Balance (produced-consumed) [D=B-C]	% surplus-deficit on total consumption [D/C]
<i>Olive oil</i>	4,549.17	4,006.41	542.76	13.55%
<i>Vegetables (horticulture)</i>	63,935.85	46,394.72	17,541.13	37.81%
<i>Citrus</i>	538,582.18	12,257.00	526,325.18	4,294.08%
<i>Almonds</i>	9,767.37	439.87	9,327.50	2,120.50%
<i>Pig/Pork meat</i>	26,837.56	13,778.73	13,058.83	94.78%

Sources: Agricultural Census 2009 (INE), Statistics Yearbook 2009 (MAPAMA), Household Consumption Database 2009 (MAPAMA)

Vegetables have an important value for the population's nutrition and their contribution to balanced diets. Their cultivation is concentrated in the North of the province and, although it used to be done by smallholders, the sector has undergone a significant concentration and professionalization process in the past few years, resulting in the fact that the average farmer nowadays runs an intensively managed open-air farm of approximately 30 ha (adding all the plots together), with relatively high revenues. This size of farms is the reason why we are not considering vegetables in our analysis for SALSA.

Processing or transformation is done in the province, at least part of it. But, depending on the product, it goes out after the first transformation (e.g. almonds or citrus), or raw material comes from outside the province to be processed. Hence, it is difficult to quantify how much of the key products produced in the region are processed in the region.

It is very difficult to quantify the amount of product that “comes back” for consumption through retailers, and key informants were unable to give data on this. It is only possible to track down some small products or part of the production that “remains”, like artisan turrón (made from almonds) or some of the extra virgin olive oil.

c. Official statistics and key products in the region

When comparing yield figures, we find significant variations between the data provided by official statistics and the estimations provided by both, key informants and small farmers. The latter two are similar.

One of our key informants, who works directly with these data, pointed out the differences between statistics and “real” data. The main underlying reasons are the methods used to



obtain these data, whether they include abandoned or semi-abandoned land as cultivated land, or how production volumes are calculated.

Looking at our selected crop products in detail, rainfed almond trees present significant bi-annual alternation in yields, which is reflected in the wide range of yield estimations provided by small farmers, from 700kg/ha to 2,000kg/ha. Having said this, such estimates are considerably larger than the 341kg/ha provided by the official statistics for this RR. Rainfed olive presents a similar case, with small farmers' yield estimations ranging from 1,300kg/ha to 6,400kg/ha, which is close to the figures provided by key informants, but far from the 725kg/ha indicated by the statistical sources.

Citrus is a slightly different case. It is a more consistent crop in terms of yields, due to its irrigation conditions, but smallholders' yields vary substantially depending on the type of management provided and the varieties. Key informants pointed this out, and gave a yield range of 16,000 to 60,000kg/ha depending on the crop management, often related to the farmer typology. Smallholders' estimates range from 31,200kg/ha to 54,000kg/ha, confirming key informants' data, while official statistics for clementine, the most common citrus group in the RR, indicated average yields of 14,831kg/ha.

Food system: Key nodes and flows and role of small farms and small food businesses

3.1. Key product 1: Olive oil

- a. Nodes in the regional food system: production, processing, commercialization and retail

PRODUCTION

Olive oil **production** in Castellón is spread throughout the region, with the exceptions of the coastal strip and a high-altitude area in the north-west. It occupies 32,690 ha and produces around 6,500 t/year of oil⁵⁴.

The oil-producing area can be sub-divided in three zones with significant differences in several aspects of the food system. These three zones are: a northern sub-region ("comarca") called Baix Maestrat, the central in-land area of the province, and the southern sub-regions.

A very extensive production system dominates in the Baix Maestrat, with 59% of the total olive oil production in the region. Old big trees with large spacing, together with windy climatic conditions mean that most olives in the area are collected from the ground, resulting in low quality oil ("lampante"). Between 80 to 85% of the olive groves in the area are managed by full-time "professional" farmers on farms of around 20 hectares.

⁵⁴ Data obtained from interviews with key informants, SF interviews and focus group discussion, including data provided by the Regional Agriculture Department.



While the olive groves of the central in-land “comarcas” represent an intermediate case, the southern sub-regions, dominated by Alto Palancia, account for 23% of the regional production with an intense productive system (younger trees, smaller spacing and sometimes irrigation). These areas orientate clearly towards quality olive oil (extra-virgin and virgin). Small farms of less than 5 hectares prevail, representing 80-85% of the total. These are cultivated by part-time farmers, made possible due to the greater economic activity in this area, or by retirees.

PROCESSING

In terms of **processing**, there are 47 oil mills in Castellón. About 72% of the olives produced, from either large or small farms, are pressed in the 29 cooperatives’ mills (small and medium sized) distributed throughout the province. The remaining olives go to 18 private mills, that are generally SFB and mainly used for processing oil for self-consumption at a small scale. There are three larger private mills, with productions comparable to the largest cooperatives.

For virgin and extra-virgin olive oil all the processing is done at the local mills. But in the case of low quality oil a second phase of processing is done in refineries.

DISTRIBUTION

Olive oil **distribution** is determined by the quality of the oil. Between 80 and 95% of the production is virgin or extra-virgin olive oil in the oil-producing areas in central and southern Castellón. While in Baix Maestrat sub-region 60% of the oil produced is of low quality (“lampante”), which is sold in bulk through intermediaries to refineries outside the province. This area also produces virgin and extra-virgin oil, for which some coops emphasize the value of this high-quality oil as a way of preserving the very old olive trees (up to a thousand years-old), as part of the local heritage.

Looking at the overall RR’s olive oil production, high-quality oil accounts for 60%. This is bottled at the mills and then either withdrawn by producers for self-consumption or direct sales; or sold locally at the mills’ shops; sold through small shops or restaurants; sold on-line; or exported (the latter two in small volumes). In other words, SFB dominate the distribution of this high quality olive oil produced in the region. This also means that olive oil from Castellón does not have access to large retailers’ distribution channels, neither inside nor outside the region.

CONSUMPTION

In relation to olive oil **consumed** by the population of the province of Castellón, estimates suggest that only 20% of that oil would be produced in the region, proportion which is much higher in inland rural areas. The remaining oil consumed is purchased in supermarkets (large distribution), that source from other Spanish producing regions, particularly Andalucía.



b. Flows connecting the different nodes in the regional food system

Provincial limits in oil production do not apply strictly in Castellón. Some cooperatives process olives produced in neighbouring regions, and likewise, some producers process their olives in mills in other provinces.

As mentioned before, 40% of the RR's oil is of low quality, which requires refining. This oil is sold by local mills to large companies in bulk, and prices are set by external actors.

For high-quality oil producers take their olives to the cooperative or private mill and then retrieve up to a maximum fixed amount of oil for self-consumption and/or for direct sales. This accounts for 59% of the total high-quality oil produced in the region.

The oil not withdrawn by producers is commercialized by the mills, either at their own shops or on-line, or through their distribution channels selling to small retailers or restaurants mainly within the region. In the case of Alto Palancia, with proportionally the largest production of high-quality olive oil in the RR, their commercial network is spread outside the province, supplying small shops, market stores and some delicatessen shops in Valencia province.

Large retailers source from other olive oil producing regions in Spain, which are much more competitive in terms of price and volumes they can supply, when compared to oil produced in Castellón.

c. Role of small farms and small food businesses within the food system

Small farms produce 46% of the total olive oil in the region. For this product milling is essential for its final consumption and processing is never done on-farm, even when it is for self-consumption.

Cooperatives and private mills play a key role in olive milling and in commercializing the resulting oil which is not withdrawn by producers.

In the case of high-quality olive oil, specialised stores in urban areas (both within and outside the RR) facilitate access to consumers.

d. Importance of household self-provisioning in small farms and small food businesses

In Castellón 59% of the high-quality olive oil (35% of the total oil produced) is withdrawn from mills by olive farmers for self-consumption of their enlarged family and/or direct selling. It is difficult to estimate how much of this is used for household consumption and how much is sold, as these sales are done informally.

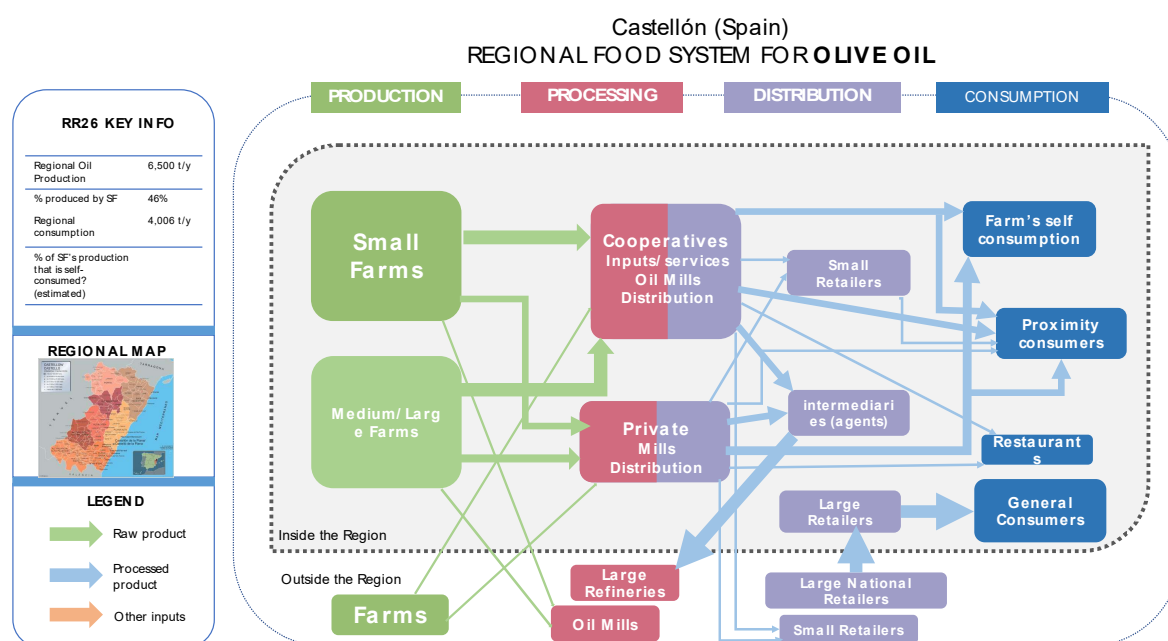
Farmers who want to get the oil from their own olives pressed separate (usually for self-consumption) turn to private mills, that process the olives following a client by client system to provide a more individualised service. Cooperatives mix the olives from all their members and then distribute the oil and gains proportionally to the olives they brought.



e. Other relevant information

Opinions gathered indicate that strategies to improve the quality of olive oil will continue by both the cooperative and private mills, moving away from low quality oil production which is less profitable. Likewise, to improve the efficiency of the milling processes, tendencies of integration and collaboration among cooperatives can be observed, as well as direct management of some farms by coops to reduce costs.

There is consensus to note that the maintenance of current production systems, with their diversity among sub-regions, and based on SF, contributes decisively to the conservation of unique valuable landscapes and the rural environment.



3.2. Key product 2: Pork

- a. Nodes in the regional food system: production, processing, commercialization and retail

PRODUCTION

The most important nodes from the production side are the producing farms and the integrating companies.

Pork in Castellón is produced on around 540 intensive farms spread over the whole territory, except on the coast. Only 10% of the farms have breeding sows; about half of them follow a closed cycle system and the other half only produce piglets to be fattened elsewhere. The remaining 90% of the pig farms in the region are fattening farms. Most of the breeding and fattening farms are part of an integrated system.



The large companies integrating most fattening farms in the province are from outside the region (95%). However, there are examples of small to medium integrating firms in the RR that operate within their local area of influence. They are from simple investors to animal feed producers or other farmers who sub-contract some phases of the production process.

Finally, there are two cooperatives in the RR which produce animal feed and supply either independent farms or small integrators. Only a few pig farmers in the region are members of the coops.

PROCESSING

There are only two medium-size slaughterhouses for pigs in Castellón, publicly funded and with not enough capacity, so at least 95% of the pigs are slaughtered outside the region. Besides, there are small municipal abattoirs, which some informants say that are better in terms of animal welfare and meat quality. They are often linked with independent SF and local butchers', but their slaughtering capacity is very small. There are some small pork processing factories in the interior of Castellón, and many butchers' also make their own sausages. However, most of the meat that these small processors utilize comes from abattoirs outside Castellón via intermediate companies which have cutting plants, and the origin of the pigs is unknown.

RETAIL-CONSUMPTION

Consumers are concentrating their purchases in big retailers, and traditional butchers have lost clients, especially in the coastal area where most of the population lives. Some changes are also taking place in the distribution. Hotels and restaurants used to be served by butchers' but recently some intermediaries with cutting plants are entering this channel. So, the position of pork retailers is being weakened also in this area.

b. Flows connecting the different nodes in the regional food system

Pig production in Castellón shows a high degree of vertical integration. In the fattening system, integrating companies own and raise piglets until the weaning time and outsource the rest of the fattening process to farms. At the end, the companies retrieve the pigs and take them to slaughterhouses. They pay farmers for the fattening of the pigs at a rate per animal agreed by contract. Most integrating companies provide the contracted farmers with the feed, veterinary services and medicines – what allows them to control the rate of growth of the pigs and, ultimately, the farmers' fixed costs. Integrating companies control all technical aspects of the fattening process, while the outsourced farms provide labour, energy, water and facilities, and the pig slurry management.

c. Role of small farms and small food businesses within the food system

Following experts' guidelines, the threshold of 'small' farms is set in less than 2,000 fattening places (equivalent to 1 AWU) or less than 200 sows (2 AWU). Most of the pork farms in the region are below this size. Environmental regulations' constraints pose difficulties for



increasing the size of individual farms over 2,500 fattening places, which would allow SF to consolidate their livelihood.

Small retailers have a role in selling SF products. This was so for instance for some closed cycle small pig farms. Small butchers used to be the main clients for SF, who sold through small local slaughterhouses. These butchers' often had direct contact with the SF and paid particular attention to meat quality. Today, small butchers particularly in coastal areas are gradually disappearing due to the strong competition with large retailers. The butchers' decline have led to a drop of sales for SF. Some of them ended up closing down, others expanded and/or went into integration as closed cycle farms, and many transformed into integrated fattening farms, so they did not have to do the marketing of the produce.

d. Importance of household self-provisioning in small farms and small food businesses

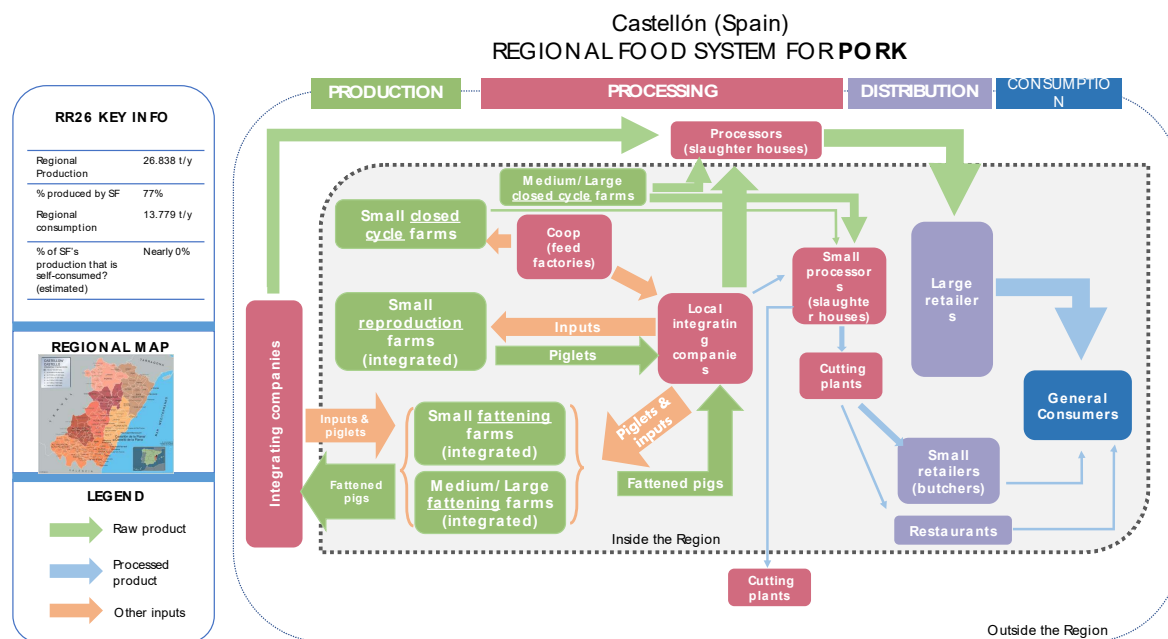
Pork is not used for self-consumption, but in other products are produced – olive oil or almonds, for instance- which are partly self-consumed.

e. Other relevant information

The uncertainty of the pig market, the search to improve the quality of life and the lack of the qualified working force that the close system requires explain that many farmers have moved from the closed cycle system to the fattening system, and from independent management to integration. In general, they do not have complaints about the integrating companies, but lament the loss of autonomy when they turned to depend on them.

Farmers integrated with smaller companies experience slightly greater margin of manoeuvre when planning their investing decisions but, on the other hand, larger integrators can provide loans for these investments.





3.3. Key product 3: Citrus fruits

- a. Nodes in the regional food system: production, processing, commercialization and retail

PRODUCTION

The most relevant nodes in citrus production are the two types of producers, small and medium/large farms. Small farms account for the vast majority of farms in the region (about 94%), and part-time or retired farmers are the typical landowners. Their number is decreasing due to the lack of profitability. Their lands are either abandoned or transferred to large farms. Larger farms are more often held by professional farmers. Another node in the category of “production” are the services cooperatives, which provide field work services to their members for operations such as pruning or spraying.

PROCESSING

In the processing stage, fresh citrus fruits (mainly oranges and mandarins) are calibrated and packaged. Only the discarded fruits from the calibration process are sent for processing (juice and citrus segments) to factories outside the RR. The processing is rarely carried out on-farm, but on specific warehouses belonging to commercialization cooperatives or private traders. These are the main nodes in processing and are also the main nodes in commercialization, as these agents trade outside the region the citrus fruits. In general terms, coops join SF production while private traders rely more on medium/large farms. Actually, there is an ongoing process of vertical integration as traders request differentiated products (different varieties covering wider calendar periods), capacity to meet the retailers’ demands



(in terms of volume, timing, product characteristics and coverage of all the commercial campaign) and to reduce provisioning and transaction costs.

DISTRIBUTION

Both cooperatives (directly or through ANECOOP, a second degree cooperative) and traders export. In retail, around 30-40% of consumption is supplied by local shops (which, in turn, are supplied partly directly from SF), whereas most people buy in supermarkets (55-60%), either fruit produced in Castellón or in other Spanish producing regions.

b. Flows connecting the different nodes in the regional food system

Among nodes in production, the services provided by services cooperatives are more and more demanded by SF as smallholders, particularly the young ones that inherit land, are not willing to dedicate much time to farming and do not have the license for application of pesticides.

Concerning linkages across production and transformation/commercialization, the gross picture is that private traders tend to buy or integrate relatively larger farms, and commercialization cooperatives usually join SF production. Professional larger farmers are the ones typically obtaining higher quality fruit and, generally, more willing to move out of the cooperative marketing systems because they find they do not reward quality with price. Their perception is that private traders value quality more, and that they have more chances to negotiate prices with them. On the other hand, small part-time farmers who subcontract most field tasks and do not invest neither time nor capital on their farms, do not get differentiated quality, and tend to prefer to sell through coops for convenience.

Both cooperatives and traders sell to national wholesale markets and to large retailers. The latter have a strong market power and the ability to set prices, and set their own standards and delivery conditions both nationally and internationally.

c. Role of small farms and small food businesses within the food system

In production, SF provide with a large share of regional output, however this contribution is decreasing over time. In the processing and commercialization SFB operate with the majority of the regional production. Indeed, cooperatives are small food businesses, although during the 3 months peak period of harvest they can employ more than 50 workers. Also, a good part of traders are also SFB. In retail, SF supply directly to households and extended families, and part of local shops' supplies come from SF directly or via SFB -cooperatives or traders.

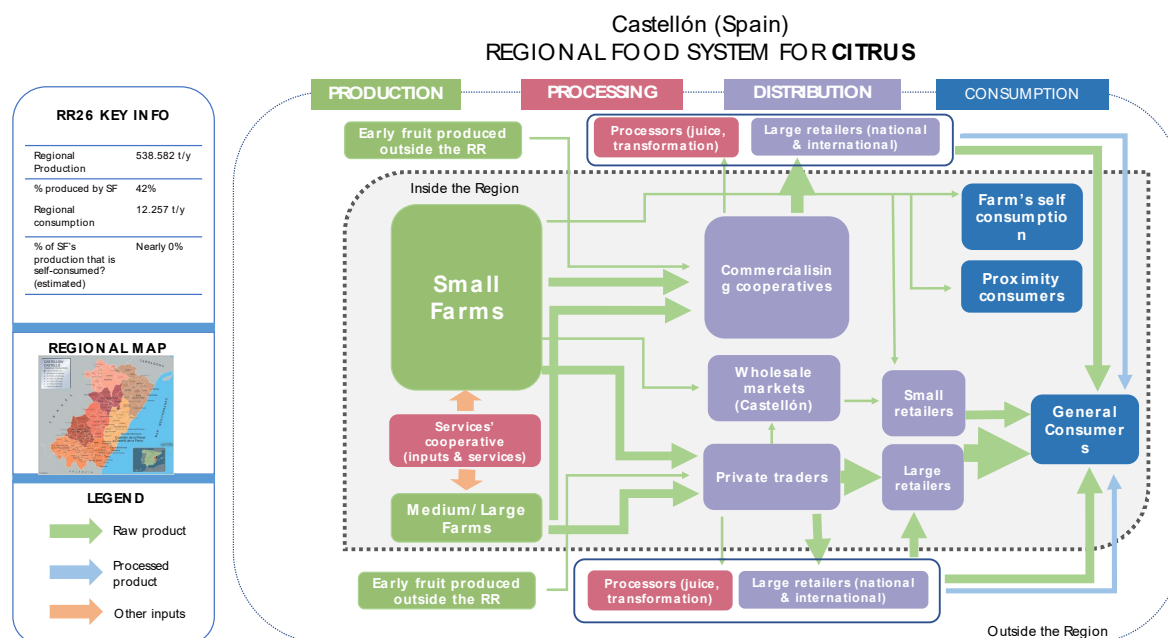


- d. Importance of household self-provisioning in small farms and small food businesses

A part of regional citrus consumption is supplied in a small proportion (around 5% of the RR consumption) through direct channels, one of which is self-consumption for SF households and extended families, but also farmers' markets and other informal direct sales.

- e. Other relevant information

In this sector, fulfilling retailers' requirements are key to keep on business. These requirements are mainly on-time deliveries, specific product characteristics, variety, packaging, big volumes and the coverage of all the commercial campaign. Besides, retail has a dominant market power to set prices. As a consequence, all the stages upstream are gaining size to meet these demands and gain bargaining power; in this context, SF and SFB are, in general, deteriorating. Participants in the Focus Group highlighted that citrus production, together with their associated tasks (packaging, trade, field management services, auxiliary industries), have been one of the few sources of employment in the region during the recent economic crisis. They also consider that some recent trends (strengthening of local markets, organic production), while not being a global solution for the citrus sector of the region, are opening some possibilities for SF and slowing down the abandonment of fields observed in previous years.



3.4. Key product 4: Almond

- a. Nodes in the regional food system: production, processing, commercialization and retail

PRODUCTION

The principal node at this stage are the farmers. Almonds are produced on farms located in in-land mountain areas of Castellón, which frequently also grow other crops (mostly olive groves). The main difference with respect to olive production is the introduction of irrigation in some areas such as the Palancia sub-region, which allows higher yields. Considering the total size of farms (not only the area devoted to almond plantations), only 20-25% of farms are below 5 has. Informants report a gradual process of professionalization of large almond producers, which usually obtain 25% higher yields than small farms.

The RR produces a particularly appreciated almond variety, “Marcona” (which represents about 70% of total current planted trees), but also produces more standard varieties. The standard varieties are sold at a similar price as Marcona’s almonds, and they are spreading on the field due to their shorter cycle and late flowering - which prevent frosts at the end of the winter or early spring- and the smaller bi-annual alternation in yields.

PROCESSING

Almond regional production is initially processed mostly within the region at breaking (cracking) plants. This is a very initial step of processing that is done in proximity to reduce transportation costs. There are 6 breaking plants in the RR, run either by local cooperatives or privately. Two of them are large plants, with a capacity of up to 10 million kg per year, and linked to a big national retailer (Importaco-Mercadona) and to an international nut company (Borges). These big processing plants also use raw material from other regions in Spain. Two of the cracking plants in the province are run by cooperatives, the largest one belonging to a cooperative group outside the province. The other one is a small almond cracking plant run by a producers’ cooperative.

Although in lower proportion, almonds in shell, both from producers’ cooperatives and private traders, are also sent outside the region (to Reus, a town in the neighbour province of Tarragona). Key informants consider that this town may be processing 50% of the total Spanish almond production.

For the following processing stages (peeling and transforming), most of the regional production is sent to Reus. There is only a big processing plant in the region for these operations, which works exclusively for the aforementioned big retailer (Mercadona).

RETAIL-CONSUMPTION

Regional consumption of almonds and almond-derived products takes place mainly through conventional marketing channels - either big or small retailers. Interestingly, the product sold by the largest retailer has been processed regionally (using raw material not only from



Castellón but from many regions), while the product sold by small groceries has been processed mainly in other regions.

b. Flows connecting the different nodes in the regional food system

It is estimated that most of the total almonds produced in Castellón is sent outside the province for some additional processing steps, although there are no data quantifying it. This outgoing flow can be either collective (from the coop that gather the produce) or individual (i.e. directly from the farm to private traders). Part of these almonds re-enter the region in later stages. The interviews also show that most of the SF sell the produce through conventional marketing channels. Production from SF is considered to be channelled in equal shares through local cooperatives and private traders.

Apparently there is not a strong commitment of SF towards their cooperatives when selling their production. Producers rather make their choice based on convenience and price at the time. This undermines the cooperatives' processing activity and puts their mid-term viability at risk.

c. Role of small farms and small food businesses within the food system

There is not quantitative data available to assess the importance of SF and SFB on the overall food system chain within the RR. It is estimated that small farms (below 5 ha) account for 20-25% of total almond producers in Castellón. Processing is rarely carried out on-farm. Private cracking plants and cooperatives are in charge of it. There are few small local businesses producing almond-derived products (turrón⁵⁵) and other small processors (bakeries, roasters) that source directly from cracking plants in the region and outside it. These small processors sell principally through their own shops and in fairs, and some of them in local "delicatessen" shops.

d. Importance of household self-provisioning in SF and SFB

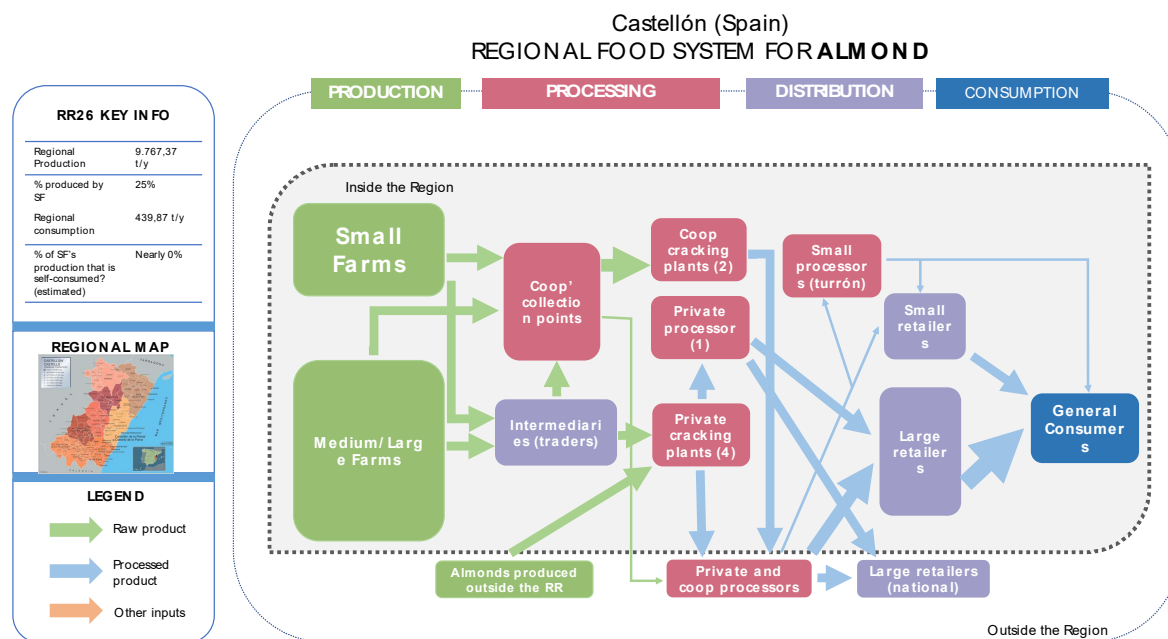
The level of on-farm self-consumption is very low. It is probably related to the high satiating power of almonds, which are energy-dense and very filling.

e. Other relevant information

It is very difficult to make a detailed traceability of the almond consumed in Castellón and to have reliable production data in the region. This is attributed both to the highly speculative characteristic of the almond market, with substantial price fluctuations, and the non-perishable character of the product, allowing the producer to store the almonds for up to 3 years waiting for better prices to sell.

⁵⁵ Turrón is a sweet confection, whose main ingredient is toasted almond and typically is made of honey, sugar, and egg white. It is frequently consumed as a traditional Christmas dessert in Spain. <http://jijona.com/producto/el-turron/turrones-con-denominacion/>





Typology of small farms in the reference region

a. Small farm types in the region

The original typology proposed by SALSA's Analytical framework paid particular attention to the 'degree of self-sufficiency' of SF, considering all the food consumed in the household. In this regard, we can assert that in this RR there are no farm households (maybe apart of some anecdotal cases) in which more than a half of food consumption is self-produced. In this case, most SF in this RR would be classified as Type 3 because in general they have a market orientation and are usually integrated in the market, through one mechanism or other. However, in case we adopt a definition of degree of self-sufficiency of the specific food staple, it is possible to classify farms as Type 3 (commercial), and in some cases Type 4 (semi-commercial). There could even be some cases of Type 2, self-sufficient not very commercial olive or citrus SF.

In order to build an alternative typology of SF in the region of Castellon, we can use two main variables: (i) what do they do with the production and, in case of selling the produce, what marketing channels do they resort to; and (ii) the degree of outsourcing of either farm operations or decision making.

- Although almost all the SF belong to coops and a majority sell their produce with these collective organisations, there are other marketing channels, ranging from direct selling through personal networks (as it could be the case of some high-quality olive oil) or farmers' markets (a little experience in citrus), to selling individually to conventional traders (citrus, almond), to integrating companies (pork) or to intermediaries, in the scarce cases of non-integrated farms (pork).



- It has also been found that there is a gradient of outsourcing modalities of either farm operations or decision making. In many SF, farms operations are carried out and decisions are taken by the family members (mostly the main holder). However, there are also SF that outsource some farm operations requiring equipment (machinery) or specialised skills (pruning). This is found in citrus, olive and almond production. Moreover, some SF also transfer decision making in the frame of integration agreements (as in pork fattening farms or some citrus farms). In this regard, the focus group also revealed that small, local integrating companies had a more personal relationship and gave farmers more leeway for decision-making.

b. Role of small farm types in the regional food and nutrition security

There are differences between types of SF. Those that are mostly export-oriented (e.g. in the citrus sector) generate income (either as farm's profits or through salaries) that allow for food affordability. Commercial SF contribute as well to regional food availability through several types of value chains. This also applies to medium and large farms. This makes difficult to assess how these commercially-oriented SF contribute to regional FNS.

However, there are other roles of SF that are difficult to quantify, but that arose along the gathering of primary information. First, some of the SF have been found to produce (in part) for self-consumption in the household or for the extended family. This is so for some of the staples (olive oil) and complementary production (fruits and vegetables). Second, SF are the ones that keep producing certain food (varieties of olive oils or vegetables) that, despite belonging to the culinary tradition of the region, is difficult to be found in large farms.

Governance

a. Main interactions of SF and SFB with governance structures in the region

The main interaction SF report is with the closest governance frameworks or arrangements. For most, cooperatives' rules regarding product quality requirements and marketing conditions shape the most conditioning governance framework. In this regard, members show different degrees of commitment with the collective organization they belong to. Indeed, some are more engaged in coops' initiatives and more involved in collective decision making. Yet, other members adopt a more utilitarian behaviour, using selectively coops services according to their individual interest.

Similarly, SF that are directly connected to traders or integrating companies, are used to be subjected to the governance arrangements set up by these actors (quality requirements, timing of delivery, and guidelines on production practices).

Beyond these closest governance arrangements, SF carry out their activities in broader legal and political frameworks. On the one hand, there is a set of legal requirements on hygiene, health, environmental standards that SF must observe, and that are not always adapted to the size and constraints of these units (see below). According to the focus groups, some



small farmers are being compelled to join coops to deal with these increasing legal obligations. On the other hand, we find that SF are being gradually forgotten within agricultural and rural development policies, as they are increasingly prioritizing larger production units (see below).

Finally, many SF and SFB are associated to representative organisations (farmers unions, federation of agri-food coops, associations of small retailers, etc.) that aim to influence policy makers and introduce their demands and interests within the policy processes that affect their institutional and regulatory framework.

b. Levels of governance and their relative importance for SFs and SFBs

There is a first level of local governance for SF, that of the local coops they belong to. Their role is in many instances crucial in providing inputs, technical and managerial advice, allowing the processing of produces and selling collectively. Therefore, there is a strong interdependence between SF's dynamics and the functioning of the coops. As a clear example of this, the focus groups pointed out that the adoption of quality schemes or differentiation strategies requires a greater involvement of the cooperative members (and also certain transfer of productive decision-making to the coops' technical staff) – what in some cases makes more complex the internal governance of these entities.

On the one side, as stated above, the productive decline and disappearance of SF difficult the functioning of coops, as coops need a certain level of supply to make the most of the investments in fixed capital.

But, on the other side, several interviewees argued that many coops do not always make decisions in terms of productive efficiency or profitability, and that they are not always managed according to strict professional criteria (e.g. in relation to human resources hiring). This has also lead in many cases to inadequate management that has affected their membership, pushing some SF to take the decision to leave the coop.

Focus groups have revealed a process of differentiation of cooperatives – some of them are declining while others are being able to compete in international markets - that largely depends on the capacity of the cooperatives to steer the productive decisions of their members. Another trend that have been identified is the concentration/integration of cooperatives into larger collective entities.

Beyond this closest and local context, SF –particularly those directly connected to traders, processing or integrating companies or large retailers- are also increasingly constrained by the governance arrangements operating in the more conventional food system. The gradual concentration and vertical integration of the regional food system shape a stronger governance framework that erodes SF's autonomy in decision making in favour of larger decision units (frequently downstream the food supply chain).



As shown above, in certain sectors (citrus fruits) structures of governance different from coops (Agricultural Transformation Societies) are being utilised by large producers/traders to integrate some small farmers in order to gain access to certain public subsidies.

c. Constraints impairing full participation in the food system

There are indeed farm and business scale issues that are relevant in terms of policy or legal frameworks. First, the Regional Government, in charge of applying the CAP in the Region of Valencia (where Castellon is located) decided to limit 1st pillar CAP payments to those beneficiaries receiving more than 300 € per year. The argument has been the need to reduce the bureaucracy and administrative burden of managing thousands of –economically small– applications. This has meant that many SF had been gradually removed from the CAP. Moreover, even if small farmers are eligible for CAP payments, they confront several difficulties to comply the requirements of cross-compliance in some of the very small scattered plots they manage, so they can be penalized.

Second, health and hygiene legal requirements have been said to become a barrier to the setting up of SFB, in particular those related to artisanal food processing. These legal requirements are tailored to large industrial food businesses, and artisan SFB struggle to comply with them. This is why they would like to see these requirements in place but adapted to the small food businesses characteristics. This is the case of small oils mills, butchers', and also of marmalade and jam producers. The latter are often not able to comply with those regulations, and in some cases even sell their production by means of informal social networks outside the legal market channels.

In the case of pork production, the availability of farmland is necessary to comply with the pig slurry management regulations, what constrains the increase in farm size. The Administration also set limitations to the increase of the number of pigs on a farm, depending on the distance to other pig farms and the herd size strata to which the farm belongs. Experts point out this regulation as an important constrain for many farmers to reach an economically viable farm size. Focus group discussions revealed that there is no significant increase in the workload between, for instance, 700 and 2000 pork livestock units; the scaling up is only hindered by regulations. Besides, fattening farms over 2,500 livestock units require an Integrated Environmental Authorisation, which entails an important administrative burden, particularly for SF.

Logistics are also a conditioning factor for farm size. This is the case of citrus production, for which the minimum operational size for the farmer would be the farmland needed to produce enough volume of fruit to load a truck.

d. External policies, decisions and social norms affecting food systems

A recurring issue reported by most SF producing export crops, such as citrus, are the environmental EU regulations and limitations to the use of certain agrochemical products for their environmental risks. They agree with the need to enforce these regulations, but



criticize the fact that these same forbidden products in the EU are being used on crops produced outside the EU but then imported into Europe. They find that unfair competition.

Another issue mentioned by interviewees, in this case mainly pig farmers, is the fact that the EU regulations regarding animal welfare, although being in general necessary, are designed to fit large producers' and distributors' conditions, and are not fitted to small farms. Regulations should also be adaptable to small farms' characteristics, which would not undermine animal welfare, and could even improve it. The regulations that allow for the openness of more and more supermarkets and shopping centres, that make food more accessible for consumers (in terms, for instance, of opening timetables), also reduce the clientele of traditional butchers, who keep closer relations with SF.

Moreover, the SF pig sector in inland Castellón is constantly confronted with the trade-off between the environmental impact that intensive pig farms have, and the fact that this sector is one of the very few that are providing employment and economic activity in these areas, which have high depopulation rates and need people to remain in the territory in order to manage and preserve it. As mentioned in the focus group, "wherever there is no pork, there is nobody". The focus group also made emphasis in the fact that pork producers have a distinct profile – they are professional farmers, and also younger than the average farmers of the region.

e. Gender issues intersecting governance issues

Generally speaking when looking at the crops that we selected as staples, we find very few women in charge of the field work on small farms. This fact responds to social norms allocating different types of activity to men or women, and to the fact that most of the interviewed farmers were part-time farmers, hence agriculture is in some way an added economic activity to the family livelihood, that is a choice, and there is more tendency for men to choose to be carry out this activity. Still, women usually participate in some specific tasks that are more labour demanding, like harvesting olives and almonds.

Having said this, it is quite common that officially, women are the owners of the farm, either for inheritance reasons or because the family decided it is more convenient in order to apply for subsidies or income tax.

In the case of pig farms, there is more presence of women actually managing farms, but still, they are a minority.

The little participation of women in agricultural activities is reflected in their representation in collective organizations. Often, as official owners, they are members of the coops, but in practice, the person, usually men, that manage the farm, are the ones actively participating in the organization.

On the other hand, women tend to have more significant presence and role in the SFB, usually as workers or employees, but also as managers.



f. Other actors and processes important for the regional food system

Other actors for regional food systems that are not represented in the maps are those that shape the governance framework setting the regulations and public support that condition actors' behaviour and interaction (e.g. Regional and National Administrations, local authorities, European Union). Likewise, in this export-oriented region, big food companies and retailers operating outside the region (in foreign destination markets) set many of the rules (in terms of quality, timing of delivery, and volume of produce) that conditions the functioning of the regional food system.

g. Forms of collaboration and organization between small farms

Apart of the formal structures of cooperatives explained above, neighbourhood and local relations also allow some SF to outsource some farm operations that require machinery (that they do not have due to the size of their holdings) and that are carried out by other farmers that have invested on farm equipment (even if they are also SF, so that they provide farm services to monetize this investment). Therefore, these relationships between SF with and without machinery becomes a factor explaining the maintenance of this small-scale agriculture in some territories.

h. Forms of collaboration and organization between small farms and consumers

Some incipient examples of Community Support Agriculture are emerging in urban areas (in particular in the capital of the region) in the form of Consumer Groups. However, interviewees and participants in the workshops asserted that these models of direct relation between small farmers and consumers is much less developed than in other areas (e.g. the metropolitan area of Valencia, outside the region of Castellón).

i. Relationship between small and large farms, and between small and large businesses

As shown in the above sections, the relationship between small farms and large farms and businesses have evolved towards an increasing transfer of decision-making capacity in favour of the latter (integrating companies in pork production, Agricultural Transformation societies in citrus fruits).

Regarding small food businesses, they are being displaced by large operators (distributors, supermarkets, processors, traders). This is the case, for instance, of the decline in butchers' clientele or the disappearance of small coops, particularly in citrus fruits.



Small Farms and rural livelihoods

a. Importance of household labour in SFs

Due to the size of the holdings and the low profitability of farming, SF are managed, almost exclusively, using family labour. Only in the citrus sector, harvesting is mostly carried out by hired labour. Nevertheless, the farms analysed (with the exception of pork farms) are part-time farmed, so many holders have other gainful activity (or are pensioners). It is also common practice for these “non-professional” farmers to hire labour or contract services for specific tasks on the farm, like harvest, spraying and pruning in citrus, and pruning and spraying in olives and almonds. This means that, even if not very significant in terms of household labour, SF maintenance is a source of local labour.

Despite the relatively low work load in SF, two aspects arose along the research. First, small farms were pointed out to play a role of employment/livelihood refuge in the recent period of economic crisis. Second, in the focus group on pork production, stakeholders made particular emphasis on the importance of this sector in the maintenance of population in inland rural areas. Around 400 families were said to live directly from pork production, plus the indirect employments in transport, veterinary, feed production, etc. In the case of almond and olive oil, they also generate income for farming families and some direct/indirect employments.

b. Farm and non-farm income in the SF's households

In part time farms, farm income complements other non-farm sources (salaries and pensions) that are, very often, higher than the share coming from the agricultural activity. Actually, in some cases, the non-farm income allows to confront farm costs. SF receive little support from agricultural or rural policies (see Section 5.c).

c. Shocks and coping mechanisms of SF households

The main shocks experienced by small farm households in the past have been:

1. Urban sprawl pressure. The region experienced a rapid process of urban sprawl not only around cities but also in some inland areas) during the bubble of the construction sector that ended sharply with the beginning of the economic crisis in 2008. Urban sprawl provoked the fragmentation of agricultural areas, the abandonment of many plots and the rigidity of the land market as landowners were reluctant to sell or rent their land due to the expectations of revalorization.
2. The economic crisis that started in 2008 provoked a rapid rise of unemployment in the region in all the sectors (construction, industry, services) which affected very negatively the non-farm incomes of part-time farm households.
3. The rapid transformation of food value chains (concentration, vertical integration, changing consumers' demand). Many small farms (and many cooperatives in which they are integrated) have had difficulties to adapt to this new context, and have



being replaced by larger and vertically integrated farms. For some SF, the way do adapt has been precisely to integrate (or become integrated) with other larger actors (e.g. larger farms in the case of citrus, integrating companies in pork), so that they have transferred as well decision making.

4. Pest and diseases keep being a major risk for SF, not only from the perspective of yields or production costs, but also as they affect the accessibility to certain exports markets. Although this problem does affect both large and small farms, the later have more difficulties to access the inputs or technologies (e.g. resistant varieties) than the former.

Role of Small Food Businesses

a. Main insights and patterns

The typology of SFB in the region very much depends on the product or products they work with, but generally they can be differentiated according to their activity.

Processors, such as oil mills or almond cracking plants, are located in in-land Castellón, and they can be private or run by a producers' cooperative. In the case of small oil mills, the private ones tend to focus on milling oil for the farmers' self-consumption, while the cooperative ones produce a larger proportion of oil for sale. There are very few small private mills in the province, and more cooperative small mills, although the latter tend to disappear or to merge the processing activity with other cooperatives. There is only one small almond cracking plant in the province, and it is run by a farmers' cooperative that also runs an oil mill.

Small retailers such as butchers' vary significantly depending on where they are based in the province. Those in villages in in-land Castellón tend to get their supplies, particularly pork and lamb, from nearby slaughtering facilities, where they know the animals come from local farms. Butchers' based in larger towns on the coast such as Castellón de La Plana, tend to get their supplies from larger slaughtering facilities, inside or outside the province, where the origin of the animals is more difficult to track, although some of them still maintain linkages with some farmers in the province.

b. Labour in SFB work

SFB tend to be managed by household members, and sometimes they hire some part-time external labour. The exception are the cooperatives, which are not family-run. Still, coops play an important role in terms of labour sources for villages, often in areas where there are not many jobs opportunities. Jobs offered by cooperatives tend to be seasonal. Hiring is usually done amongst the coop membership and their families, which creates strong links between employer and employees.

When hired labour was needed (for both SF and SFB), one generalized appreciation is that it is difficult to find qualified reliable staff, as the labour demands tend to be seasonal and



young people tend to choose other options instead of farming as a career path. Also, depopulation of rural areas means that there are fewer young people staying in the villages.

c. SFB income

The majority of SFB do not use to receive subsidies or other type of support. Only processing activities are eligible to receive grants under the Rural Development Programme.

d. Shocks and coping mechanisms of SFB households

There are different shocks affecting different types of SFB. In the case of agri-food coops that carry out the processing and trading of their associates' production, a key issue is the decline of SF, that reduces the amount of produce these coops can supply and conditions their access to markets.

For small food retailers (both specialised and non-specialised stores), the main shocks are different according to their location. For those in towns and villages along the coast is the competition with supermarkets, which has meant a gradual loss of clientele particularly since the recent economic crisis, but also due to the different opening hours and supermarkets' convenience for consumers. For those in inland rural areas, the main risk comes from the loss of clients due to rural depopulation.

The Future

a. Main objectives and priorities of SF for the future

The majority of SF are part-time farmed, either by holders having another main economic activity or by retired people receiving a pension as main source of income. These holders maintain the agricultural activity for a variety of reasons (hobby, income, family tradition). However, as their livelihood does not depend on farming, their priorities are to maintain the level of activity they have, without being willing to do big investments or taking entrepreneurial risks.

Some interviewees have also pointed out that product differentiation (organic, high quality) could be the main option for small-scale production, but also argue that the level of demand for this differentiation remains too small. Still, there are some SF that are taking the risk and trying to compete with high quality produce and/or going into organic certification. Collective fertirrigation is pointed out as an obstacle for this, as it would hinder some small farms belonging to this irrigation networks to adopt the organic scheme.

This is different in the case of interviewed SF that are full-time farmers (those of pork farms), for whom the main aim would be to maintain and, if possible, enlarge their farming activity. For that purpose, some see their engagement within larger integrating companies that operate as suppliers for big retailers as a way to secure and even increase their activity. Concentration was also mentioned in the focus group as a probable future pathway, but not by way of increasing the number of pigs per productive unit – due to the legal restrictions



on this matter - but by renting other farms of retired farmers by other farmholders that remain operating. This would mean that some of the now considered “small farms” would jump to upper size scales, whereas some others would disappear – following a classical model of agricultural adjustment.

b. Main objectives and priorities of SFB for the future

Cooperatives are expected to keep undergoing a differentiation process – some of them will be capable of growing and finding new market niches, whereas others will continue disappearing. This is very much related with their different capacity of influencing the farmers’ productive decisions (production planning, setting of more demanding quality standards, etc.).

In any case for SFB the main priority is to maintain or enhance access to markets. For this to be done, SFB are resorting to different strategies: product differentiation (organic, artisanal, territorial identity), a closer relation with consumers (e.g. internet selling) or, in the case of processors, access to large retailers.

c. Risk perception by SF

The main risk perceived is the lack of demographic renewal, what is related with the low level of prices and thus the low profitability of these activities.

Price fluctuation is also pointed out as a risk. In the case of almonds, the capability of adaptation of farmers to price fluctuations by way of changes in farm management (from more to less intensive prices) was highlighted in the focus groups.

Pork producers point out as a threat the increasing restrictions in the use of antibiotics, what would lead to a more intensive management and a drop in the number of pigs per unit of surface, and the implementation of stricter animal welfare regulations. The drop in exports are also seen as an important threat. However, the most commented risk in the focus group was an eventual change in the strategy of the big integrating companies, following changes in their shareholders, which may opt to work with very large-scale farms close to the large slaughterhouses in distant regions.

d. Risk perception by SFB

The strict health and hygiene regulations (not tailored to the real characteristics of SFB), the competition with large food businesses, and the different standards imposed by large distributors (not only because they are demanding, but also because different retailers impose different standards, and SFB cannot confront the cost of achieving and maintaining them simultaneously), are said to be important risks for SFB in the future.



e. Food system forecast in 5, 10 and 20 years

Precisely, the way the relationships, nodes and flows can evolve in the future depends on a set of drivers whose evolution is difficult to predict. In case these drivers (consumers' preferences and values, public policies and regulations, trade agreements, etc.) create an enabling setting, SF and SFB would have a range of options to reinforce their contribution to the regional food system. On the contrary, a negative evolution of these drivers (as they seem to be evolving by the time being) would aggravate the situation of many SF and SFB, so that their number would keep declining, and their role progressively replaced by large operators of the food system.

f. Other future related issues

There were two additional issues regarding to the future that arose along the discussions with the stakeholders:

- Stakeholders state that small farms and small food businesses would play a key role in guaranteeing regional food security in a situation of crisis.
- Structural changes such as the boost of common cultivation practices were pointed out as a way to overcome the structural limitations of SF and to be able to introduce the technical and managerial changes that are needed to compete in food markets. However, stakeholders also agree on the on the ground difficulties (weak social capital) to generalize this strategy.



Annex: List of resources

a. List of key experts interviewed

Position	Institution
Rural Development Officer	Federation of the Agricultural Cooperatives of Valencia Region (it includes Castellón province) (Federació de Cooperatives Agroalimentàries de la Comunitat valenciana)
Manager	Castellón's Central Market (Mercat Central de Castelló)
Gastrónomo (gastronome)	Castellón's Central Market (Mercat Central de Castelló)
Livestock farming Officer	La Unió de Llauradors i Ramaders – Farmers' professional Association (Union)
Officer responsible for the Agrarian Studies Section in Castellón	Regional Agriculture Department - Conselleria de Agricultura, Medio Ambiente, Cambio Climático y desarrollo Rural – Dirección Territorial Castellón
Cooperatives' Nuts and Olive oil technical officers for Castellón Province	Federation of the Agricultural Cooperatives of Valencia Region (it includes Castellón province) (Federació de Cooperatives Agroalimentàries de la Comunitat valenciana)
Cooperative's Vice-president	Cooperative of Altura (Alto Palancia – Castellón) Olive oil and some almonds
General Director	Comité Gestión Cítricos (Citrus Exporters' National Association)
Senior Technical Officer	Comité Gestión Cítricos (Citrus Exporters' National Association)
Consultant, Ex-technical officer at large citrus cooperative (Nulexport)	Independent
Head of Food Industries Section in Castellón Province	Regional Agriculture Department - Conselleria de Agricultura, Medio Ambiente, Cambio Climático y desarrollo Rural – Dirección Territorial Castellón
Cooperative's Director	Cooperativa Benihort (Benicarló) Horticulture and citrus
Head of Livestock farming Section in Castellón Province	Regional Agriculture Department - Conselleria de Agricultura, Medio Ambiente, Cambio Climático y desarrollo Rural – Dirección Territorial Castellón
Cooperative's Technical Officer	Cooperativa San Isidro, Castellón de La Plana (supplies coop.)
Cooperative's Director / Manager	Cooperativa Benasalense (Benassal) Animal feed coop, linked to pig farms



b. SF and SFB interviews and focus groups information

Stakeholder typology	N° of participants						How were they contacted?
	Interviews			Focus Groups			
	Men	Women	Total	Men	Women	Total	
Farmers	25	6	31	3		3	See Section 9.c.
Producers' cooperatives	1		1	5	1	6	
Slaughtering facilities		1	1				
Processors (small/large)		2	2				
Wholesalers							
Retailers		2	2	1	1	2	
Caterers							
Other small food business							
Exporters							
Importers							
Farm inputs suppliers							
Advisory services							
Agricultural administration/Ministry of Agriculture				2	1	3	
Consumers' groups/organizations							
Local administrators and policy makers							
Political leaders and PMs							
Other programs/initiatives - Farmers' professional associations/ Union - Sector experts				2 1		2 1	
Nutritionist							
NGOs							
Traditional and religious leaders (for Africa)							
Total	37			17			

c. Other important issues

For the selection of informants, the research team resorted to the several collaboration ties it has with farmers unions, agricultural cooperatives, agricultural public agencies and other organisations. Informants from these entities provided contact details and profiles of new potential informants, who were contacted either by the members of the team or the contact persons in these entities. The 'snow-sampling' approach allowed the team to contact people with the diversity of profiles the project requires.



4.27. RR27 Córdoba –Spain– Food System Regional Report



WP3

Córdoba (RR 27) –Spain– Food System Regional Report

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Table of Contents: Food System Regional Report

1) Socio-economic and agricultural profile of the reference region.....	753
2) Key products and regional food balance sheet.....	756
3) Food system: Key nodes and flows and role of small farms and small food businesses.....	758
3.1. Key product 1: Wheat	758
3.2. Key product 2: Olive oil	760
3.3. Key product 3: Wine grape	762
3.4. Key product 4: Cow milk	764
4) Typology of small farms in the reference region.....	766
5) Governance	767
6) Small Farms and rural livelihoods	774
7) Role of Small Food Businesses.....	775
8) The Future	776
9) Annex: List of resources	779



Socio-economic and agricultural profile of the reference region

Córdoba is a large-medium Spanish province (NUTS 3) located in the south of the Iberian Peninsula. It has a total surface area of 13,771 km², representing 2.7% of the total area of Spain. It has 802,575 inhabitants with a population density of 58.28 inhabitants per km², lower than the Spanish average (93.17 inhabitants/km²). A characteristic of the productive sector's structure is the importance of the agricultural sector and the industrial sector linked to agri-food. The primary sector represents 5.9% of the province's total GVA, while this means 4.4% in Andalusia and 2.5% in Spain. From the point of view of employment, the sector's importance is even more pronounced since in the province it represents 10.3% of the total employees as compared to 7.4% at regional level and 4.2% nationally.

The province is mainly divided into three geographic zones which have been decisive in the socio-economic and demographic configuration of the territory: i) Sierra Morena in the north; ii) the Guadalquivir valley in the centre; and iii) the Cordilleras Béticas in the south. The territories located in the north, with a high natural capital, have traditionally been characterized by weak connection to the province capital and by demographic problems associated with aging and depopulation. However, the relevance of livestock breeding and the use of endogenous resources have led to a major food industry with quality products such as Iberian ham, milk, dairy products and ecological olive oil. On the other hand, the central and southern areas present a major demographic potential and good rural-urban balance. They are characterized mainly by the importance of the agricultural sector and agri-food industry, in which olive-growing and the production of olive oil acquire great relevance.

Table 1: Basic data for the region

Indicators	Data per Region - Nuts 3
Land size (km ²)	13,771
Population (thousands of people)	802.6
Density (people/km ²)	93.17
GDP (thousand USD/inhabitant)	19 (thousand USD/inh)
Total labour force in AWU	34,603
Total number of holdings	36,725
Total Agricultural area (ha)	1,024,515
Total Utilized Agricultural Area (ha)	844,019
Agricultural Area in Mountain Area	
% of UAA in the RR	61.29%
Average Farm size	27.89 ha
Number of farms by UAA farm size: 0-5, 5-20,20-50, >50ha	36,557
]0-5[	18,537
[5-20[	10,393
[20-50[	3,793
>= 50	3,834



Average size of farms < 5ha of UAA	2.43
Area of main crops (ha) (list the relevant crops below)	843,014
Dried (& fresh) legumes for grain	7,506
Cereals for grain	155,536
Wheat Total	104,508
Barley Total	13,730
Oats Total	24,507
Rye Total	5,500
Maize Total	4,370
Forage crops	9,785
Industrial crops	58,905
Sunflower	52,275
Horticultural crops	3,768
Fruit trees	13,283
Citrus (irrigated)	10,777
Olive groves	312,820
Vineyards	6,448
Permanent grasslands for pasture	207,043
Set-aside	67,920
Area of main crops (ha) in farms < 5ha of UAA (list the relevant crops below)	44,779
Dried (& fresh) legumes for grain	35
Cereals for grain	2,245
Wheat Total	1,707
Barley Total	161
Oats Total	234
Rye Total	45
Maize Total	66
Forage crops	107
Industrial crops	942
Sunflower	815
Horticultural crops	242
Fruit trees	675
Citrus (irrigated)	492
Olive groves	37,599
Vineyards	1,252
Permanent grasslands for pasture	1,012
Set-aside	670
Livestock (LSU) per type (list the relevant types below)	327,275
Cattle	105,181
Dairy cows	32,315



Pigs	56,392
Sheep	66,134
Goats	6,324
Horses	40,677
Poultry (except ostriches)	20,233
Rabbits	19
Livestock (LSU) per type in farms < 5ha of UAA (list the relevant types below)	55,180
Cattle	5,413
Dairy cows	3,601
Pigs	3,983
Sheep	2,815
Goats	1,607
Horses	34,523
Poultry (except ostriches)	3,229
Rabbits	9
Annual work units (AWU) by UAA farm size:0-5, 5-20, 20-50, >50ha	34,603
Without UAA	425
]0-5[	7,377
]5-20[	7,739
]20-50[	5,596
>= 50	13,466
Total family labour per farm size: 0-5, 5-20,20-50,>50ha	14,754
Without UAA	247
]0-5[	5,452
]5-20[	4,794
]20-50[	2,239
>= 50	2,021

There are many historical factors that contribute to understand the current situation of SF and SFB in the region, as well as their vulnerabilities and strengths. Among them, we can highlight: i) the entry of Spain into the EU in 1986 and the subsequent modernization and socioeconomic transformation of the rural environment of the region; ii) the processes of globalization which make rural territories more accessible spaces, but at the same time make them more vulnerable to external competition; iii) social and cultural changes, the opening of the rural environment to outside world and the emergence of new sectors and activities linked to agriculture (or not); iv) the recent economic crisis and its consequences for rural territories and different types of agriculture.

As a consequence of these processes, two type of development models can be observed in the rural environment of the region: i) the central and southern territories have followed a local development model similar to so-called ‘agglomerations’, facilitating the installation of diverse economic activities; ii) the northern territories have followed a process of



‘specialization’ of livestock-breeding products (milk and meat), i.e. a model of local development that can be identified as ‘development by product’ and posing certain comparative advantages in the area. The farming systems located in both areas were affected by these overall transformations (in terms of land use competition, available labour, part-time opportunities, access to markets).

Key products and regional food balance sheet

d. Key products produced and consumed in the region

According to the criteria set by the SALSA guidelines, the two key products that are both produced and consumed in the region and that are relevant for smallholders and the territory, are the olive oil and wine. The reference region of Córdoba is one of the main producers of olive oil in Spain and worldwide, and resulting from the existence of olive oil culture, the consumption of this product is much higher in this region than in other territories. Small olive farms (less than 5 ha) in Córdoba represent 45% of total olive farm in the region; and 85% of all small farms in the region are olive groves. In the case of wine, we refer to a type of wine that is very typical in this region and recognized with the PDO Montilla-Moriles. It is a wine that by its peculiar characteristics is widely consumed locally. Small vineyard farms represent 70% of total vineyard farms in the region.

The staple that is important for its level of production, but not so much for local consumption, is wheat (mainly durum wheat). The countryside of Córdoba is one of the main wheat producers in Andalusia. Although the relative importance of small wheat farms is very small (barely 5% of total wheat farms), after the olive grove, this crop is the most representative of the total small farms in the region.

Finally, cows’ milk can be considered as a very important staple in the region. Córdoba is by far the main producer in Andalusia (it produces 56% of all Andalusian milk) and it has the largest number of dairy farms (60% of Andalusian farms are located in Córdoba). Approximately 40% of dairy farms in the region are considered small farms (farms with less than 75 heads of cattle).

e. Balance of production and consumption of key products in the region

Products	Approximate amount produced in region (ton/year) [B]	Approximate amount consumed in region (ton/year) [C]	Balance (produced-consumed) [D=B-C]	% surplus-deficit on total consumption [D/C]
Cereals				
Wheat	324.798,22	32.457,89	292.331,33	900,64%
Oil plants				



<i>Olive oil</i>	275.624,05	10.849,83	264.792,23	2440,52%
Fruits				
<i>Wine (Thousand litres/year)</i>	35.526,18	6.350,72	29.175,50	459,4%
Animal products				
<i>Milk (Thousand litres)</i>	320.000,00	55.000,00	265.000,00	481,81%

Source: Agricultural Census 2009 (INE), Statistics Yearbook 2009 (MAPAMA), Household Consumption Database 2009 (MAPAMA), updated statistics from Focus Groups participants.

The results shown in the production-consumption balance sheet are a sample of the agri-food potential of the region and its agricultural exporting character. In this context, small-scale agriculture and livestock play an important role, mainly in crops such as olive groves, where 45% of production comes from small farms, and vineyards, where 70% of the area is occupied by farms smaller than 5 ha. In the dairy sector, small farms contribute about 40% of total production. In the case of wheat, the relative importance of small farms is much smaller, only 5% of the production comes from farms smaller than 5 ha.

Practically the whole processing or transformation of selected food staples is carried out entirely within the region. Small food businesses play a key role in the region. Approximately 90% of these businesses are less than 50 employees. The relationship between these businesses and small farms is very intense, since most of them are organized in a cooperative regime. The case of wheat is different, in this sector the cooperatives are not significant, in the manufacturing industry commercial enterprises play more relevant role.

The marketing of these products it is important not only for its penetration in the local market and in the market of regions close to Córdoba, but also for its level of exports both nationally and internationally. This is the case of durum wheat, which once processed into pasta, is widely marketed nationally, or the case of extra virgin olive oil, demanded not only nationally but also in different regions of the world.

Finally, in terms of access to these food staples, the main places of sale / purchase are small and large retailers, hotels and restaurants sector (HORECA) and small shops and traditional grocery stores (often associated with mills and wineries in the case of olive oil and wine)

f. Official statistics and key products in the region

In general, key informants give reliability to official statistics. However, as a result of the implementation of the focus groups some area and production data for the key products have been modified. The data initially considered came from the public agricultural census of 2009 (the census is updated every 10 years, so that until 2019 the updated official data will not be available), but they have been updated thanks to owner information provided by the key actors.



Some of the limitations expressed by the key actors regarding the production and consumption statistics of the key products are the following

- Lack of statistical information for farms of less than 5 hectares at regional level
- Lack of disaggregated consumption data at regional level
- Intraregional production disparities (e.g. olive groves in northern territories of the region are less productive than olive groves in central and southern territories of the region)

Food system: Key nodes and flows and role of small farms and small food businesses

3.1. Key product 1: Wheat

- h. Nodes in the regional food system: production, processing, commercialization and retail

After the olive grove, wheat is the most representative crop of the province of Córdoba. It occupies approximately 13% of the total UAA of the region. Wheat **production** amounts to 325,000 tonnes, of which roughly 70% is durum wheat and 30% is common wheat. These figures place the province of Córdoba, along with that of Seville, as the main producer of durum wheat at the national level. Although wheat farms can be found throughout the province, the main productions are located in the “Valle del Guadalquivir” and “Campiña Baja” sub-regions (“comarcas”), both in the centre of the region. Approximately 86% of the farms are rainfed and 14% irrigated. In these sub-regions, the surface and production of durum wheat prevails over that of common wheat.

Both durum wheat and common wheat **processing** are practiced within the region. In the case of durum wheat, its grains are regularly split into semolina intended for the manufacture of pasta. In the case of common wheat, its grains are randomly fractioned giving rise to very fine flours used for baking. In the province are located 3 agri-food industries of flour and pasta and 29 industries of feed. In the manufacturing industry, highlight non-cooperative commercial enterprises.

- i. Flows connecting the different nodes in the regional food system

The main pasta industry in Spain is “Pastas Gallo”, and one of its three production plants is located in Córdoba. Considering the **commercialization** flow, this production plant exports 15% of its production, 5% stays in Córdoba and the remaining 80% goes to the national market. Córdoba imports common wheat and exports durum wheat. More than half of the international imports of common wheat usually come from three countries: The United Kingdom, Ukraine and Bulgaria. In the case of durum wheat, the main international export destination is Italy. The pastas made in Córdoba are mainly destined to satisfy the internal



demand of the country. However, approximately 20% of its production is also distributed to France and China.

j. Role of small farms and small food businesses within the food system

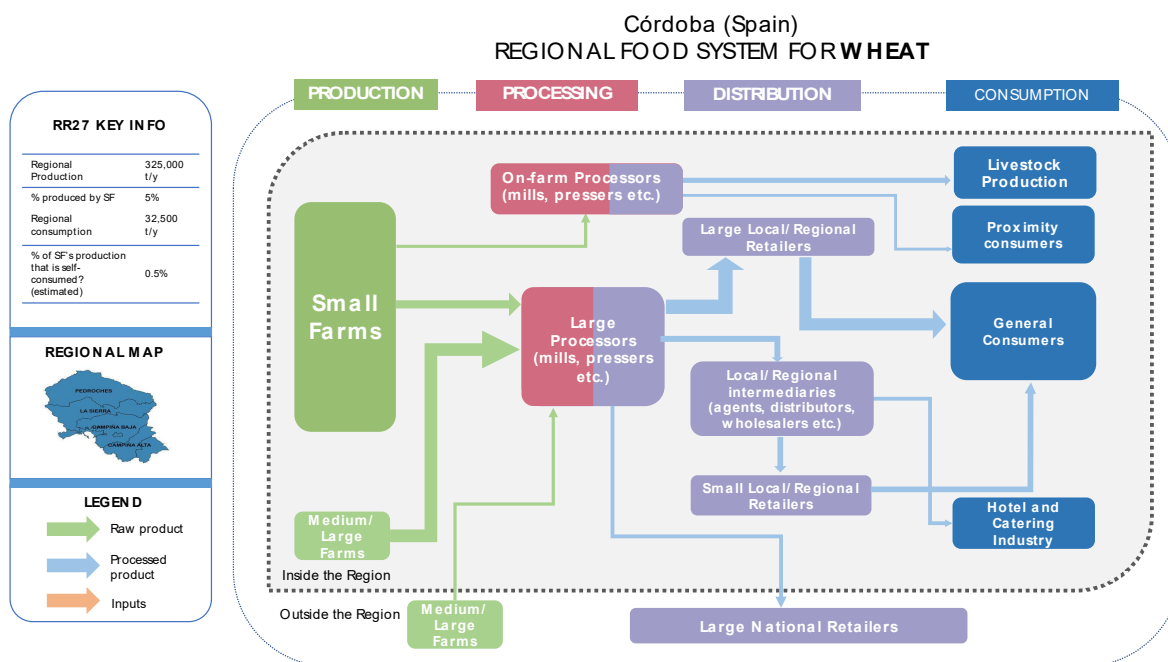
In this sector, small farms do not play such a relevant role since they contribute only with 5% to the total production. However, after the olive grove this is the most representative crop within small farms.

k. Importance of household self-provisioning in small farms and small food businesses

Small wheat farms generally have very low yields and their production is usually mainly oriented towards feeding their own livestock during the summer period (thus reducing the costs of harvest and other processing) and, to a lesser extent, to selling the production to storekeepers for subsequent supply to flour mills or pasta factories.

l. Other relevant information

The predominance of durum wheat over common wheat is mainly due to the greater local demand and the export possibility offered. In addition, the criteria for assessing the quality of durum wheat are simpler than those for common wheat; while the quality obtained from durum wheat is good, that of common wheat is variable; and usually the ease of sale and the price are more favourable in durum wheat than in common wheat.



3.2. Key product 2: Olive oil

- d. Nodes in the regional food system: production, processing, commercialization and retail

The olive grove is by far the main crop of the province of Córdoba. It extends throughout its entire geography, accounting for almost 40% of total UAA in the region. The **production** of olive oil amounts to more than 270,000 tonnes (1.4 million tonnes of olive), which represents more than 50% of the value of the Final Agricultural Production of Córdoba. Although the province can be divided into five olive-growing zones, this crop highlights mainly in the agricultural sub-regions “La Subbética” and “Campiña Alta”, both located in the south, and in certain areas of the sub-regions “La Sierra” and “Los Pedroches”, located in the north. In the southern regions, mainly in “Campiña Alta”, there is a clear predominance of monoculture olives with high levels of production. In these areas, there is a tendency to “intensify” olive production, with younger more productive trees, smaller spacing between them, and introducing irrigation in some cases. In the northern regions prevail the mountain olive grove, characterized mainly by poor soils, with steep orography and average slopes of 30-40%. The farms in this area are conformed by old olive trees, with extensive plantation frames and in which the rainfed system predominates. These are, therefore, low yield olive groves.

The **processing** for the production of olive oil (and also the treatment of the by-products generated in the transformation processes) is carried out entirely within the region. At present Córdoba has 184 registered mills, organized mainly in cooperative regime. Cooperative production accounts for 80-90% of the total production of olive oil. The model of integration that predominates in the sector is that of first-degree cooperatives, many of them integrated in the only second-degree cooperative in the region, DCOOP. There are two other important cooperatives in the region, “Cooperativa Olivarrera de Los Pedroches (OLIFE)” in the north, and “Almazaras de la Subbética” in the south.

The main product is quality extra virgin olive oil. In the northern sub-regions, mainly in “Los Pedroches”, there is a high prevalence of ecologically certified olive groves. This area is probably the largest producer of organic olive oil both nationally and internationally. The ecological olive grove also stands out in the “La Subbética”, internationally awarded numerous times for the quality of its oils with ecological certification. In addition, the province of Córdoba has four olive oil PDOs: “PDO Montoro-Adamuz” in the sub-region “La Sierra”; “PDO Baena” and “PDO Lucena” in “Campiña Alta”, and “PDO Priego de Córdoba” in “La Subbética”. In addition to the production of olive oil, there are other activities linked to the sector which can be grouped into the following axes: i) industries for the use of by-products and residues from olive groves and olive oils (to obtain thermal and electrical energy, pellets, bioethanol, etc.); ii) food, cosmetic and pharmaceutical industries that use olive oils as inputs in their production processes; and iii) services related to the valorization of the olive-growing heritage.



Although the **consumption** of olive oil in the region is high, it does not represent more than 4-5% of the total produced.

e. Flows connecting the different nodes in the regional food system

Approximately 95% of the production is **marketed** abroad, both to small and large retailers located in the nearest regions, and to other types of stores and markets at national (45%) and international level (40%). Many of these exports are still in bulk. The main destination countries are Italy, the United States, Portugal and France.

f. Role of small farms and small food businesses within the food system

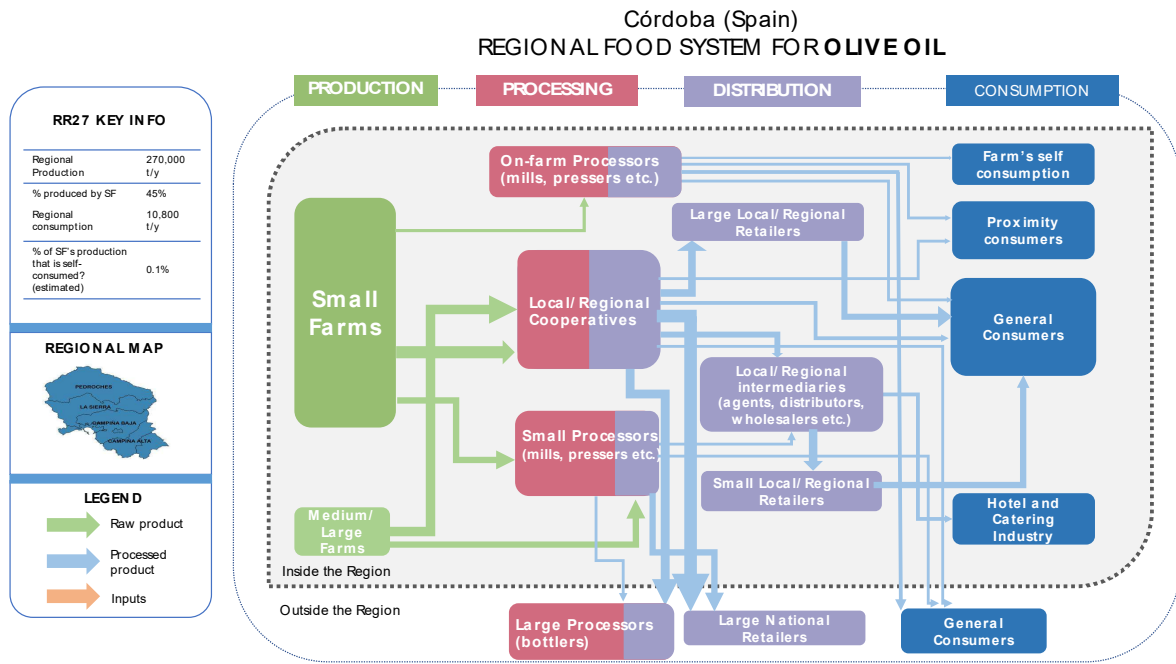
Small farms play a key role in this sector, 47% of farms are smaller than 5 ha (accounting for 25% of UAA of olive grove) and represent approximately 40% of total production. Similarly, approximately 95% of production is processed by small businesses.

Access to the olive oil consumed in the region (5% of the total produced) is through supermarkets, cooperatives' shops, restaurants and hotels, and other local markets and traditional grocery stores (10%).

g. Importance of household self-provisioning in small farms and small food businesses

In this case, household self-consumption is very important. At household level, it is not usual that olive oil producers consume a different olive oil than the self-produced one or the olive oil that comes from the cooperative to which they belong. However, it is important to note that household self-consumption usually represents a small percentage of the total olive oil produced since this product has a clear market orientation.





3.3. Key product 3: Wine grape

- f. Nodes in the regional food system: production, processing, commercialization and retail

There are 5,500 ha of vineyards in the region, producing about 35 million litres of wine per year, which makes Córdoba, along with the province of Cadiz, one of the leading producers in southern Spain. In Córdoba, the vineyards are concentrated in the agricultural sub-region "Campiña Alta", located in the south of the region. Most of the wine **production** in this region is covered under the PDO label "Montilla-Moriles". Within the PDO, two zones are distinguished: one called the Superior Quality Zone (25% of the UAA of vineyards), where the land provides the best conditions for the production of quality wines, and another called the Production Zone (75% of the UAA of vineyard).

Most of **processing** for wine production is carried out entirely within the region. In the area, there are a total of 64 wineries. We found 8 wineries or wine presses constituted like cooperatives, and 56 wineries of aging and issuing, constituted by individuals or with some associative formula (community of goods, limited company, etc.). The processing wineries are located in the production area in which the grapes are verified from vineyards registered in the PDO. The aging and issuing wineries are those located, or not, in the area of production that are dedicated to the aging and sale for consumption of this type of wine. The wines covered by the PDO "Montilla-Moriles" are fundamentally liqueur wines, including "Fino", "Amontillado", "Oloroso", "Palo Cortado" and "Raya". There are also natural sweet wines like "Pedro Ximénez" and "Moscatel". PDO also protects white wines with and without aging. In addition to the wine, a product present in the wineries of the area is Vinegar, which has also acquired the recognition of PDO "Vinegar Montilla-Moriles".



Some companies make other beverages such as grape must, brandy, anise, vermouth, and other liqueurs.

g. Flows connecting the different nodes in the regional food system

The wine **marketing** is carried out by the issuing wineries. Although the consumption in the region is quite high (around 20%), the main market for “Montilla-Moriles” wines is the national market (70% of total production). The international exports account for approximately 10%. Access to this product is obtained through restaurants and hotels (60%), supermarkets (30%), farmer's markets (5%) and others local markets and delicatessen shops (5%). Sales in the national market are mainly made through packed wine (70%), and to a lesser extent through bulk (30%). In the international market, approximately 90% of sales are made in bulk, and 10% in bottling. Regarding the destination of international exports, 98% of sales are made in the EU. Other destinations are Canada, the United States and Japan.

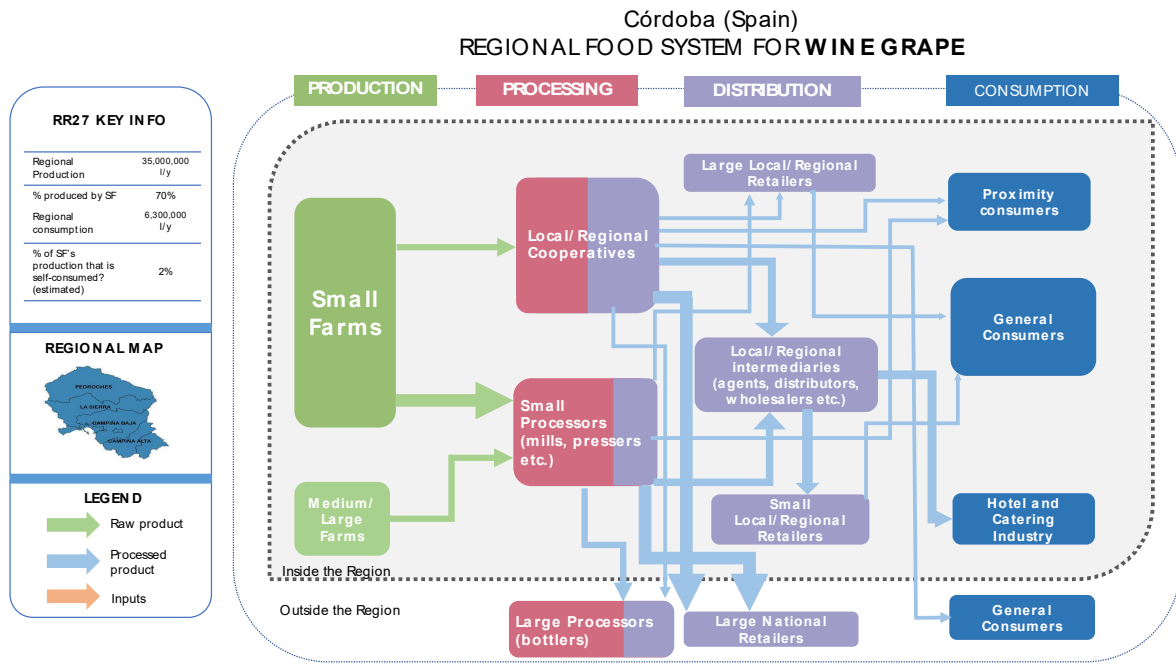
h. Role of small farms and small food businesses within the food system

Small farms play a key role in this sector, accounting for approximately 70% of total production. One of the main characteristics of the PDO label “Montilla-Moriles” (that covers most wine production in the region) is the high degree of small farms: 96% of farms have an area of less than 5 ha and represent 68% of the total area of vineyards. The contribution of family labour is 83% in farms smaller than 5 ha, 68% in farms of between 5 and 20 ha, and is only 5% in farms of more than 20 ha. Almost 95% of the production is processed by small companies.

i. Importance of household self-provisioning in small farms and small food businesses

In this case, household self-consumption is very important. At household level, it is not usual that wine producers consume a different wine than the self-produced one or the wine that comes from the cooperative to which they belong. However, it is important to note that household self-consumption usually represents a small percentage of the total wine produced since this product has a clear market orientation.





3.4. Key product 4: Cow milk

- o. Nodes in the regional food system: production, processing, commercialization and retail

Córdoba, with more than 320 million litres, is the main **producing** region of cow's milk in southern Spain. It produces 56% of the total milk of Andalusia and holds 62% of the total of farms. Córdoba has approximately 450 farms of dairy cattle. Most of them, around 400, are located in the sub-region of "Los Pedroches", in the north of the province. The productive model of dairy cattle farms presents great homogeneity, with a predominance of farms with a reduced territorial base and a system of intensive exploitation. The structural adjustment suffered by this sector has led to a loss of small farms and an increase in the production quota from growing farms. However, the average size of the Córdoba farms is below the national average. The middle farms of Córdoba have 61 dairy cows, produce 595,000 litres and a milk yield per dairy cow of 9,700 litres. The family regime is the most representative regime in these farms.

In terms of **processing and packaging**, there are two main types of operators: 3 buyer-marketer industries and 4 buyer-transformer industries. The buyer-marketer buys milk only from producers for later sale to purchasers, logistics operators and industrial buyers. The buyer-transformer buys milk from producers, buyer-marketer industries, and others buyer-transformer industries. The location of the industry presents a remarkable coincidence with the great breeding centres of production. Thus, in the Valley of "Los Pedroches" we can find the two largest dairy industries, the "Cooperativa Ganadera del Valle de Los Pedroches -COVAP-" (buyer-transformer) and "S.C.A. Virgen de la Alcantarilla" (buyer-marketer), both constituted under the cooperative formula. Cooperatives are mainly responsible for



collecting and grouping the milk in the farm for later sale (buyer-marketer) and continue in the value chain treating and transforming the milk (transformer buyer) and making the packaging. With 318 farms that deliver, COVAP is the largest one. The group of farmers of COVAP produce in total more than 300 million litres of milk per year.

The **distribution and marketing** of liquid milk is developed mainly through the large distribution chains. Only a small part of the distribution to the final consumer is made by the processing and packaging industry itself. COVAP is an inter-supplier of a leading distributor. The scope of development of this cooperative has been extended by the Autonomous Communities (NUTS 2) of Andalusia, Extremadura and Castilla La Mancha. Milk production is insufficient to supply the internal demands, so the region imports milk from other Spanish regions. As for exports, they are made both nationally and internationally, with their own brand or private labels, according to trade agreements. A recent agreement with Libya is noteworthy in this respect.

p. Role of small farms and small food businesses within the food system

Small farms (farms with less than 1 AWU, approximately 75 milk cows) play a key role in this sector, accounting for approximately 40% of total production.

In addition to the two large cooperatives (COVAP and S.C.A. Virgen de la Alcantarilla), there is also a small industry that collects milk from small farms, which are usually industries oriented towards the local pasteurized milk market or the production of dairy products, with a reduced distribution.

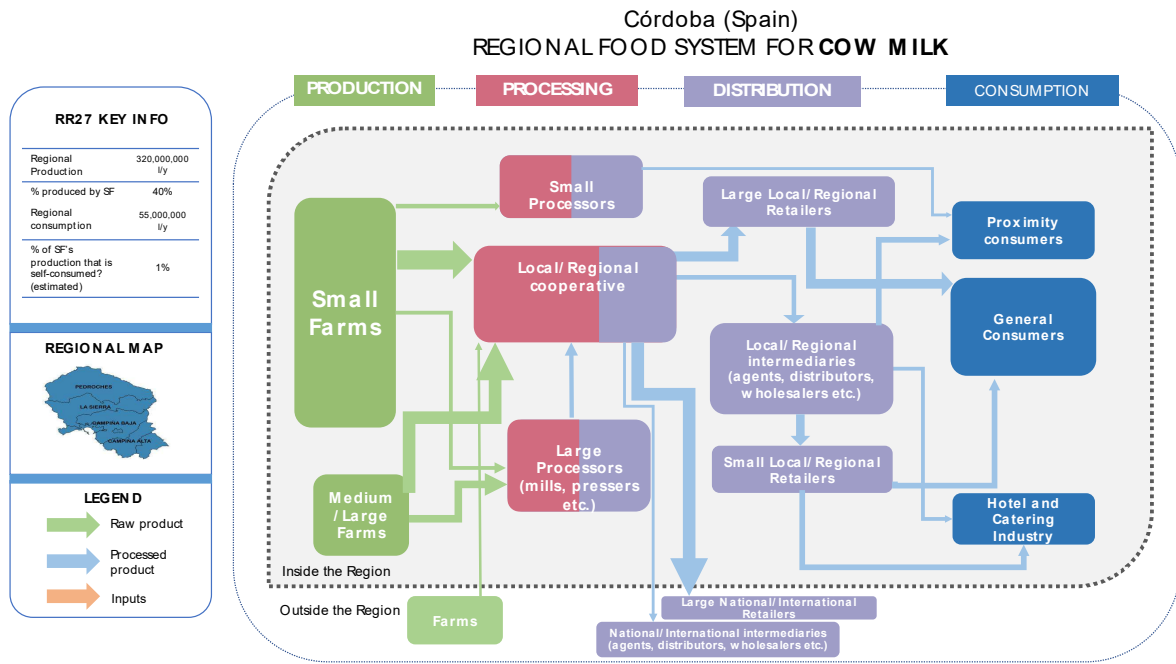
q. Importance of household self-provisioning in SF and SFB

In this case, household self-consumption is very important. At household level, it is not usual that milk producers consume a different milk than the self-produced one or the milk that comes from the cooperative to which they belong. However, it is important to note that household self-consumption usually represents a small percentage of the milk produced since this product has a clear market orientation.

r. Other relevant information

The existence of the two strong cooperative structures may explain the survival of smaller cooperatives that otherwise would have more difficulties to establish trade relations with other large industries.





Typology of small farms in the reference region

m. Small farm types in the region

In the case of small farms, taking into account the two attributes originally proposed by SALSA's analytical framework to establish the typology, the following considerations can be made:

- If we adopt a definition of "degree of self-sufficiency" taking into account all the food consumed in the household, we can affirm that there are no households in the agricultural environment (perhaps apart from some anecdotal cases) in which more than half of the food consumption is self-produced.
- If the analysis is carried out by key product, we can find the following types of exploitation:
 - Those with high levels of both self-sufficiency and market integration (type 4). This is the case of the farms dedicated to the production of olive oil, wine and milk. These farms have a clear market orientation, mainly under the cooperative regime formula (although in sectors such as wine and oil other types of legal forms of society are also representative), and at the same time a strong self-supply (in each case the household only consumes oil, wine and milk from the properly processed, privately or cooperatively).
 - Those with high levels of self-sufficiency and weak market integration (type 1). This is the case of small wheat farms of less than 5 hectares, mainly aimed at feeding their own livestock during the summer period and, to a lesser



extent, at selling the production to storekeepers for subsequent supply to flour or pasta factories.

In the Córdoba context, there are **other relevant criteria to classify different SF typologies**. One of them is the level of dedication of the producer to the farming activity, from professional full-time farmers to part-time farmers or even owners of the farm who sub-contract most of the farming activities to be done on their land. This feature is related to the type of staple and to the size of the farm, amongst other factors. In the production of olive oil, wheat and wine, farms of less than 5 ha tend to be owned by part-time farmers. Most of them have inherited the farms and continue to work on them, motivated more by family tradition than by the economic benefits they can bring them. In these sectors there are only full-time professional farmers on larger farms that make the development of agricultural activity profitable. In the case of dairy farms, farmers tend to be full-time, as the tasks of handling livestock and milking require it, preventing them from practically any activity other than the care of their animals. In some cases, small farmers usually have other animals, such as sheep or pigs, or there are even cases in which they own small areas of some crops that do not require much dedication.

n. Role of small farm types in the regional food and nutrition security

There are some differences between types of SF in terms of their contribution to food and nutritional security in the region (FNS), mainly in the distribution channels used and access to the products. While in market-oriented farms the availability and access to products is usually done through traditional marketing channels, in the case of less market-oriented farms, they often look for other alternative marketing formulas (short distribution channels, proximity, consumption in the household or for the extended family, eco-market, etc.).

At this point it is also important to highlight other elements of SF that are sometimes difficult to find in large farms and that contribute directly or indirectly to the regional FNS, such as the production of certain quality foods (traditional varieties linked to the territory), or the use of traditional production methods.

Governance

r. Main interactions of SF and SFB with governance structures in the region

Both the region's rural areas and its agrarian and agri-food systems are characterized by the existence of a wide and heterogeneous network of actors, collectives and public and private institutions that articulate among themselves to establish fundamental systems of governance for the development processes of rural areas. The main interactions that take place within the region between small farms and small food enterprises and the different structures and elements that make up the governance system can be summarized at the following levels:



1. From the **associative** point of view, the rural and agricultural areas of the region are perhaps one of the most diverse and functionally specialised, with associations of different nature and different fields of activity. Three broad categories of associations can be found for analytical purposes:
 - Those that focus their activity on the defence and representation of interests, whether general or sectoral (trade unions, professional/business organisations, federations of cooperatives, consumer organisations, irrigation associations, regulatory councils for designations of origin, environmental organisations, forestry associations, women's associations, etc.).
 - Associations specialising in the development of some type of economic activity, whether productive or commercial (cooperatives, producer organisations, commercial companies, consortia, etc.).
 - Associations whose objective is the promotion of cultural, recreational or religious activities linked to the agricultural sector at the local level.
2. Alongside the associative movement, there is a varied **network of institutions** linked to agricultural activity in rural areas of the region. For the purposes of analysis, a first distinction can be made between public and private institutions:
 - Among the public institutions, the following can be highlighted: (i) those whose main objectives include the management and provision of services linked to local and municipal policies (municipalities and their bodies, and public enterprises); (ii) those arising within the framework of intermunicipal cooperation (associations of municipalities and provincial councils); or (iii) those forming part of the bodies responsible for managing and implementing at local level the various agricultural, rural and territorial policies of the regional and national government (Ministry of Agriculture, regional agricultural offices, units for the promotion of employment, education and vocational training, public agricultural extension services, etc.)
 - Private institutions include those oriented towards education and vocational training linked to the agricultural and agri-food sector, financial institutions (banks and savings banks), foundations, rural development groups, etc.

s. Levels of governance and their relative importance for SFs and SFBs

Taking into account the levels of governance previously raised and taking into account the relations that these have with small farms and small food businesses, the following characterization can be made:

- In relation to the first type of associations (those that focus their activity on the representation and defence of interests), some of them act in the field of general interests (business associations, trade unions, citizens' movements, etc.) while others focus their actions on more specific sectoral areas (agriculture, consumption, environment, women's problems, etc.). In the area we are concerned with, within



these associations, those that look after the interests of small farmers and small agri-food entrepreneurs (professional organisations of small farmers, local consumer organisations, producer-consumer relations, etc.) stand out, among others. The importance of these associations for small farmers and entrepreneurs is unquestionable, because, since their objectives include the aggregation of individual preferences around a supposed general interest of the group they intend to represent, they can be expected to contribute to reducing the level of dispersion of particular interests by facilitating cooperation. In this sense, it can be said that they have sufficient potential to act as intermediate actors in the application of public policies and to be fundamental elements of the system of governance.

- Regarding associations oriented towards activities of a non-vindictory nature (cooperatives, agricultural processing companies, commercial companies, business consortia, etc.), the logic that guides their actions is based on maximising the preferences of their members. In general, the relations of the partners are based mainly on the achievement of certain objectives of an economic nature. Many of these partnerships are fundamental to the visibility of small farmers and exercise real leadership in the economic and social life of the region. Such is the case of cooperatives, real engines of development in a territory and acting as fundamental axes to add individual initiatives for a common strategy.
- Regarding public administration bodies (local, regional and national), in the case of agri-food activity in general, and small farmers and entrepreneurs in particular, there is no doubt that regional bodies are involved in agricultural matters. On the basis of the activity of these bodies, tasks are carried out which are essential for the development and promotion of small-scale farming: subsidies, CAP aid, market access, research, training and agricultural extension, etc. It is clear that public institutions are fundamental elements of the system of governance, they are responsible for ensuring the necessary infrastructure, channelling public resources to support individual initiatives and promoting the search for agreements and consensus between the various interest groups.
- Finally, regarding private civil society institutions, the role of financial institutions should be highlighted, since a large part of the individual initiatives require financial support in the form of various types of loans for their implementation. Special mention should be made of the savings banks, whose social component (in the form of foundations) makes them important agents for promoting innovative initiatives and promoting entrepreneurial projects by small farmers and entrepreneurs in rural areas of the region, where the difficulties of making them profitable in the short term require special attention and support in the initial stages.

t. Constraints impairing full participation in the food system

In general, small farmers in the region have no apparent problems of scale or type of farm to be eligible for support and subsidies. In the context of the current CAP, a scheme for small farmers was established to help preserve part-time farming and in the interest of



simplification and reduction of administrative burdens for the aid applicant. This scheme provides the farmer with some advantages such as not having to compulsorily apply climate and environment friendly farming practices and being exempted from controls on the application of cross-compliance in order to be eligible for aid.

However, some problems have been recognized in other fields that may be limiting the participation of **small farms** in the region's food system. Thus, based on the interviews conducted and the focus groups developed, it has been possible to identify the following needs:

- Improvement of the degree of direct connection between farmers and consumers
- Knowledge and awareness of society about the value of small-scale agriculture and its contribution to the development of the region.
- Improvement of the sectorial organization and communication with the public administration.
- Recognition of the importance of small-scale agriculture by the public administration.
- More targeted policies in favour of small farmers.

Other problems and needs linked to the integration of **small food businesses** into the region's food system are as follows:

- Support for the marketing of agri-food products (aid for attendance at fairs and promotional events, etc.).
- Associationism and change in the system of governance, favouring the creation of common services and joint strategies for processing, promotion and marketing.
- Promotion of cooperative movement
- Institutional framework adapted to small agri-food enterprises

u. External policies, decisions and social norms affecting food systems

Public policies are designed to try to solve the problems of the population and to cover the social needs that it presents. It seems evident that both the new demands of society towards agriculture and the agri-food sector, as well as the design and implementation of the respective policies to address the new challenges faced by agriculture and the rural areas, are continuously modifying food systems. Thus, the search for viable food production, environmental and climatic challenges, the necessary territorial balance or the progress towards resilience of the sector are elements that are undoubtedly conditioning the region's agri-food system.

Social demands for food and health, in particular the concern for safe, nutritious and sustainable food products, together with growing environmental concerns and the demand for environmentally friendly agriculture, have contributed to an increasing demand for



organic, artisanal and/or local products in the region. Agricultural and rural policies, aware of these social demands, have been incorporating in their proposal instrumental objectives and measures aimed at addressing these issues (measures on quality schemes for agricultural products and foodstuffs, agri-environment and climate measures, etc.). Thus, an increasing number of small farmers in the region, moved by the opportunity presented by this new market, both by the growing demand for organic products and by political support, or by the personal conviction of the benefits of this type of management, have been increasing the area of organic crops. In the case of the staples analysed in the region, the increase in organic production and products with protected designations of origin is very evident in the wine and olive oil sectors.

Another important element that has been highlighted at this level of analysis in interviews and focus groups has to do with the strong influence that CAP aid exerts on farmers' decision making in relation to changes in crop, management and land use on farms. Thus, in this case, the increase in aid that in recent years has been directed to the olive sector, along with the elimination of specific aid to wheat, has led to a strong increase in the surface of olive groves in the region to the detriment of wheat and vineyards.

v. Gender issues intersecting governance issues

The structural changes in the agricultural way of life in recent decades have conditioned the permanence of women in rural areas, in many cases shifting their activity from agriculture to other sectors, mainly the service sector, and on other occasions, promoting the exodus of women to urban areas where their employment possibilities are broader.

The rural labour market is characterized by a low employment rate, which is more pronounced for women. Likewise, there is a gender wage discrimination or wage gap, with women being represented in wage ranges between 400 € and 1,000 €, while men are represented between 1,001 € and 1,400 €.

The rural labour market is also characterised by both vertical and horizontal segregation. Regarding vertical segregation, women are generally concentrated in the lowest positions in the labour hierarchy and occupy positions of unqualified personnel and administrative staff. Men, however, are much more present in positions of power and responsibility. As for horizontal segregation, although in both sexes the service sector occupies most of the population, women are more concentrated in this sector than men.

These inequalities observed between women and men, both in the labour market and in all other aspects, become more pronounced as the degree of rurality increases.

Regarding land tenure, and according to the National Statistical Institute (INE, 2007 and 2016), in Córdoba, 34% of farms under 5 ha are managed by a woman; this percentage decreases as the size of the farm grows; there are women heads of farms in 28% of farms between 5 and 10 ha and in 26% of those of more than 50 ha. In any case, the presence of women in small-scale agriculture and their leadership in farm management has increased in recent years. Thus, during the period between 2007 and 2016, the percentage of women owning farms of less than 5 hectares has increased by 24%.



According to the interviewees, this trend can also be observed in the field of small food businesses, where the presence of women has traditionally been more visible than that which they have had on farms. In recent years, the number of women entrepreneurs at the head of small food businesses has increased.

It is also important to reflect on this point the greater visibility and specific weight currently acquired by rural women's associations (artisans, entrepreneurs and farmers) in the field of associationism in the region. However, the attendees to the focus warn that although important steps are being taken, there is still a long way to go. In this sense, the women attending ask for greater support from the CAP in the new reform that is currently being debated.

w. Other actors and processes important for the regional food system

The actors in the agrifood system that are not explicitly included in the diagrams are mainly of an institutional nature. These include the following: i) the Department of Agriculture of the Regional Government of Andalusia, represented in the region by the Territorial Delegation of Agriculture, Fisheries and Rural Development of Cordoba; ii) the Provincial Council of Cordoba, iii); the Rural Development Groups; iv) the City Councils; v) the Chamber of Commerce of Cordoba; vi) the University and Research Centres; vii) the Regulatory Councils; vii) the Regional Agrarian Offices, etc.

On the other hand, the most influential associations in the region's agrifood system include: (i) the Young Farmers' Association (ASAJA); (ii) the Coordinator of Farmers' and Ranchers' Organizations (COAG); (iii) the Union of Small Farmers (UPA); (iv) the Federation of Agrifood Cooperatives; (v) various producers' and consumers' associations in the province of Córdoba, etc.

x. Forms of collaboration and organization between small farms

Both interviews and discussion groups have highlighted the need to establish systems of collaboration between small farmers so as to favour the creation of common services and joint transformation, promotion and marketing strategies that improve productive efficiency and effectiveness and strengthen the negotiating capacity of the producing sector in the face of increasingly concentrated distribution. Although there are some experiences in this regard (organizations, associations or informal agreements between farmers at the local level to establish collaborative relationships, joint work, exchange of varieties, etc.), there is still a long way to go.

y. Forms of collaboration and organization between small farms and consumers

Many of the producers interviewed state that, through social certification, small farms and processors meet with consumer groups created mainly to value local production, short marketing channels, direct sales and organic products. In the region, these initiatives are more



and more numerous and little by little they are receiving greater support from institutions. In any case, many of the interviewees advocate the need for further progress in the promotion of short marketing channels and in the promotion of artisanal and local agri-food products.

- z. Relationship between small and large farms, and between small and large businesses

According to the criteria of the interviewees and the participants in the focus groups, in general, the existing relationship between small and large farmers is usually good, although it should not be forgotten that there may be particular cases where there are misgivings and tensions between one type of farm and another.

In the case of olive oil, as a general rule, small farmers point to the good relationship that exists between all the farmers, large and/or small, who are members of the same cooperative. Some of them argue that *"...if the big farmers do well, the small ones will also do well..."*. However, there are also small farmers who claim that it is the large farms that set the beginning and end of the harvest and with this the times of reception of olives, something that largely conditions small farmers, having to adapt to the times imposed by large areas.

In the case of wheat, according to the interviewees, the relationships are usually positive, and even collaborative relationships are established. Some interviewees commented that on numerous occasions large farms located in the same geographical area provide small farmers with machinery so that they can carry out some maintenance or harvesting work (sowing, application of phytosanitary products, etc.).

This form of collaboration also sometimes occurs between farmers in the wine sector covered by the same PDO and/or members of the same cooperative. In fact, in this sector some interviewees commented that *"...5 ha can only be profitable if there are synergies that can be exploited because all farmers cannot own a tractor..."*. They also point out that the conception of the cooperative is changing, the members are understanding that, regardless of the size of their farm, the cooperative belongs to all the members and to them as well.

In the case of milk, the relationship between large and small farmers is good, mainly because a high percentage is part of the same cooperative and because there are no major differences between them in terms of size, but rather the farms have a high degree of homogeneity between them.

In the case of agri-food companies, the relationship between small and large companies is different. In this case the collaborative actions are smaller as they tend to be seen as direct rivals or competitors within a given sector.



Small Farms and rural livelihoods

In a heavily agrarian region such as the province of Córdoba, where small farms are broadly representative, the role they play in the economic, social and environmental development of the territories in which they are located is substantially determinant. The majority of those surveyed and participants in the discussion groups agree in highlighting the important work that this type of agriculture plays in the generation of employment and, therefore, in the fixation of the population in rural areas. Direct employment around the agricultural sector in the region of Córdoba is very important, almost double that of the EU average. But in addition to this important work, qualified informants also highlight other types of goods and services that contribute decisively to improving the quality of life of the population. Thus, beyond its volume of production, small-scale agriculture provides important provisioning services (quality food, genetic resources, etc.), regulating services (climate and water regulation, erosion control, fire mitigation, conservation of biodiversity, etc.) and socio-cultural services (local knowledge and revaluation of cultural heritage, generation of high-value agricultural landscapes, recreational activities and tourism, etc.) that are closely related to the well-being of society as a whole.

o. Importance of household labour in SFs

Key informants and interviewees agree that household labour work is high important in the SFs. This statement coincides with the information provided by the Rural Development Programme of the Regional Government of Andalusia 2014-2020, in which it is explained that in farms of less than 5 hectares the family labour amounts to 77% of AWU generated in the farm, compared to 36% of the total AWU associated with larger farms. It is important to point out that coexist small farms with employment-intensive throughout much of the year (e.g. dairy farms) with others where employment demand is concentrated in a short period (e.g. olive groves, which demand 75% of employment in the harvesting phase).

p. Farm and non-farm income in the SF's households

In part time farms, farm income complements other non-farm sources (salaries and pensions) that are, very often, higher than the share coming from the agricultural activity. Actually, in some cases, the non-farm income allows to confront farm costs. SF receive support from agricultural or rural policies.

q. Shocks and coping mechanisms of SF households

The main shocks experienced by small farm households in the past have been:

- The rapid transformation of food value chains (concentration, vertical integration, changing consumers' demand). Many small farms (and many cooperatives in which they are integrated) have had difficulties to adapt to this new context and have being replaced by larger and vertically integrated farms.



- The economic crisis that started in 2008 provoked a rapid rise of unemployment in the region in all the sectors (construction, industry, services) which affected very negatively the non-farm incomes of part-time farm households. In other cases, the crisis has provided an opportunity for the revitalisation of agricultural activity in rural areas. Many unemployed people from urban areas have returned to rural areas and have found employment in agriculture-related activities.

Role of Small Food Businesses

r. Main insights and patterns

Like small farms, small food business also play a fundamental role in the development of the region. These agri-food companies maintain a close relationship not only with agricultural farms, but also with other elements of the different links in the production chain (auxiliary machinery and services industry, processing industry, distribution industry, waste treatment, etc.) and with new activities linked to agri-food (cosmetics and pharmaceutical industry, services linked to the valorization of heritage, etc.). Its capacity to generate, directly or indirectly, economic dynamism, employment and population fixation only increases its strategic character in the development of rural areas.

In **small food business**, both from a global perspective of the region's agro-industrial sector, and individually in a staple analysis, the industries with a clear market orientation and high levels of self-sufficiency (type 4) stand out. The agro-industrial sector of the region is strongly represented by SMEs with a clear commercial vocation that operate in regional, national and international markets. Agricultural holdings maintain a close relationship with these processing industries located in the region, decisively contributing to the territory's self-sufficiency.

s. Labour in SFB work

The agro-industrial sector of Cordoba is strongly represented by SMEs, approximately 90% of the agri-food companies in the region have less than 50 employees.

t. SFB income

Processing activities (mainly in wine and olive oil sectors) are eligible to receive grants under Rural Development Programme.

u. Shocks and coping mechanisms of SFB households

The small farms maintain a close relationship with the small food businesses and processing industries in the region, so they also share the main shocks mentioned above. To this should be added the competition that small businesses have with large supermarkets, or the increase



in consumption of “white label” products (with lower price) as a result of the loss of purchasing power of the average consumer resulting from the economic crisis.

The Future

f. Main objectives and priorities of SF for the future

The objectives and priorities that farmers are considering for the future are practically similar in all the sectors analysed. Among these objectives, the following stand out:

- Continuity in the development of agricultural activity. The vast majority of those interviewed agree that they want to continue farming even after retirement. In fact, because most small farmers are part-time, they argue that it will be after retirement when they have more time to devote to the work of their small farms.
- The generational replacement. The incorporation of young people into the agricultural activity has become a great challenge for the sector, and many of the farmers interviewed present this challenge as a clear objective. The great majority bet on their children to maintain the tradition and give continuity to the agricultural work. However, there is also a small percentage of interviewees who do not expect their children to take over the agricultural activity and predict the sale or lease of farms.
- Modernization of facilities, optimization of resources, reduction of costs and increase in production. An important group of interviewees bet on the modernization of their farms in order to make them more efficient and thus be able to compete under better conditions in the market. However, they are aware that for this purpose important investments must be made and for this they need the support of financial institutions and the public administration.

The first two objectives are common to practically all small farms. However, on the basis of the third objective, a typology of small farms could be established: (i) those which are committed to modernizing their facilities in order to increase the level of production; and (ii) those which do not have among their priority objectives the modernization of the farm. The main factor that can determine whether a farm is of one type or another has to do with its commercial vocation and integration into the market.

g. Main objectives and priorities of SFB for the future

The main objectives and priorities highlighted by the interviewees are the following:

- Advocacy, development and promotion of local agri-food products and traditional crafts. They will contribute to increase local knowledge about local products to build and consolidate a culture of "local" that involves consumers in the knowledge and support of products from the region. In this way, it will be possible to carry out strategies of qualitative differentiation that incorporate added value to the products



and thus contribute to improving the profitability of agricultural farms and small agri-food businesses.

- Integration into concentric diversification strategies linked to local food products. Small producers can play a fundamental role within territorial strategies that consider local production as a tool for valuing heritage from an environmental and cultural perspective, where tourism, gastronomy and landscape can add a new aspect of profitability with high added value.
- Associationism and change in governance. In spite of the reluctance to move towards collaboration strategies between companies, the interviewees state that the sum of individual efforts and the design of joint actions (formal or informal) is necessary to reinforce the negotiation capacity of small food businesses in a given sector, as opposed to large companies and in the face of an increasingly concentrated distribution.

On the basis of the first two objectives, and also taking into account those previously considered in the analysis of small farms, it is possible to establish typologies of small food businesses. In order to become more competitive and improve the level of income, farms are adopting the following business strategies: (i) those which are committed to cost-cutting strategies (restructuring of crops, rationalisation of business management, intensification of production, etc.); (ii) those which prefer to follow a strategy of adding value to the product and differentiating the product (modification of the marketing format, search for the value that the territory can bring to the product, PDO, organic production, etc.); (iii) those which opt for concentric diversification strategies (use of by-products, services linked to the valorisation of the heritage, wine tourism, oil tourism, etc.)

h. Risk perception by SF

The main risks perceived by the interviewees are the following:

- Natural climate-related risks that can influence the level of food production and quality. These include droughts and lack of precipitation, rising temperatures, overexploitation of aquifers, loss of native varieties in favour of others more resistant to new diseases and pests resulting from climate change, etc.
- Risks arising from the economic system and markets. These include international price fixing, imbalances between supply and demand, high prices of raw materials and inputs, etc.
- The generational replacement. As previously mentioned, this is one of the great challenges facing the agricultural sector today.

i. Risk perception by SFB

The main risks perceived faced by small food businesses in the region are:



- Risks derived from the economic system and markets. These include price fluctuations, rising raw material prices and other production costs.
- Weak institutional support for the establishment of a framework adapted to the specific needs of small food businesses. Several interviewees argue for the need to design policies and legislation that are adapted to the production levels and costs of small businesses so that they can survive and consolidate. Among other issues, they call for quality control regulations to be adapted to the size of operators so that small companies that normally have fewer resources can comply with the quality and traceability requirements set by the public administration without the cost of licenses being an obstacle to this.
- Weak support aimed at improving the productive structure of SMEs in the region. There is a need for proper structuring, concentration and management of supply.

j. Food system forecast in 5, 10 and 20 years

The vast majority of interviewees and discussion group participants agree on a pessimistic and unhelpful view of the future of small farms and small food businesses in the region. In each of the sectors analysed, all parties agree that the consensual diagram will be modified mainly by the action of the large distributors and retailers, the growing vertical integration of each of the sectors and the risk of phagocytizing small food businesses.

Another factor expected to alter the diagram for each of the sectors is the emergence of new countries with increasing levels of production of certain products. This issue is very evident in the olive oil sector, in which countries of the Mediterranean basin are bursting onto the international market with high productions that, undoubtedly, can modify the flows established in the diagram of this sector.

Finally, another of the changes shown for the coming years has to do with the change of crops in the useful agricultural area of the region. The trend so far has been a decrease in the area under vines and cereals for the sake of an increase in the area under olive groves, but a considerable increase is also expected in the area under other crops such as almonds and pistachios.



Annex: List of resources

o. List of key experts interviewed

No.	Key expert's institution
1.	Consejería de Agricultura, Pesca y Desarrollo Rural
2.	Cooperativa Olivarrera de Los Pedroches, Pozoblanco (Córdoba)
3.	School of Agricultural and Forestry Engineering of the University of Córdoba.
4.	Cooperativa Olivarrera de Los Pedroches, Pozoblanco (Córdoba)
5.	Agricultural Association of Young Farmers (ASAJA) in Córdoba
6.	Bodegas Robles
7.	Agricultural Association of Young Farmers (ASAJA) in Córdoba
8.	Cooperativa Vitivinícola Local (Aguilar de la Frontera)
9.	Cooperativa Vitivinícola Local (Aguilar de la Frontera)
10.	Consejo Regulador DOP Montilla-Moriles, Montilla, Córdoba
11.	COVAP (Cooperativa Ganadera del Valle de los Pedroches)
12.	Department of Animal Production. School of Agricultural and Forestry Engineering of the University of Córdoba.
13.	Department of Animal Production. School of Agricultural and Forestry Engineering of the University of Córdoba.
14.	Industrias Lácteas Carloteña (S.A.L.)
15.	Dcoop (second degree olive oil cooperative)
16.	Almazara de la Subbética S.C.A.
17.	Department of Forestry Engineering. School of Agricultural and Forestry Engineering of the University of Córdoba.
18.	Cosmética Pedroches
19.	Cooperativa Olivarrera de Los Pedroches, Pozoblanco (Córdoba)
20.	Almazara Olivar de la Luna

p. SF and SFB interviews and focus groups information

Stakeholder typology	N° of participants						How were they contacted?
	Interviews			Focus Groups			
	Men	Women	Total	Men	Women	Total	
Farmers	32	8	40	1	1	2	University/Organizations
Producers' cooperatives	1	2	3	2	2	4	Organizations
Slaughtering facilities							
Processors (small/large)	3	2	5	2	2	4	University/Organizations
Wholesalers				1		1	Organizations
Retailers							
Caterers							
Other small food business	1	1	2		1	2	University/Organizations
Exporters							
Importers							
Farm inputs suppliers							



Advisory services							
Agricultural administration/ Ministry of Agriculture				1		1	University
Consumers' groups/ organizations				2	2	3	University/Organizations
Local administrators and policy makers					1	1	University/Organizations
Political leaders and PMs							
Other programs/initiatives							
Nutritionist							
NGOs							
Traditional and religious leaders (for Africa)							
Total	50			18			



4.28. RR28 Haouaria –Tunisia– Food System Regional Report



WP3

Haouaria (RR 28) –Tunisia – Food System Regional Report

Author: Insaf Mekki



Table of Contents: Food System Regional Report

1) Socio-economic and agricultural profile of the reference region.....	783
2) Key products and regional food balance sheet.....	785
3) Food system: Key nodes and flows and role of small farms and small food businesses.....	787
3.1. Key products: Tomato and red pepper	787
4) Typology of small farms in the reference region.....	791
5) Governance	793
6) Small Farms and rural livelihoods	797
7) Role of Small Food Businesses.....	798
8) The Future	799
9) Annex: List of resources	802



Socio-economic and agricultural profile of the reference region

The study focuses on the plain of Haouaria, located in the Cap Bon in north-eastern Tunisia. The climate is Mediterranean upper sub-humid. The annual rainfall is about 568 mm/year. The climate with mild winter and sunny springs are suitable for most vegetables. Agriculture remains the main economic activity in the Haouaria region, with almost 70% of its population involved in this activity (INS, 2010). Vegetable irrigated crops cover an area of 6,000 ha, mostly potato (1,100 ha), tomato (800 ha), pepper (800 ha), peanuts (1,300 ha), spices (coriander/carvi) and others crops (1,150 ha). Dominant sandy soils and a rather flat topography favor direct rain infiltration, inducing and hydrographic network almost non-existent in the plain of Haouaria (Mekki et al., 2017).

The socio-economic development of the Haouaria plain relies on groundwater resources for agricultural development and is currently suffering from depletion and quality deterioration of the shallow and deep aquifers. The exploitation increased between 1970 and 2006 fivefold for the shallow aquifer and twofold for the deep aquifer, respectively (CRDA, 2011), has led to the qualitative and quantitative degradation of water resources in the plain. In Haouaria, land ownership is highly fragmented due to population increase and landowners processing. It has become increasingly difficult to pursue the socio-economic development goals as many factors hinder the agricultural development, including land tenure factors; climatic variation; degradation of water resources and soil resources, poor access to credit; farmers' lack of organisation; and insufficient access to financial services. These are compounded by the weakness of social capital, including community organisations that lack the necessary training and support.

Table 1: Basic data for the region

Indicators	Data per Region - Nuts 3
Land size (km ²)	312.1
Population (thousands of people)	5,271
Density (people/km ²)	16.88
GDP (thousand USD/inhabitant)	3.6
Total labour force in AWU	6,200
Total number of holdings	10,400
Total Agricultural area (ha)	29,850
Total Utilized Agricultural Area (ha)	17,560
Agricultural Area in Mountain Area	10,000
% of UAA in the RR	56.26
Average Farm size	2.68
Number of farms by UAA farm size:	0-5 ha (3,004) 5-20 ha (1,050) 20-50 ha (90) >50ha (36)



Average size of farms < 5ha of UAA	0.76
Area of main crops (ha) (list the relevant crops below)	Potatoes=1,100 Tomatoes=800 pepper= 800 Citrus=297 Peanuts=1,300 Spices(coriander/ caraway)=1,150
Area of main crops (ha) in farms < 5ha of UAA (list the relevant crops below)	
Livestock (LSU) per type (list the relevant types below)	Cows=8,180 heads Goats=11,000 heads Chickens= 182,400
Livestock (LSU) per type in farms <5ha of UAA (list the relevant types below)	Cows=4,008 heads Goats=4,880 heads Chickens= 116,736 heads
Annual work units (AWU) by UAA farm size: 0-5, 5-20, 20-50, > 50 ha	Unknown (Mostly family non-paid labour and worker employed on a seasonal basis for small farms, predominance of permanent and worker employed on a seasonal basis for medium and large farm sizes)
Total family labour per farm size: 0-5, 5-20, 20-50, >50 ha	Unknown (predominance of non-paid family labour in small farms)

Cropping patterns in the Haouaria plain have long consisted of traditional irrigated crops such as groundnuts and caraway in rotation with fodder crops for livestock (Sethom, 1977). Agriculture consisted of extensive production systems with low inputs and with flooding as the main irrigation technique. Rainfed food grains (mainly wheat) were also cultivated. With the introduction of pumping technology and the intensification of phreatic and then deep groundwater abstraction in the 1970s and 1980s, and the introduction of agribusiness, farmers gradually dropped former crops (e.g. wheat and groundnuts, etc.) and shifted towards high value vegetables food crops (e.g. tomatoes, red peppers, potatoes) (Ghazouani and Mekki, 2016). Farmers have been impacted by the increasing demands of the market and the relationships to agribusiness for food products that extend beyond the farm to the national and international level.

The tomato and pepper processing activity in the region dates back to the beginning of the last century. It knew a significant growth as a consequence of national policies efforts at various levels (trade liberalization, promoting export-oriented farm production, technology for expanding the irrigated sector to the requirements of the global market, the organization of the sector, the control of the price, the incentives and subsidies, the transfer of water management from state agencies to local user associations), and nowadays there are 10 large private processing factories (transformation of tomato on Double Concentrated Tomato and pepper on Harissa pepper puree.). The introduction of the large private processing companies impacted the small food business in the region and deprived numerous small rural



families from an important part of their livelihood. Because of the captive relation which is maintained between the small producers and the large private processing factories, the farmers are in continual financial dependence towards these companies. At present, land access inequality limits the access to state subsidies from small farmers. They struggle to access the market for agricultural inputs such as seeds, pesticides, and other phytosanitary products and pricing mechanisms (Ghazouani and Mekki, 2016). As a result, farmers can easily accumulate debts (from the bank or also from companies selling agricultural inputs). The non-payment of these debts is a further driver of exclusion of small farmers. Actions aiming at the reinforcement of private initiative and the spontaneous organizations of farmers in the management of agricultural activities (collective purchase of inputs, tangible investments, negotiate selling conditions imposed on them by the agro-industry etc.) are rare.

Key products and regional food balance sheet

a. Key products produced and consumed in the region

In the region, vegetables food crops occupy an area of about 6000 ha divided on 4000 farms. The average total production of vegetables food crops has been around 3.2 million tons per year during the last five years. The sector represents 16% of the regional total value of agricultural production and 28% of that of the regional crop production. It is characterized by a diversity of products, the main ones being: tomato 55%, potato 25%, pepper 10%, and others 10%.

Tomato is the important commodity produced in terms of quantity by the region and it is grown annually by more than 3.000 growers on 800 to 1.200 hectares of cultivated lands each season. Tomato make up more than one third of overall vegetable supply. Average production exceeded 55,000 tons per year in the past decade. The tomato processing activity in Tunisia dates back to the beginning of the last century. It knew a significant growth, and nowadays there are 29 factories (ten of them at the regional level) with total daily processing capacity of 36.000 tons of fresh tomatoes. Most tomato plants have begun modernizing and increasing the capacity of their production facilities, and introduced quality management systems. About 85% of the tomato go to processing and is turned mainly into Double Concentrate Tomato (DCT). The processing activity starts by the half of July until September. The scale of sliced, peeled and dried tomato is marginal compared to DCT. Tomato consumption in Tunisia is the highest in the world with about 70 kg/y per person (Onagri, 2015). The DCT product is intended primarily for local consumption and second (nearly 20% of the production) for export to European union markets, Maghreb and African countries. About 20 % of the total amount is consumed in the region.

Peppers are cultivated in warm regions, and are well consumed locally due to their extensive use in the Tunisian cuisine. Pepper cultivation area at the regional level covers roughly 1,000 ha, with an average regional production of around 10,000 tons per year of fresh pepper of which 20% goes to the processing sector. Beside consumption of fresh peppers, a part of harvest is processed into a paste called harrissa or seasoning powder. Made from



concentrated red fresh pepper, the Tunisian canned harissa is considered among the most appreciated products of the Tunisian gastronomy. Tasted and valued by tourists, this product is becoming popular in the international markets. The main production areas are located in the Cap Bon (Northeast Tunisia), Kairouan and Sidi Bouzid (center Tunisia). Exports of this product are on the rise over the last decade. They have increased from 53 tons in 2005 to 471 tons in 2014. The main importers are Libya, France and the Gulf countries (GIL, 2015). During recent years, the exporters have witnessed an upswing reflected by the volume and the number of importing countries.

Potato has become an important commodity in Tunisia. The production of potato is done in four cropping seasons: the late season, the extra early season, the early season and the normal season. Exports of potato were on average about 11,000 tons for the past five years, mainly from the extra early season. Regions of cultivation include Cap Bon, Jendouba, Gafsa, Sidi Bouzid, Kasserine, Kairouan and the coastal area. Potato has become an important food base for Tunisian households since local consumption per capita per year is currently exceeding 30 kg (GIL, 2016; ONAGRI, 2014). Growing season goes from November to June. The regional average production is about 24,000 tons/year, grown on an average area of about 1,100 ha.

b. Balance of production and consumption of key products in the region

In 2017, the production and consumption of the key products in the region are presented in the following table: The main tomato products eaten in the region are fresh tomatoes and DCT. A significant portion of the vegetable food crops eaten by the residents of a region come from within or nearby that region.

Vegetables	Approximate amount produced in region (ton/year)	Approximate amount consumed in region (ton/year)	Balance (consumed - produced)	% surplus-deficit on total consumption
Potatoes	24000	7200	16800	70,0
Tomatoes	55000	9600	45400	82,5
Pepper	10000	3000	7000	70,0

c. Official statistics and key products in the region

Existing statistical are organized mostly by crop type. Statistics for tomato, pepper and potato crops are quite regulated regarding the efforts made by the ONAGRI (Agriculture National Observatory) and GIL (Inter-professional group for vegetables) statistics division to standardize the data. But statistics regarding the contributions of small-scale farming systems and small food business are quite limited at the local and regional scale and the criteria used vary depending on the type of study and require effective data collection and validation. Although accurate statistics are not available, figures reported from the respondents during the interviews, the collected data from a variety of sources and the cross checking of their consistency, show that small farms are active in both export-oriented markets and provides a significant share of the food supplies to domestic markets and to supply small-scale food processing companies.



Food system: Key nodes and flows and role of small farms and small food businesses

3.1. Key products: Tomato and red pepper

Tomato and pepper food system have several attributes in common and are almost identical. The two crops are closely related and they operate along each other in the regional food system. They require considerable labour and attention, show price sensitivity problems and can produce high incomes. The two products follow the flow together. The two crops are processed and sold in national market and for international export. SF producing and selling tomato are the same as the ones for pepper. Pepper and tomato production in Haouaria is now primarily controlled by a relatively small number of large corporate agribusinesses that have the ability to spread risk between multiple production centers and the resources.

The main differences for the two products are that tomato is highly perishable, particularly in summer, and farmers prefer selling of tomato production at a relatively low but stable price for transformation companies rather than take the risks of selling in the open market. Certain features of tomato production and marketing, while favourable to the use of contracts.

Another important difference is that the processing by small food business of red pepper are more developed within the region compared to tomato. The production of harissa dates back to the 17th century. The country is also the biggest exporter of harissa. It is estimated that the harissa value chain, which covers red pepper farmers, collection centres, small-scale producers and industrial companies, creates employment for around 25,000 people in Tunisia. Harissa has become the second most important export product of the country's canned food sector, both in terms of value and quantity.

- a. Nodes in the regional food system: production, processing, commercialization and retail

The most important nodes in the regional food system chain includes a network of people and organizations:

- 1) the suppliers (input dealers) and service firms (water user association for irrigation water distribution and management). Inputs used by small farmers for production basically include seeds, fertilizers and agro-chemicals. These agro-chemicals are sold by input dealers who have shops spread throughout the region. Some farmers, purchase these inputs from the stores or from the private processing factories;
- 2) the producers (small/medium), producers are related to contract directly with the processing factories, or intermediaries (collection centres,...) and interact with private companies selling agricultural inputs, seeds, pesticides, and other phytosanitary product. All negotiations aren't channelled through the collective action and the agreements/contracts proved to be vulnerable; the producers assume most of the risks associated with production and sometimes the risks of its marketing.



- 3) the distributors (collection centres, cooling chambers, private companies); responsibility to connect the small farms and small food business to the market for their products. They collect the production from farmers, supply the private processors companies of fresh product and control the distribution of the processed products to the retailers.
- 4) the processors (small food business; the artisan agri-food system, large agri-food industry), process and sell to local consumers within the locality or out of the region;
- 5) the vendors,
- 6) the small retailers;
- 7) the consumer (local, regional, national and international). A significant portion of the vegetable food crops sold in fresh, dry and powdered is eaten by the residents of the region who come from within or nearby the region. The rest are for export. Unlike the international consumers, the local consumers have no serious quality requirements.

b. Flows connecting the different nodes in the regional food system

The most important flows that connect these different nodes are supply-driven system in which influence was exerted upstream (machinery and inputs) and downstream (primary processing, trading and final foods), varying in accordance with the dynamic of different product characteristics. The two flows particularly vulnerable to external shocks in the chain were small agriculture farmers' products and small retail, both hammered sectors at the mercy of monopolistic tendencies.

These food-chain relations were alternately ratified or arbitrated at different instances and different moments through public regulation and legislation. Informal mechanisms in their negotiations with agribusiness, with governments and within the relevant global forum. The control of strategic resources (e.g. land, water, infrastructure, inputs) is a key source of control, which can give disproportionate weight to individual actors. Farmers and small business food have to have access to the basic supplies they need in order to produce crops and processed food. The most basic resources are access to land and water. As markets for inputs (fertilizers, seeds, chemicals,) become increasingly concentrated, the decisions that farmers can make about what to produce and where to sell become constrained. Food chains, dominated by transnational food retailers, determine many farm-level decisions, in that they shape the markets for inputs, including seeds. When farmers sell their products, they face highly concentrated markets.

As the related resource flows (e.g. of capital, production inputs, knowledge) and the exchanges of food products (raw, semi-processed or fully processed) can extend beyond the borders of the reference regions, it can be conceived that there might be flows into and out of the region.



c. Role of small farms and small food businesses within the food system

The production of tomato and pepper are for export of processed products (DCT tomato and harissa pepper paste) and food crops can be complementary. Producers are related to contract directly with the processing factories, or intermediaries (collection centres,...) and interact with private companies selling agricultural inputs seeds, pesticides, and other phytosanitary product. All negotiations aren't channelled through the collective action and the agreements/contracts proved to be vulnerable.

Tomatoes produced by small farms are delivered to the processors in bulk by the collection centres. This had a great impact on the quality of the delivered product: loss of volume for the lower level, over-ripening for the upper level. The impact on the nutritional quality of the product is certain, but difficult to quantify. Whether the collection centre or the industrial is responsible for transport, it is usually of poor quality. From production to the collection centre, transport is done in plastic crates. But the delivery to the industry, by the centre or subcontracted, is realized in bulk. In this case the tomatoes at the lower level are crushed, the sand is infiltrated.

The agri-industrialists finance the campaign of the small farms, by moving forward them inputs necessary for their production. In this case, it is to the industrialist that returns the freedom to choose the varieties. Small-scale business of red pepper is particularly active in short value chains where it has a comparative advantage for direct sale or to supply small-scale food processing plants. It is also able to position itself in export-oriented niche markets, as long as there is a favourable environment and adequate supervision.

d. Importance of household self-provisioning in small farms and small food businesses

The household self-consumption of small farms and small food businesses in the context of the regional food system is small compared to the processed one. As the monetary needs of agricultural households grow, and by extension their market integration, the share of self-consumption tends to drop. Small farms and small food businesses have the advantages in accessing to food but are usually connected to higher degrees of food processed by DCT. They are still dominated by larger units of processors (collection centre, private firms, company,...). A significant portion of the vegetable food crops eaten by the residents of the region come from within or nearby the region.

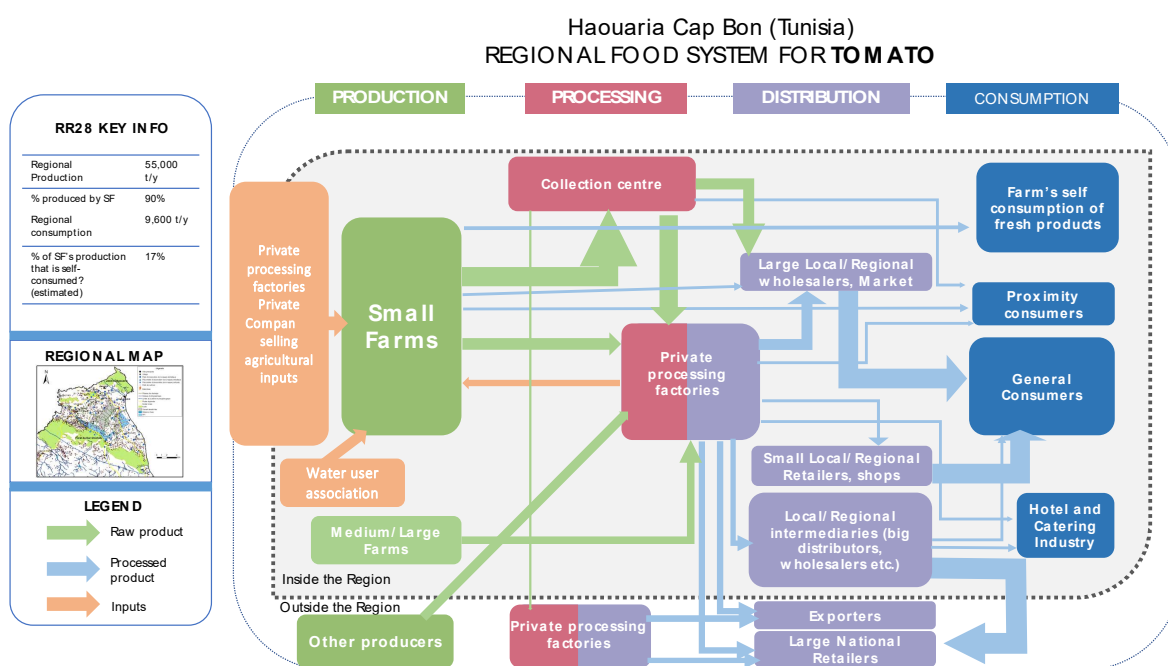
e. Other relevant information

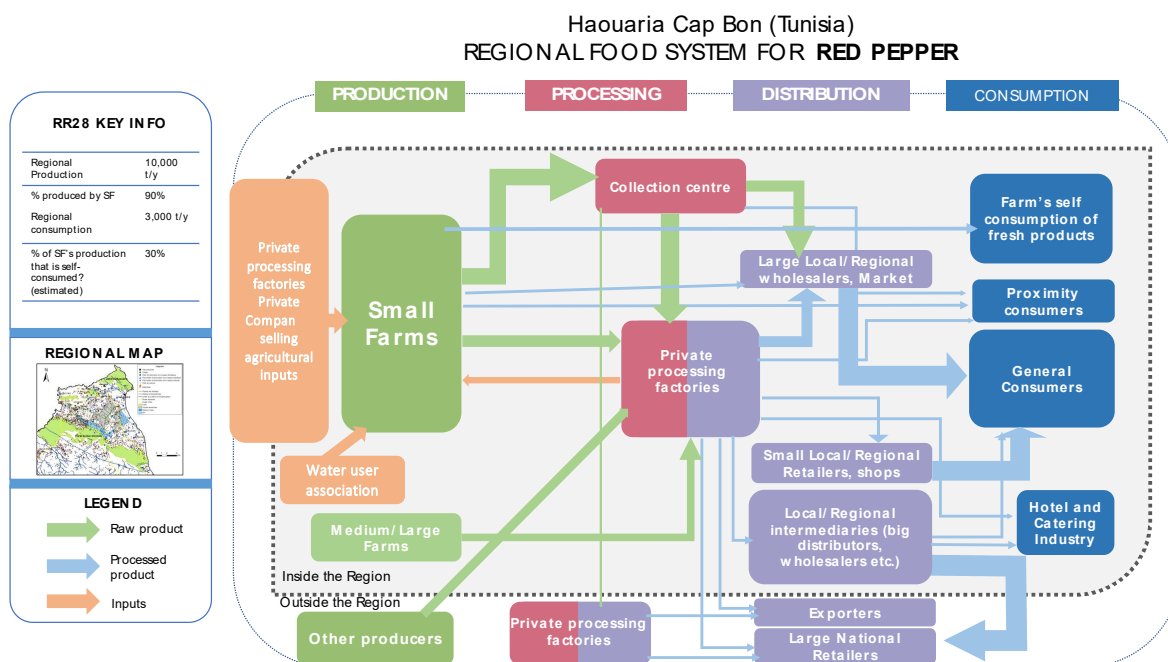
Overall, the organization of the tomato and pepper sector, although it has improved in recent years, remains unstructured, which leads to frequent delays and expectations on delivery, not beneficial for the nutritional quality of the raw material. Collection centres have no cooling, nor is any quality system installed. They do not add value. Processors make their own choice of tomato varieties without taking into account consumer demand or nutritional quality. The price, seasonality and organoleptic characteristics (texture, juiciness... etc.) of tomato and



pepper are the reasons for them to select one variety over the others. The collection centres, because of their informality, do not respect the standards of storage and transport conditions, causing large losses in volume and quality.

The high value-added processing of fresh tomatoes is also a promising niche. It is true to say that Tunisia is the world's biggest tomato consumer, and its tomato processing industry accounts for 90% of total fruit and vegetables processing in the country. However, the sector still only focuses on a single product: tomato paste. Local production of other tomato products (sauces, peeled tomatoes, tomato pulp, etc.) that are increasingly in demand due to increased purchasing power, is marginal. A move towards the upmarket segment and higher value-added products therefore offer great potential.





Farmers are not cooperating, their horizon of strategy is tomorrow, no use for investment to improve quality, because prices are controlled by the government. Banks don't give loans to most farmers since they lack the documentation for landownership.

Typology of small farms in the reference region

a. Small farm types in the region

Agricultural useful area (UAA) represents 60% of the total agricultural area of Haouaria region. About 64,6% of useful agricultural area is reserved for cereals, followed by legumes and fodder (18,4%). The farm holding size median in the study area is about 2,5ha, the average is about 4,9ha with a min 0,6 ha and max 20 ha. Breeding activity is present in 80% of cases. Sheep farms are the least represented (26,98%). The irrigated plain is about 30 % compared to the useful agricultural area. Field sizes are too small (mostly less than 1 ha).

After analysing the surveys in the small farms in the Haouaria plain, it was observed that diversification of irrigated agricultural activities is a main practice. The plain is characterized by the dualism between the market-oriented, irrigated agriculture of a small number of medium to large farms and the small-scale farms that produce for the export-market, consumption and for sale in local, urban and rural markets. In the observed farms, the head of the household are mostly men and the shares of the main cultivated crops are close. All interviewed farmers are originally from the region and their education and training levels vary from illiterate (20%), medium level of education (20% up to primary only, 20% up to secondary only) to those having technical skills or university degree (40%). Four important types of small farms are distinguished according to the following criteria: land ownership,



labour form (family work and relative importance of the hired labour), market relation and the perception of the future of the holding.

The land ownership (owner/lessee) is important because the problems with land property, undivided lands and allocation persist in the region, agreements between the landowner and lessee, despite the efforts from the government to establish a permanent regime of private property through the cadastre. Land inheritance has continuously created land partition and conflicts between heirs. The possibility to get bank credits is generally dependent on land property and the lack of formal or official land titles prevents small farmers from obtaining additional capital to improve their farm (e.g. deepen the wells or purchase new and more powerful pumps for irrigation investments). The regularization of a land property title or a sale contract also requires payment, sometimes not affordable for small landowners. While most farms are integrated into markets, we distinguish the following main four types varying from subsistence farming to market oriented.

Family farming, 100% landowner, predominantly of family labour without use of external labour is used with the head of the household participating directly in the production process; therefore; even when there is some division of labour, the head of the household does not just perform management responsibilities but is also a worker in the farm. Agriculture is the main source of income for the family, which may be complemented with other non-farming activities undertaken inside or outside the family unit (small agribusinesses, casual jobs, etc.). Access to credit is also less of an advantage, since these farms rely principally on family labour. Farmer say that with their personal involvement in their operations, are more likely to produce high quality products than farmers who must supervise hired labour forces.

Small farm, mixed ownership (landowner and lessee), mixed use of family labour and hired labour which is exclusively composed of paid labour (very few permanent employees, mostly occasional). Leasing is aimed to increase the security and income of their families while retaining their independence as owners and operators of their farm. They are characterized by having more “participatory” lease agreements. They are characterized by a medium farm income and access to credit.

Small farm, 100% land lessee under contractual arrangements, exclusively paid labour (very few permanent employees, mostly occasional). Medium off-farm income from multi-activity and lack of access to credit. Lessee bear all the risk of a bad season and they are not involved in decision-making of the farm.

Very small farms (less than 1 ha), landowner or lessee, very limited farm and off-farm incomes to the family. They do not have recourse to hiring an external labour force and are obliged to use their labour force for non-agricultural activities. They are characterized by a reduced income from multi-activity, do not have access to credit; and their access to financial services is insufficient.



b. Role of small farm types in the regional food and nutrition security

There was no obvious difference in the role does these types play in the regional food and nutrition, evidence indicates that food and nutrition in the region is more likely improved because: household farm and off-farm income from multi-activity is quite acceptable; contract crops have primarily displaced land and labour previously used on other cash crops rather than on subsistence food crops. The very small farms nutrition has possibly also improved as employment opportunities and annual incomes have risen, and their own subsistence household is maintained. Subsistence farms type are all farms of less than 1 ha size “self-consumption oriented holdings” with absent or limited access to sell their products in the market. Income-producing work such as raising chickens and collecting eggs, milking the cow, which they sell directly to consumers.

Small-scale family farming is particularly active in short value chains where it has a comparative advantage for direct sale or to supply small-scale food processing plants. It is also able to position itself in export-oriented niche markets, as long as there is a favourable environment and adequate supervision.

The market-oriented farms catch agricultural transitions and tend to be connected to diversification and specialization efforts. This type combines market orientation with off-farm activities: commercial ready subsistence producers and expanding commercial small holders.

Very few small farms are associated with production for their own household food needs and with a very low degree of market participation.

Governance

a. Main interactions of SF and SFB with governance structures in the region

Reform in agriculture, which began in the 1980s, has reduced government control over production, pricing, and distribution. As a result, there appear to be no major remaining restrictions on annual production and most agricultural products appear to be freely tradable. Reforms in the agricultural products manufacturing sector have the objective for achieving food security, by using human and natural resources with technology and capital in intensive way.

Institutional change and contractual agreements, as confirmed by all the stakeholders interviewed, have direct and indirect effects on the SFs and SFBs goods. They both have comparable direct effects on soil and water, since direct effects arise from the adoption of innovative and environmentally-friendly farming and water-saving practices that resulted in improved soil and water conditions. Indirect effects, instead, result from different processes: inter-branch cooperation in the case of institutional arrangements and market/price stabilisation in the case of the agreed rules and contracts.



The possibility to get bank loans is generally dependent on land property and the lack of formal or official land titles prevents usually small farmers and small food business from obtaining additional capital to improve their production conditions (e.g. deepen them or purchase new and more powerful pumps). Land fragmentation occurs due to traditional land inheritance practices. Land inheritance has continuously created land partition and conflicts between heirs. The possibility to get bank loans is generally dependent on land property and the lack of formal or official land titles prevents small farmers and SFBs from obtaining additional capital to improve their activities. Land access inequality also limits the access to state subsidies from small farmers and groundwater users. They struggle to access the market for agricultural inputs such as seeds, pesticides, and other phytosanitary products as observed in Haouaria by Ghazouani and Mekki (2016). As a result, farmers can easily accumulate debts (from the bank or also from the company selling agricultural inputs). The non-payment of these debts is a further driver of exclusion of these small farmers.

b. Levels of governance and their relative importance for SFs and SFBs

Governance in the regional food system comes from both the private and public structures, which interconnect and overlap. Governance makes markets work, since a clear understanding of rules can help provide the stability in the marketplace that entities are seeking. Governance in the regional food system is provided by a complex set of treaties, institutions and agreements between local, regional, national and pan-national institutions. Producers are related to contract directly with the processing factories, or intermediaries (collection centres,...) and interact with private companies selling agricultural inputs seeds, pesticides, and other phytosanitary product. All negotiations aren't channeled through the collective action and the agreements/contracts proved to be vulnerable. Standardization have been taking place simultaneously in the global food system, though. Standards have long been a tool of both domestic and international trade. However, they are now used as tools for "accessing markets, coordinating systems, enhancing quality and safety assurance, product branding and creating niche markets." Once there are fewer supermarkets globally, and those supermarkets can collaborate to set standards, then there is less access for those suppliers who do not have the capacity to meet those standards.

However, standard-setting is not often inclusive of suppliers (producers) who may not see the reason for certain standards, who may not want to change farming practices significantly to comply, or who simply lack the capital or expertise to comply with standards set outside of their domain.

National governments make fewer and fewer decisions regarding government policies related to the food system, such as the flow of goods and services into and out of the country. Instead of governments designing a major policy related to their food system, global firms – their board of directors and management – make decisions about the country's food system. The tomato sector, because of its traditional, cultural and economic importance, benefits from a support mattering on behalf of the State, on one hand, and on behalf of the extraprofessional organizations of support, on the other hand. Concerning tomato, the state is involved in the processed sector as in the fresh sector. The latter has the right to speak on



the boards of directors of the various support groups. By this link, it intervenes in the fixing of the reference prices of the raw material. In addition, the Ministry of Commerce and the Ministry of Industry work closely with the industry when administering the price of the double concentrate of tomatoes. UTICA (representing the companies) and UTAP (representing the farmers) negotiate on a regular basis on the reference price for fresh tomatoes and the distribution price for DCT 800 gram. Currently, the price of the double concentrate of tomatoes for the box of ½ (400 grams) is not regulated, but it is negotiated for the box 4/4 (800 grams). Moreover, the DCT margins of wholesalers and retailers are set by the state at 4% and 8%, respectively.

c. Constraints impairing full participation in the food system

The participation in the food system is tributary of the monopolistic powers over small producers. Some of the above-mentioned issues are related to the behaviour of actors; others to the development goals of the region in generally. Some of the interviewed farmers have better means to invest time and effort into the farms or small business and are thus more likely to participate in the food system. Other said that the present way they are producing will result in environmental degradation and will impact the food system in the long run.

d. External policies, decisions and social norms affecting food systems

A variety of interdependent external forces (policies, decisions and social norms) with which small farmers must deal induce a considerable room for conflicts of interest, exploitation, with internal dynamics changing significantly over time and might affect food security goals in the future but it's not clearly identified by the interviewed actors.

e. Gender issues intersecting governance issues

There are gender issues in relation to specific constraints applied to men or women. Agricultural households in general are led by men. Women-headed holdings or business are very limited compared to men-headed. At all the levels of the network chain male are dominating. The reason is that women undertake productive and domestic tasks which hamper their total productive capacity. But small farmers and business are often reliant on female labour (casual or permanent) which may be determined by increased multi-activity on the part of men and by a reduction in the population of farmers. Given that manual labour is increasingly less attractive to rural youth, women tend to take on an even greater workload. They are also facing constraints regarding access to land, and input/selling markets.

f. Other actors and processes important for the regional food system

To tackle the complaints of farmers and processors the government decided in 2017 that four tomato processing units will be processing tomatoes for quality processing in the coming summer season, highlighting the need to control weighing equipment and stating that a commission will control the weighing methods. The action will focus on organizing tomato collection centres, within the framework of the law and transparency, taking into



account the claims of farmers and industrialists. In this context GICA will work to implement the production contracts to ensure the win for both parties. At the collection centres no added value activities take place like sorting, washing, quality control.

g. Forms of collaboration and organization between small farms

Lack of collaboration and organization between small farms. Although some are belonging to a collective irrigated area, farmers never were able to decide on an effective course of collective action. Most farmers do not belong to a groups or association and they say that they have no idea about the role of the government in influencing the process of organization.

h. Forms of collaboration and organization between small farms and consumers

The increasing development of intensive agriculture, the industrial processing and the privatization of food marketing networks induced a weak relation between the consumer and the small farms. The present food production, and consumption, show asymmetric information in relation to food characteristics, origin and method of production. At the same time, in recent years, the farmer has faced a number of difficulties related to the inputs increase, to prices volatility and to international competition, which are leading to a dramatic decrease in income. In this context, the short food supply chain is one of the possible solutions to the economic sustainability of farm.

i. Relationship between small and large farms, and between small and large businesses

Large farms are mostly involved in agribusiness activities and their relation with the small farms is related to contract farming, whether oral or written, specifying one or more conditions of production and/or marketing of an agricultural product. Other large farms rent their land to avoid hiring labour or manage large-scale farming operations which may need technical expertise capacity.

Additionally, as the experience in Haouaria has shown, it is in many cases the small farms (who have more to lose) who are likely to participate in the dialogue between public authorities and water users. Larger farms on the contrary are very difficult to mobilize (since they stand to gain from free-riding) and a specific campaign targeting them should be developed.

No obvious relation between small businesses and larger ones.



Small Farms and rural livelihoods

a. Importance of household labour in SFs

Successful tomato and pepper production and processing depends on an adequate supply of labor to plant, nurture, harvest, and pack the crop. Unfortunately, many of the laborers are attracted by urban poles within the region or the country in relation to the competition for labor from the construction, fast food, hotel, and other industries that negatively impact the supply of labor. In relation to the work in the SFs and SFBs we distinguish: 1) Farms and SFBs with essentially family labor (and occasional hired temporary labor - "family farming"), employ contractors to undertake specific tasks such as land preparation and harvesting and they may employ casual labor to do special or skilled jobs. The head of the household participating directly in the production process; therefore, even when there is some division of labour, the head of the household does not just perform management responsibilities but is also a worker in the family unit; 2) Farms with family and permanent hired labor to run the agricultural holding and or food business, and 3) farms with exclusively hired labor. The owner may or may not be always on-site but is a responsible for key investment and production decisions.

b. Farm and non-farm income in the SF's households

Agriculture is the main source of income for the family, which may be complemented with other non-farming activities undertaken inside or outside the family unit (services related to rural tourism, environmental benefits, small-scale production, small agribusinesses, casual jobs, etc.). Similarly, a diversification of rural income sources to include off-farm income generating activities as well as other strategies including migration to urban areas have been recorded. Diversification towards off-farm income sources is another widespread phenomenon. For the case of the smallest family farms, this transformation towards diversified crop (or integrated livestock) systems may be related to self-consumption purposes.

There is a strong relationship between income and the diversification/specialization of households in terms of economic activities. After analyzing rural household surveys in the agricultural-based regions of Haouaria, it was observed that poorer households diversify to mitigate risks while households that are better off can make larger investments and begin to specialize.

c. Shocks and coping mechanisms of SF households

The challenges confronting smallholder farmers in the chain are small land holdings, irregular production from year to year due to weather variations, high production cost and marketing problems combined with limited profitability which is a very serious barrier for beginning farmers. Not enough labour (young people leave the agricultural sector and the average age of farmers in many states is over 50 years). The aging of farmers and the basic economics of farming in the region discourages younger generations from taking up farming, which has



sped up the conversion of agricultural land and consolidation of food systems. variability in price, time between harvest and actual transport to collection centres which causes quality decay; no added value at the collection centre itself, no quality incentive, no standards. Incentives could help stimulate the need for a new generation of farmers, no collective actions, poorly enforced rules and arrangements.

Cuts in farm subsidies, farm price liberalization and the reorganization of the agricultural credit system have significantly altered the economic environment of farming activities and have been manifest in major transformations in patterns of rural livelihoods. These transformations indicate a major break in the conditions defining household access to land, i.e. a weakening of land-rights based on family survival and a reconstitution of these rights in favour of those who can use farm land as a means of production.

Lastly, a pattern of agriculture sectors and food systems well connected to small-scale family farming is indispensable to creating rural jobs in the services sector (supply, marketing, processing, insurance, financing) and to adding value to agricultural and para-agricultural jobs, which will be reinvested in a virtuous dynamic in rural areas. Because of their attachment to the territories, farmers' organizations may play a key role in this dynamic.

Role of Small Food Businesses

a. Main insights and patterns

Haouaria region has a rich farming and agricultural history and people have valued and used spices for centuries. Spices are a common ingredient in many dishes. The spice business production is an industry and creates a significant source of revenue from local consumption and export. Harissa, red peeper powder processing is made partly in small private firms and partly in large ones. Small ones with less than 10 employees are specialized in semi-finished products (dried pepper), and in processing finished products (red pepper powder or pepper paste) to be sold under own private label or for third parties. Pepper products account for 20% of the total volumes of the processing of the supply chain among which we find well-structured old family small business, small pepper pastes processing businesses, and businesses that process mainly other vegetables than pepper.

b. Labour in SFB work

In relation to the work in SFBs we distinguish: 1) SFBs with essentially family labor and permanent hired labor), and 2) SFBs with occasional hired labor.

c. SFB income

With regards to the income, pepper processing is one of the listed high income horticultural crops recommended to be cultivated. People are engaged in income generation activities at various levels in the chain. The product is purchased directly from the processor by



consumer on a face-to-face basis and it is also translated to consumers who are outside of the region. Authenticity and trust are mediated through personal interaction. Degradation of the activity due to the high cost of production and the lack of access to subsidies and other types of support.

d. Shocks and coping mechanisms of SFB households

The challenges confronting SFB in the chain are financial problems. As stated by them, “our biggest problem is high cost of inputs and production costs, and unavailability of financial assistance”. Since most of them are without capital to invest in the business. This problem is compounded by the fact that they are not getting financial assistance from the financial institutions in the form of loans. The high cost of inputs is also due to the depreciation of the dinar (Tunisian currency) to the dollar and the euro in the currency market; which effects imported inputs. There is also poor infrastructure which does not allow all year-round production.

The Future

a. Main objectives and priorities of SF for the future

Although struggling under present circumstances, some small farms are very optimistic about the future and hope to increase their productivity and the storing facility or at least keep their production at the same conditions. Those with landownership and with family aid wish to change to other projects on arboriculture or increasing livestock which could increase their farm income. Some have more expertise and project to shift to organic farming that would be better in terms of economic revenue and environmental conditions. Lessee farmers since they lack the documentation for landownership are more pessimistic about the future. In general, farmers are not cooperating, their horizon of strategy is tomorrow, no use for investment to improve quality, because prices are controlled by the government banks don't give loans to most. New farming structure requires a new market infrastructure for farm services, including channels for sale of products and delivery of farm inputs, as well as provision of extension, training, and advice services for the small private farmers. Government policies should be designed to take these new factors into consideration.

b. Main objectives and priorities of SFB for the future

Farmers wish to improve the quality of the product, others wish to expand the project in the future. Other is very pessimistic about the future of the fresh tomato and pepper market; the problems of this sector are seen as intractable and wish to develop a new project on milk collection centre.



c. Risk perception by SF

There was no obvious difference between farm in their perception of the risk. The perceived risk for the small farms farming activity includes: the high costs of production inputs and labour, the inadequate financial assistance, the monopolization of markets by collection centres, wholesalers and private processing firms in the local market based chains and the export oriented market, the low income, the water resources shortage, the soil degradation, the climate change, crop diseases and the market instability selling prices. Young people are not interested in working in agriculture because of the lack of financial resources and the government doesn't encourage them.

d. Risk perception by SFB

The perceived risks for the small food business activity include: the high costs of production inputs and labour, the inadequate financial assistance, the monopolization of markets by collection centres, wholesalers and private processing firms in the local market based chains and the export oriented market. The low income and the succession issues; ageing farmers and young people aren't attracted by this business.

e. Food system forecast in 5, 10 and 20 years

Change in the map in 5-10 years aren't perceived but in 20 years, the main changes would be the following: the high demand for the food products both locally and internationally, the springing up of new markets in the local market with availability of supporters to give technical and financial assistance to positively impact the local economy through: new or retained jobs, increased sales and a more diversified local economy that could make businesses more secure and stable; the organization of tomato collection centres, within the framework of the law and transparency, taking into account the claims of farmers and industrialists, implementation of the production contracts to ensure the win for different parties, encouraging farmers to adopt more environmental friendly production systems (e.g. organic farming); developing more informed purchasing decisions and consumer interest about the environment.

f. Other future related issues

Even though land and water resources are the two main natural resources allocated for agricultural production, the latter is the most limiting factor. Therefore, it occupies the highest interest in the future vision of sustainable agricultural development.

To tackle the complaints of farmers and processors the government decided in that four tomato processing units will be processing tomatoes for quality processing in the coming summer season, highlighting the need to control weighing equipment and stating that a commission will control the weighing methods. The action will focus on organizing tomato collection centres, within the framework of the law and transparency, taking into account the



claims of farmers and industrialists. In this context GICA will work to implement the production contracts to ensure the win for both parties.

Climate changes, political and economic risks affect enormously domestic agricultural production and food trade, affecting food supply per capita, highly variable over the years.

At the same time, in recent years, the farmer has faced a number of difficulties related to the inputs increase, to prices volatility and to international competition, which are leading to a dramatic decrease in income. In this context, the short food supply chain is one of the possible solutions to the economic sustainability of farm.

The reconfiguration of supply chains is an important mechanism underlying the emergence of new rural development practices.

In order to achieve collaboration and organization between small farms, new innovations in the mechanisms for distributing value among producers and processors at the local level are needed.



Annex: List of resources

a. List of key experts interviewed

Key stakeholder typology	Institution	N° of participants
Farm inputs suppliers	Agriplant	1
	Selectplant	1
Advisory services	GDA (Groupement de Développement Agricole)	2
	Water management and use, and agricultural development in general in the Haouaria Plain.	1
Agricultural administration/Ministry of Agriculture	Agricultural Development Regional Office (CRDA, Commissariat Régional au Développement Agricole)	1
Local administrators and policy makers	Women's Committee (Haouaria Municipality)	1
	Environmental Affairs Committee (Haouaria Municipality)	1
	Environmental Affairs Committee (Dar Allouche Municipality)	1
	Dar Allouche Municipality	1
Other programs/initiatives	CTV (Cellule Territoriale de Vulgarisation)	1
	Tunisian Union of Industry, Commerce and Crafts (UTICA, Union Tunisienne de l'Industrie, du commerce et de l'artisanat)	2
NGOs	Agro-ecological Farm Project « Le Coin Perdu » (Projet d'une ferme Agro-Ecologique)	1
Total		14

b. SF and SFB interviews and focus groups information

Stakeholders	Interviews			How were they contacted?
	Men	Women	Total	
Farmers	16	1	17	All interviews were done in person
Producers' cooperatives				
Slaughtering facilities				
Processors (small/large)	5	1	6	
Wholesalers	1		1	
Retailers	1		1	
Caterers				
Other small food business	1	1	2	
Total	27			



4.29. RR29 East Scotland –UK– Food System Regional Report



WP3

Perth and Kinross, and Stirling (RR 29) –United Kingdom– Food System Regional Report

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Social, Economic and Geographical Sciences Group
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Table of Contents: Food System Regional Report

1) Socio-economic and agricultural profile of the reference region.....	805
2) Key products and regional food balance sheet.....	807
3) Food system: Key nodes and flows and role of small farms and small food businesses.....	808
3.1. Key product 1: Beef.....	808
3.2. Key product 2: Lamb meat	810
3.3. Key product 3: Mixed horticulture.....	812
3.4. Key product 4: Potato	814
4) Typology of small farms in the reference region.....	816
4.1 Horticultural smallholdings.....	817
4.2 Third sector, charitable and community enterprises	817
4.3 Livestock smallholdings	817
5) Governance	818
6) Small Farms and rural livelihoods	820
7) Role of Small Food Businesses.....	821
8) The Future	823
9) Annex: List of resources	825



Socio-economic and agricultural profile of the reference region

RR29 includes an area of the southern Highlands and parts of two national parks. The northern part of the reference region is an upland and mountainous landscape, including forests and lochs, but most of the south of RR29 is at relatively low altitude, including lowland river valleys. The cities of Perth (population: 47,430 in 2016) and Stirling (49,830)⁵⁶ are also situated in the south of RR29, along with several smaller towns connected by busy road and rail links. Therefore, there is a ‘split’ in the landscape and population distribution of RR29. 3.1% of employed residents in RR29 work in the land-based sector (agriculture, forestry and fishing), compared with 1.7% of those in the whole of Scotland⁵⁷.

Farmland in the uplands of RR29 is dominated by low quality land, only suitable for rough grazing, however in contrast the lowlands around Perth contain high quality farmland supporting arable agriculture⁵⁸. The agricultural data in Table 1 emphasises the wide range of high-value crops produced in the reference region. More extensive grazing dominates the output in the uplands and higher valleys, while to the south crops are the main output of the region⁵⁹. This area has seen a large expansion in soft fruit production in polytunnels where previously most was grown in open fields.

Table 1: Basic data for the region

Indicators	Data per Region - Nuts 3
Land size (km2)	7,449.9 ⁶⁰
Population (thousands of people)	244.43 (2016) ⁶¹
Density (people/km2)	32.8
GDP (thousand USD/inhabitant)	39.922 (2016) ⁶²
Total labour force in AWU	3,051
Total number of holdings	3,176

⁵⁶ Figures from National Records of Scotland (2018) Mid-2016 Population Estimates for Settlements and Localities in Scotland [Microsoft Excel workbook]. Available at <https://www.nrscotland.gov.uk/files//statistics/settlements-localities/set-loc-16/tabs/2016-pop-est-sett-local-alltabs.xlsx>. (Accessed 8th November 2018). Data: © Crown Copyright 2018. Data supplied by National Records of Scotland.

⁵⁷ Derived from Scotland's Census (<http://www.scotlandscensus.gov.uk/>). Standard data files, Council Area 2011. © Crown copyright 2013. Data supplied by National Records of Scotland.

⁵⁸ Land Capability for Agriculture in Scotland: The Macaulay System Explained. Available at http://www.hutton.ac.uk/sites/default/files/files/soils/lca_leaflet_hutton.pdf (Accessed 3rd September 2018).

⁵⁹ Based on Scottish Government RESAS mapping of “Farm type by agricultural parish, 2016”. Available at <http://www.gov.scot/Resource/0052/00521305.pdf> (Accessed 3rd September 2018)

⁶⁰ Derived from GIS analysis of a) Office for National Statistics: NUTS Level 3 (January 2018) Generalised Clipped Boundaries in the United Kingdom. Contains National Statistics data © Crown copyright and database right [2018]; Contains OS data © Crown copyright and database right [2018]. b) Ordnance Survey: Meridian™ 2 (lakes). Contains Ordnance Survey data © Crown copyright and database right 2015.

⁶¹ National Records of Scotland: Nomenclature of Units for Territorial Statistics (NUTS3) Population Estimates by sex and single year of age, 2011-2016. © Crown Copyright 2017. Data available at <https://www.nrscotland.gov.uk/files//statistics/population-estimates/special-area-2011-dz/nuts/2016-nuts-pop-est-tab2.xlsx> (Accessed 3rd September 2018)

⁶² Based on Eurostat: Gross domestic product (GDP) at current market prices by NUTS 3 regions [nama_10r_3gdp] (Last update: 28-02-2018) (Accessed 3rd September 2018) converted using exchange rate of €1:\$1.1385 (31st March 2016). Source: European Central Bank website (https://www.ecb.europa.eu/stats/policy_and_exchange_rates/euro_reference_exchange_rates/html/eurofxref-graph-usd.en.html) (Accessed 3rd September 2018), divided by population figure given above.



Total Agricultural area (ha)	597,195.9
Total Utilized Agricultural Area (ha)	535,064.1
Agricultural Area in Mountain Area	362,279.0ha
% of UAA in the RR	67.7%
Average Farm size	Median: 19.0ha (UAA)
Number of farms by UAA farm size: 0-5, 5-20,20-50, >50ha	]0-5ha[: 1,041 farms [5-20ha[: 574 farms [20-50ha[: 404 farms >= 50ha: 1,157 farms
Average size of farms < 5ha of UAA	Median: 1.9ha (UAA)
Area of main crops (ha) (list the relevant crops below)	Barley: 27,989.3ha Wheat: 11,719.8ha Potatoes: 4,979.3ha Oats, triticale, mixed grain: 4,750.6ha Horticultural crops: 3,905.2ha Industrial crops: 2,110.6ha Forage crops: 1,547.8ha Dried legumes for grain: 607.1ha Fruit: 372.5ha
Area of main crops (ha) in farms < 5ha of UAA (list the relevant crops below)	Cereals (all)*: 54.2ha Potatoes: 12.2ha Forage crops: 8.1ha Horticultural crops: 6.9ha Fruit: 3.1ha
Livestock (LSU) per type (list the relevant types below)	Sheep: 72,255.0LSU Cattle (all): 70,891.1LSU Dairy cows: 11,414.0LSU Poultry: 6,654.1LSU Horses: 2,451.2LSU Pigs: 1,583.6LSU Goats: 29.9LSU
Livestock (LSU) per type in farms < 5ha of UAA (list the relevant types below)	Poultry: 3,179.1LSU Sheep: 743.2 LSU Horses: 416.8LSU Cattle (all): 149.9LSU Pigs: 23.3LSU Goats: 12.9LSU
Annual work units (AWU) by UAA farm size:0-5, 5-20, 20-50, >50ha	]0-5ha[: 193.0 [5-20ha[: 259.0 [20-50ha[: 311.3 >= 50ha: 2,287.8
Total family labour per farm size: 0-5, 5-20,20-50,>50ha	]0-5ha[: 11.0AWU [5-20ha[: 16.0AWU [20-50ha[: 24.0AWU >= 50ha: 178.0AWU

All figures except land size, population, density and GDP are derived from the 2016 June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, Rural and Environment Science and Analytical Services Division, Scottish Government. Note that figures shown do not include data from holdings with a utilised agricultural area of 0ha, and that some figures have not been published for disclosure reasons. Annual work units calculated using farm labour types in the Agricultural Census and suitable coefficients. Livestock



units calculated using coefficients of Eurostat⁶³ and Nix (2003)⁶⁴. *: Cereals (all) = barley, wheat, and oats, triticale and mixed grain.

The current structural arrangements for agriculture in RR29 rely heavily on farm subsidies paid within the framework of the Common Agricultural Policy. In 2016 the referendum on EU membership triggered the ongoing Brexit process. As of November 2018, the implications for UK agriculture and food production are highly uncertain. Analysis covering the Highlands and Islands of Scotland⁶⁵ indicates a likely reduction in upland farming with further negative ‘knock on’ impacts on the economy, including the food and drink sector. Similar impacts could affect the marginal areas of RR29. Additionally, intensive fruit and vegetable farming in Scotland relies on labour from seasonal migrants. Indigenous community involvement in harvesting has declined over the last 50 years as a result of socio-economic and cultural processes, not least demographic changes and urbanization. Sparsely populated regions of Scotland, including the uplands of RR29, have collectively lost population from 1991 onwards, and projections suggest a substantial future population decline⁶⁶. There are concerns about the loss of free movement leading to a labour shortage, however it remains unclear how any of this will affect small farms or the production of key products. Land reform is also affecting Scotland’s rural landscape. Historically Scotland has a large proportion of land owned by a small number of owners. In 2017, the Scottish Land Commission came into being with a broad remit to improve access to land for all, including a key ambition to encourage new entrants to farming.

Key products and regional food balance sheet

a. Key products produced and consumed in the region

At the larger scale, RR29 is an arable region producing barley, wheat and grass with significant areas of potatoes. There are also areas of specialist crops such as soft fruit, vegetables and oats for human consumption⁶⁷. However, this list bears little relevance at the SALSA scale at which RR29 shares more similarity with RR30, producing cattle, sheep, horticulture and potatoes. Arable agriculture and soft fruit production is rarely viable at the small scale. It is important to recognize that SALSA’s scale of production both within RR29 and throughout the UK, often equates to operations that are not commercial ventures or are not the main activity for those involved.

⁶³ [http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Livestock_unit_\(LSU\)](http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Livestock_unit_(LSU)) (Accessed 23rd June 2018)

⁶⁴ Nix, J. (2003) Farm Management Pocketbook 34th Edition (2004). Imperial College London, Wye Campus. Data reproduced by DEFRA, available at <http://adlib.eversite.co.uk/adlib/defra/content.aspx?id=000il3890w.198awldohj69f3> (Accessed 23rd June 2018)

⁶⁵ Moxey, A. and Thomson, S. (2018) Post-Brexit implications for agriculture & associated land use in the Highlands and Islands. Report to the Highlands & Islands Agricultural Support Group: May 2018. Available at https://www.sruc.ac.uk/download/downloads/id/3702/post_brexit_implications_for_agriculture_and_associated_land_use_in_the_highlands_and_islands.pdf (Accessed 15th October 2018)

⁶⁶ Copus, A. and Hopkins, J. (2018) Demographic change in the Sparsely Populated Areas of Scotland (1991-2046). Available at <https://www.hutton.ac.uk/sites/default/files/files/research/srp2016-21/RD3.4.1%20Note%20WP1-3%20web%20-%20published.pdf> (Accessed 15th October 2018)

⁶⁷ Hay, R.K.M., Russell, G., Edwards, T.W. (2000) Crop Production in the East of Scotland: A Handbook. Scottish Agricultural Science Agency: Edinburgh.



That said, some products are more suitable to small scale production, regardless of whether they are profitable. For example, both cattle and sheep can be kept on a relatively small plot, and mixed horticulture, particularly high value salad leaves, are produced by those trying to make a profit from farming on small holdings. Agricultural data (Table 1) shows that from approximately 3,900 hectares of horticultural crops in RR29, only a tiny proportion of this (6.9ha) is cultivated on small farms: the considerable area of high-quality farmland makes large horticultural farms economically viable in this region. Similarly, small farms in RR29 contain just over 12 hectares of potatoes, a tiny fraction of the total area of potatoes in RR29 overall (almost 5,000 ha). Small farms in RR29 also hold just c. 1%⁶⁸ of lambs in the region, indicating that they make a minor contribution to overall lamb meat production.

b. Balance of production and consumption of key products in the region

It is difficult to estimate the production at the small scale, beyond observing that it is a minor component of overall production in the region. Small scale horticultural products tend to be consumed within the region because they operate along short supply chains. This does not necessarily apply to livestock where keepers can supply the national market through livestock marts or largely centralised abattoirs.

c. Official statistics and key products in the region

An annual Agricultural Census enables detailed data collection on agricultural land use, farm tenure, crops area, livestock/animal populations and farm workforce but due to disclosure control constraints, the access to farm-level Agricultural Census statistics is restricted and the detail in published statistics is limited. While data can be combined to provide estimates of the production of food products and their value, expert input is required to assess how 'key products' are manufactured, the flows of inputs and outputs and the role of small farms in these processes. It is also important to note that production outside of agricultural holdings will not be recorded in the Agricultural Census.

Food system: Key nodes and flows and role of small farms and small food businesses

3.1. Key product 1: Beef

- a. Nodes in the regional food system: production, processing, commercialization and retail

⁶⁸ Based on June Agricultural Census (2016) data (data tables courtesy of Agricultural Census Analysis Team, Rural and Environment Science and Analytical Services Division, Scottish Government).



Key informants (KIs) included a consultant working for a public body advising the Scottish red meat sector regarding efficiency and profitability, representatives (2) from a national union representing farmers, a representative of a Scottish smallholders' association and an influential practitioner involved in training and proselytizing small farming. KIs identified a region comprised of different parts with significant cattle operations exploiting higher quality land particularly in the Stirling and Loch Lomond area and around Perth and Blairgowrie. Land type was said to heavily determine production. To the west and north of the region, upland and mountain areas tend to exclude arable farming which is dominant on the highest quality land while better upland grassland supports beef production. There is dairy farming to the south (again around Perthshire) but not on a small scale as it is not considered viable.

One barrier to small scale beef is the lack of local abattoirs. A small abattoir in Dunblane recently closed and the two big plants within the region are not geared to take private kills, small batches or horned breeds like the more traditional smallholder's favourite, Highland cattle. We were told; *“a lot of the big abattoirs, they won't take small, because it holds up their line”* and *“they don't like horns”*.

Another market channel used by some smallholders is the store cattle system whereby cattle are sold, aged around 12 months to be fattened or finished elsewhere in areas like Aberdeenshire where the superior quality of the pasture negates the requirement for supplementary feeding. Auction rings at Perth (x2: United Auctions and Caledonian Mart) and Bridge of Allan (Scotchbeef) are important nodes.

b. Flows connecting the different nodes in the regional food system

Small scale keepers wishing to consume or sell beef need to access slaughter facilities outwith the region (e.g. in Aberdeenshire). This logistical constraint is an important disincentive. Despite the time and fuel costs, and their concerns regarding animal welfare, there are some small farmers aka smallholders, willing to transport animals to more distant facilities. Following slaughter these animals are generally either butchered at, or near to, the abattoir before the prepared cuts are retrieved by the producer and distributed either within the region to family and friends, local butchers or catering outlets, at farmers markets or further afield via internet sales. This type of production, though diminutive in relation to the overall beef production in RR29 is niche, high value and much sought after though rarely lucrative despite being more expensive compared to commercially produced beef. It is also important to recognise from a food system perspective that beef is the preferred Scottish meat product over lamb and pork. *“Beef is King”* according to a local butcher. Local butchers remain an important channel despite the dominance of supermarkets. Beyond butchery there is little meat processing in this region.

c. Role of small farms and small food businesses within the food system

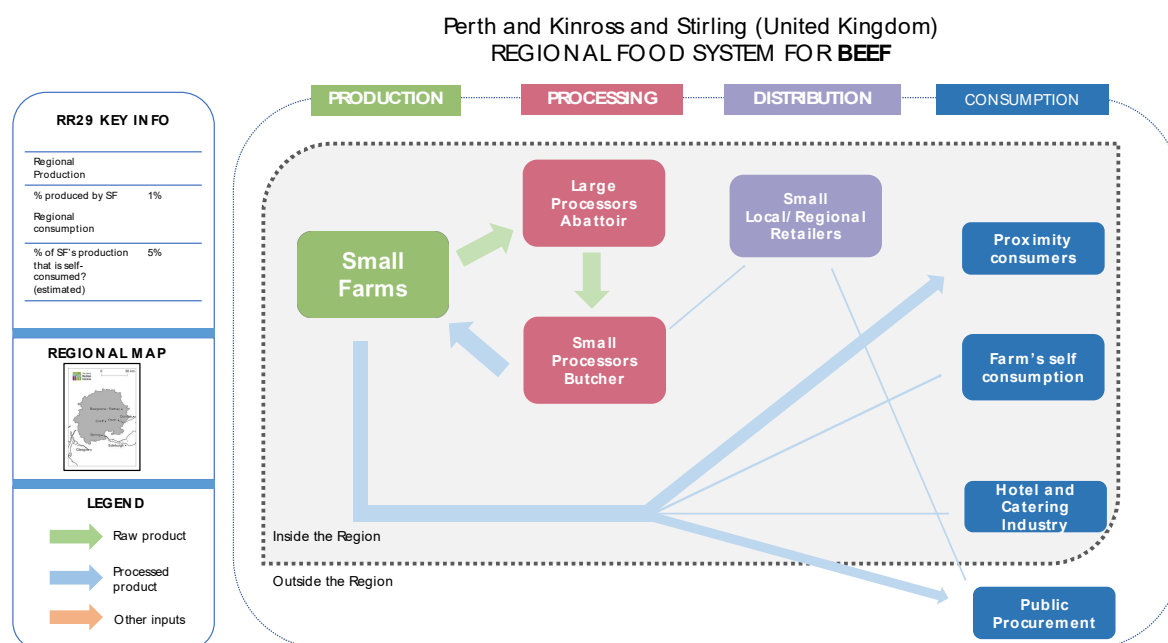
Farm shops are numerous in this region, however, they tend to be SMEs that are not geared to interact with SALSA scale producers. Farmers markets and food assemblies, which occur in many areas including Aberfeldy, Pitlochry, Perth, Stirling, Loch Lomond Shores and



Kinross, are a popular way of distributing produce and/or building relationships with consumers. As producers generally have an income independent of the farm it is evident that keeping livestock is a lifestyle choice not a necessity. Smallholders generally barely break even, let alone make money when producing beef, thus any financial shocks to the household will have an impact on their continued production. Adverse weather events and economies of scale have a major impact on the viability of production at this small scale due to additional feed costs and grazing lost through trampling and poaching.

d. Other relevant information

In contrast to the situation in RR30 where a significant percentage of the production of beef takes place on small farms, most small farmers in RR29 prefer to keep sheep. Farmers that do have cattle generally only keep a couple of breeding cows and followers, often heritage or “smallholder” breeds like Highland or Dexter which are known for their good temperament, hardiness and ease of handling.



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3.2. Key product 2: Lamb meat

- Nodes in the regional food system: production, processing, commercialization and retail

Many of the same geographical and topographical factors are similar for the beef and lamb sector. Sheep production is largely restricted to the north and east. Also following the pattern



of beef, most sheep production in RR29 is at a larger scale than we are concerned with in SALSA. The few small-scale sheep keepers are a heterogeneous group and are difficult to typify. They range from farmers raising store lambs extensively using commercial breeds and replicating big sheep ranches at a smaller scale, to hobbyists with one or two rare breed sheep produced solely for home consumption, with lots of variation between the two extremes. The configuration can depend on the quality of the grazing, the amount of labour being devoted to the enterprise (it may be a hobby or a full-time venture), the logistics in terms of distance to market or abattoir and the preferences of the farmer.

b. Flows connecting the different nodes in the regional food system

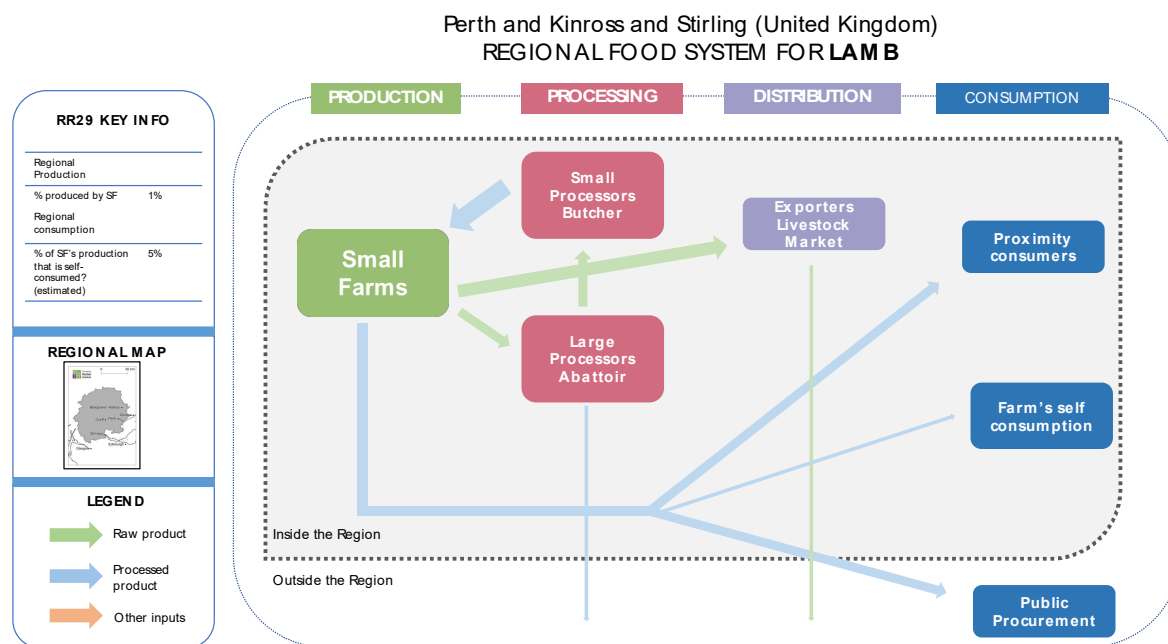
Marts and abattoirs present the same constraints for sheep as for beef. Farmers can be discouraged by having to drive long distances to marts where low prices are paid for small batches or traditional breeds. Commercial breeds are texel, black-faced, and cheviot and other breeds struggle to attract premium prices due to market orientation towards standardized slaughter weights. Abattoirs act as a greater constraint by refusing small batches that “*hold-up the line*”.

Sheep keepers face many of the same risks as cattle keepers. They often have the same household structure, with one or both partners working full time and reported that, in general, livestock production within RR29 is a lifestyle choice not a commercial enterprise.

c. Role of small farms and small food businesses within the food system

Supporting sheep keeping enterprises and thereby indirectly linked to the food system is the bi-production of wool. Being able to sell wool adds value to the livestock. However, KIs and sheep keepers reported that there was no easily accessible value chain. Knitting is a popular activity throughout Europe and retail prices are high, however to get saleable products to market, producers need to have the wool processed outwith the region. One such processor willing to take small batches was based in the South West of England (~850 km from RR29). With wool spun, dyed, made into balls and returned to the farm, the farmer then needs to sell directly through the internet or at small markets and the lack of cooperative organisation was a constraint. One failed co-operative initiative was reported whereby a stall was organised at a national event selling wool from several small producers. The commitment required from individuals to travel and act as stall holders proved short-lived.





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3.3. Key product 3: Mixed horticulture

- a. Nodes in the regional food system: production, processing, commercialization and retail

Small-scale farmers in RR29 are often engaged in horticulture, producing small quantities of mixed vegetables for short supply chains including farmers markets, farm gate sales and box schemes (Figure 3). The nature of this cultivation typically entails individual farms managing a wide range of seasonal products subject to variability as the producer responds to changing opportunities and learns through practice. Many producers did not grow a fixed range of vegetables over a five-year period, rather they experiment and follow trends in the market. An exemplar of a changeable opportunity is the Stirling Food Assembly. This social innovation operated for two years (October 2016 to September 2018) allowing small producers to deliver pre-sold items to a central collection point, and it shaped some of the demand that small producers were able to supply. Recently this node has closed revealing the instability of novel social innovation models.

- b. Flows connecting the different nodes in the regional food system

Farmers' markets, box schemes and farm gate sales account for the majority of sales for vegetable and salad producers. One of the most important selling points for horticultural producers and businesses is their locality. As salad leaves and some vegetables are perishable,



the products need to reach customers quickly after harvest. A nearby and reliable customer base is thus essential to many growers. Vegetable boxes which are predominantly sold to private individuals are delivered both within and out with RR29. The SFBs that operate such box schemes, are often competing with similar products locally so many deliberately seek different markets from their nearest competitor.

Farmers' markets are noted as the main access to market for salad and vegetable producers although producers commented that they did not provide a reliable secure income due to the fickleness of customer base, competition, cost of stalls and the time spent attending such markets. However, they were seen as a good way of interacting with existing and prospective consumers. Seeking novel markets and offering delivery to different areas however incurs significant transportation and fuel costs. The rising cost of fuel is of valid concern for many vegetable and salad growers. In response, businesses may offer the local community the option to collect their box from the farm which is particularly attractive to consumers able to make the journey by bike or on foot. At the holding they may choose or exchange the vegetables in their box and meet the producer. This customer interaction was said to be important in fostering strong social community relationships, giving producers the chance to accept feedback and share their experience and knowledge with interested parties.

c. Role of small farms and small food businesses within the food system

More traditional farm shops and farmers' markets are a feature of RR29. The region is significantly more populous than RR30 (2017 population: 245,100 compared with 99,571⁶⁹), contains the cities of Perth and Stirling, and is more accessible to Scotland's large cities (Glasgow, Edinburgh and Dundee) and is therefore able to support more of these retail outlets. Despite the availability, these retail channels remain niche in relation to the wider food system that is dominated by national supermarkets. Transport is also significantly less challenging than in RR30, again due to proximity of urban centres and good infrastructure. Processing is not particularly well developed within the region although this key product can be washed and packed for direct sales.

d. Importance of household self-provisioning in small farms and small food businesses

As well as growing vegetables for market, many horticulturists grow other vegetable crops purely for their own household consumption. These are a mixture of new vegetables being trialled for future sale and those that were never intended for market. Many horticulturists have referenced an influential market gardener in Canada, Jean-Martin Fortier⁷⁰, whose model they try to emulate in Scotland. One of the key tenets seems to make the available

⁶⁹ Figures from National Records of Scotland (2018) Nomenclature of Units for Territorial Statistics (NUTS3) Population Estimates by sex and single year of age, 2011-2017 [Microsoft Excel workbook]. Available at <https://www.nrsotland.gov.uk/files//statistics/population-estimates/special-area-2011-dz/nuts/nuts-pop-est-17-tab2.xlsx> (Accessed 8th November 2018). Data: © Crown Copyright 2018. Data supplied by National Records of Scotland.

⁷⁰ Fortier, J.-M. (2014) *The Market Gardener: A Successful Grower's Handbook for Small-scale Organic Farming*. New Society Publishers, Gabriola Island.

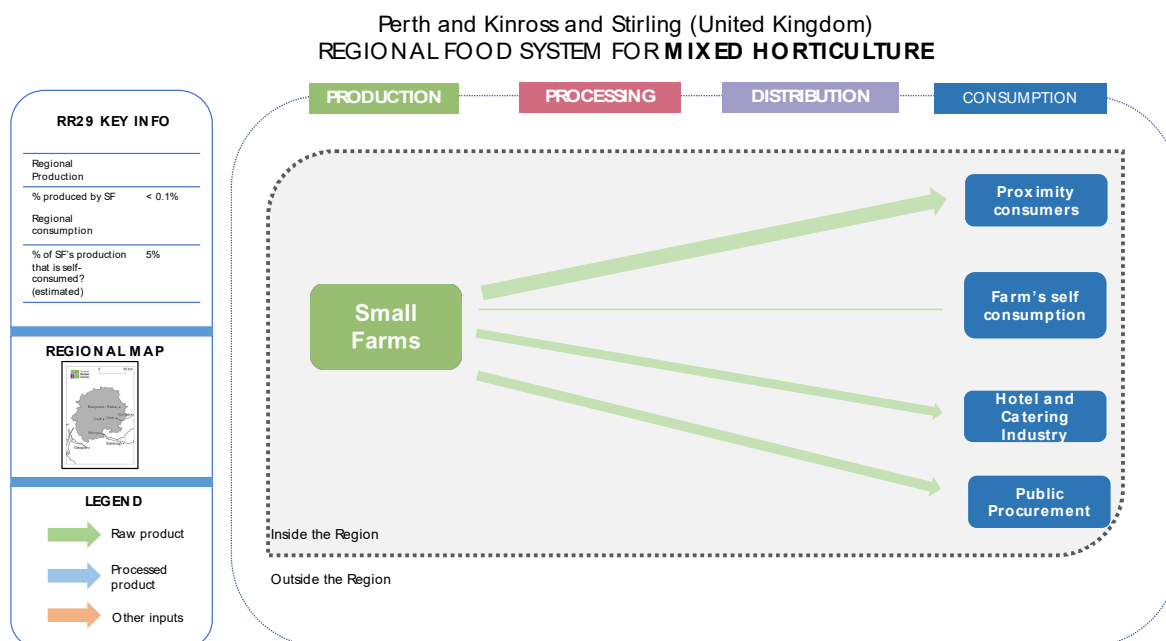


small growing space as profitable as possible using organic principles of farming and cultivation although full organic certification was reported to be prohibitively expensive on this small scale.

e. Other relevant information

Extreme weather events, e.g. prolonged dry spells as happened in 2018, can pose a huge risk to horticulturalists. Many producers work full time in other employment so just keeping on top of watering can be a significant challenge, as can the control of pests and diseases, particularly amongst organic producers.

Interestingly, although not an aspect addressed by the SALSA interview guide, the majority of vegetable growers interviewed identified as vegetarian or vegan. This may indirectly influence what they decide to grow while accounting for the relatively high household consumption (compared to the wider public) of vegetables.



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3.4. Key product 4: Potato

a. Nodes in the regional food system: production, processing, commercialization and retail

Potato production in RR29 (as with all our key products) predominantly occurs on larger farms: only c. 12 out of approximately 5,000 ha in the region recorded as being on holdings



smaller than 5 ha (Table 1). That aside, potatoes are a common crop on small holdings. One of the reasons given was that customers expect potatoes to be a constituent of a vegetable box (a channel in the regional food system for potatoes (Figure 4)). Several mixed horticulturalists involved in vegetable box schemes reflected *“Potatoes are really popular”* and *“if we do a farmers market in Edinburgh...they’re more open to trying new things, we’ll sell more unusual produce; in the country, we always will sell less, and more traditional vegetable like tatties”* (tatties’ being potatoes in Scottish dialect). There is also a long tradition of eating potatoes in Scotland and potatoes are part of the national cuisine from ‘neeps (turnips) and tatties’ (the traditional haggis accompaniment), to stovies (a popular Scottish dish). Adding this relatively low value staple to a vegetable selection was said to be a good way to enhance the value proposition of a mixed vegetable box. Another reason was said to be the relatively straightforward cultivation process: they are easy to grow.

The Stirling Food Assembly was cited as an important node on the commercialization and retail side, not just for potatoes but for a wide variety of food products. This novel platform to market produce enables pre-ordered goods to be picked up by customers at a central collection point. The operation has recently ceased to trade (as of September 2018) but a new platform (Neighbourfood) with the same business model has taken its place. Both initiatives were strongly supported by the Forth Environment Link which is a Stirling based charity and cited as another important node. Retail within RR29 is further channelled through farm shops, farmers markets and greengrocers, all of which are better developed in this region as compared with RR30, largely due to greater proximity to urban centres, higher population density and better infrastructure.

b. Flows connecting the different nodes in the regional food system

Potato cultivation is strictly regulated by Science and Advice for Scottish Agriculture (SASA) who administer the Seed Potato Classification Scheme (SPCS). This high-level governance is important for disease control and therefore constitutes an important production node. It also removes seed saving practices from the equation and is a constraint for growers. Scotland is a major producer of seed potatoes and the high-quality seed available locally, both within RR29 and neighbouring regions, helps growers at all scales achieve good harvests and entails commercial relationships with suppliers.

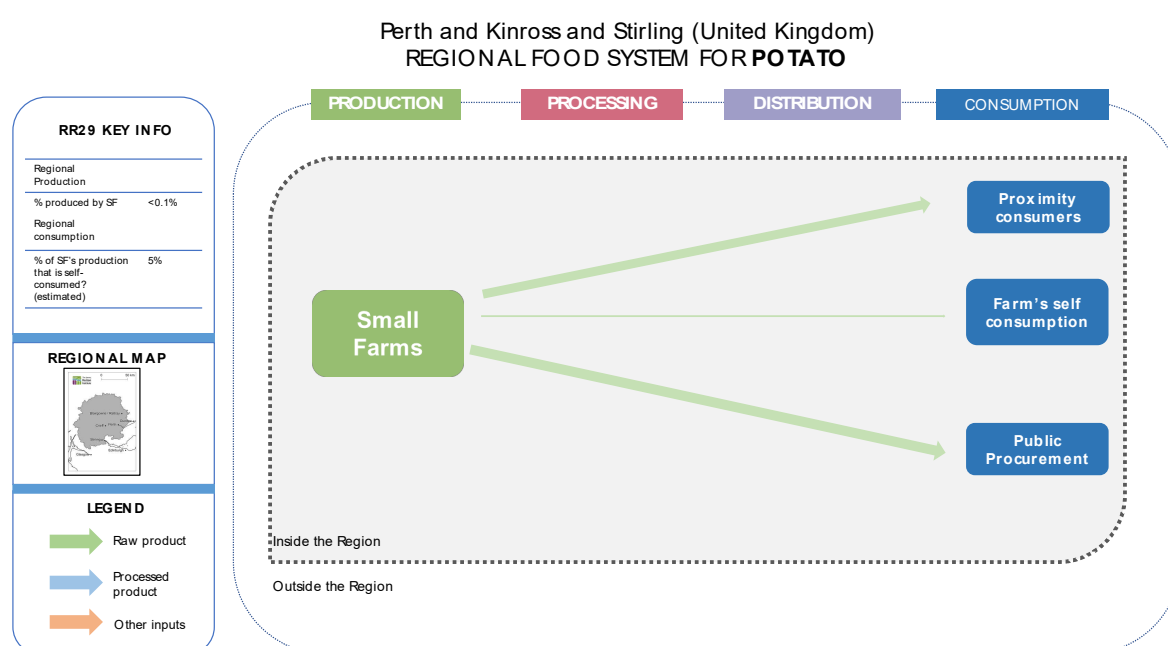
c. Role of small farms and small food businesses within the food system

We did not find any examples of potato processing at the small scale in this RR. There are big processors in Scotland, notably McCain, the UKs largest purchaser of British potatoes, and Mackies of Perth (within RR29) who produce crisps. However, there was no discernible channel to processing for small producers at the SALSA scale.

d. Importance of household self-provisioning in SF and SFB



Indeed, growing potatoes is a popular hobby activity throughout Scotland with seed swap events such a Borders Organic Gardeners Potato Day⁷¹ attracting thousands of visitors each year. Smaller events take place throughout Scotland and the popularity of small-scale cultivation undoubtedly has an impact on FNS in Scotland, although most takes place in private gardens and on allotments, neither of which are recorded in officially-collected agricultural statistics and is difficult to represent in our small sample. We know, from other work that the James Hutton Institute has done, that some of this private production is gifted while much is self-consumed, however quantitative information is not available. Self-consumption is important for potatoes. They are versatile, require no processing other than cleaning and have a good shelf-life of 3-5 weeks in the pantry and 3-4 months in the refrigerator depending on variety. Potatoes are generally considered the Scottish staple food although modern diets are more varied than ever before.



Regional map includes data derived from NUTS 2016 boundaries (© EuroGeographics for the administrative boundaries) and Ordnance Survey 1:250 000 Scale Colour Raster (Contains OS data © Crown copyright and database right 2018). Reproduced by permission of Ordnance Survey on behalf of HMSO © Crown copyright and database right (2018). All rights reserved. The James Hutton Institute, Ordnance Survey Licence Number 100019294.

Typology of small farms in the reference region

a. Small farm types in the region

It is important to note that larger farms dominate all forms of food production in this region. Farms at the SALSA scale (below 5ha) represent only a small percentage (<1%) of the region's food production. Partly due to the paucity of small farm production the types of

⁷¹ See <http://www.bordersorganicgardeners.org/potatoday/> (Accessed 23rd November 2018)



small farms found are heterogenous and challenging to generalise. That said, certain characteristics can be differentiated.

4.1 Horticultural smallholdings

We found small farms that concentrated on horticultural production. These operations typically utilised poly tunnels to cultivate salad leaves, tomatoes and seasonal produce that would not endure the Scottish climate in an exposed field. Most of these establishments also cultivated field vegetables comprising root vegetables and potatoes. Current low levels of production mean that FNS contribution is largely symbolic. This contribution could prove profoundly important in shaping the food politics of Scotland if a trend towards short supply chain, traceable, low input, 'flexitarian' develops so symbolic value ought to be recognised.

4.2 Third sector, charitable and community enterprises

As in parts of RR30 we found mixed enterprises that were not-for-profit and enjoyed charitable status. Again, there was a range including one enterprise whose primary role and source of revenue was to provide work experience to adults with special needs. The secondary purpose was maintaining a well-run market garden that sold produce. There were also community gardens providing a recreational and social facility alongside food production.

4.3 Livestock smallholdings

While small holders can keep animals and cultivate crops, many appear specialised in one or the other. Keeping even a few animals can be exacting and is also something that people can be passionate about, often forming bonds with their animals that transcend food production. Livestock may include cattle, sheep, pigs and poultry.

Upland farming is typically extensive. The terrain and land quality may be unsuitable for crops. Farms may be too exposed to favour large poly tunnels. The animals that are kept tend to be hardier including upland sheep breeds and Highland cattle. Farms tend to be more remote from large settlements. This can be conducive to diversification in the form of holiday accommodation, although accommodation is not exclusive to any one type of farm. Upland farms, particularly in the case of sheep farms, generally supply meat into the national supply chain via livestock marts and large abattoirs, although private kills and short supply chain operations were also found.

b. Role of small farm types in the regional food and nutrition security

The contribution of livestock from small scale farming to FNS is higher than from crops (statistically) but both are below 1% of regional production and have a marginal quantitative effect. High quality, low input and local, short supply chain food does appear to chime with greening values therefore the symbolic value of the production we analysed may be more significant than the market share might indicate.



Governance

a. Main interactions of SF and SFB with governance structures in the region

A number of SFs and SFBs felt they were not well represented at government level or across national farming organisations despite their belief that produce from the smaller-scale is of a higher quality, higher value and produced using higher standards of animal welfare, cultivation and harvesting practices than commercial products. However, there is some disagreement about the level of representation they receive, and we are not in a position to make judgement.

SFBs reported that the Environmental Health Office (operating within local government) was often the main regulatory body they dealt with. There was agreement amongst many SFBs that regulation is necessary in order to ensure suitable hygiene standards to protect consumers, but what the compliance entailed in practice was not always well understood. There are also significant costs when meeting these regulations and the combination of uncertainty and cost presented a barrier for some SFBs to further develop products or build their business.

b. Levels of governance and their relative importance for SFs and SFBs

Many SFs and SFBs reported seeking help dealing with the complexity of governance arrangements, through local advice-giving organisations for training purposes (such as the Stirling Enterprise Park (STEP)), 'peer-to-peer' levels of interaction and cooperation as well as local bodies of regional organisations. EU engagement for SFs and SFBs tends to be seen only in terms of the grants and subsidies available, namely, the LFAS, BFP and New Entrants Start-up Grants. The contribution of these subsidies to the overall income of the farms and businesses did not represent a major revenue stream at the small scale. Family members and friends provided significant levels of financial, technical and labour support.

c. Constraints impairing full participation in the food system

There is a perception held by many SFs and SFBs that grants currently available only cater to large farms and land holdings thus many SFs and SFBs had not even considered applying.

The most common subsidies mentioned were the Single Farm Payment (min. 5ha) and the New Entrants Start-up Grant (min. 3 ha). In addition, many farmers felt that the transaction costs of applying for grants and subsidies did not offer an attractive return on investment.

d. External policies, decisions and social norms affecting food systems

Of paramount importance to livestock farmers at the small-scale are high animal welfare standards. The closure of abattoirs not only in RR29 but across Scotland has increased



anxiety for local small-scale farmers looking to self-market their produce. To increase the travel to and from an abattoir greatly impacts upon their philosophy towards farming in the first instance. Having a local butcher also willing to accept smaller amounts of meat can also prove challenging. At the focus group, the notion of a mobile abattoir / butchery was advocated to help alleviate some of the concerns.

Many of the horticultural SFs and the SFBs follow organic principles of growing and production. However, the cost of being officially certified by the Soil Association presented a significant barrier especially in the early development stages when certification was not seen to be of added benefit.

SFs and SFBs are keen to promote the less intensive nature of their practices, often following organic principles of farming without necessarily having the official certification and believing that they adhered to relatively high animal welfare standards. However, often the land occupied by SFs and SFBs adjoins land from conventional farmers which do have different input and pesticides regimes. Concerns were reported around chemical run-off and misdirected spray compromising the SF holding's objectives and causing tensions with neighbours. In contrast, some smallholders reported excellent relationships with larger farming neighbours, including the sharing or use of machinery, gleaned advice regarding livestock and support in general.

e. Gender issues intersecting governance issues

Men and women were seen to have equal access to land. The more administrative and business-related tasks associated with the SF or SFB on balance seemed to be more female driven as were grasping opportunities for diversification (within our small sample). Often new entrants to farming especially in mixed horticulture are young couples, and with limited initial funds, planning for family in the future was a concern. Taking unpaid maternity leave (which will impact on the income to the enterprise) and reducing the available labour for farm activities were a problem for some. In general, the availability and retention of labour for SFs and SFBs, particularly in light of Brexit, were key concerns.

f. Forms of collaboration and organization between small farms

In Stirling, there is a strong sense of cooperation amongst local food growers and small food businesses. The Stirling Food Assembly which was disbanded in September 2018, has been replaced with a new initiative called Neighbourfood, run by the Forth Environment Link (FEL). The premise is much the same as the Food Assembly, with customers able to place an online order and 80% of the revenues are then returned to the producer and the remaining 20% is shared between the FEL and the operator covering the running costs of the online market. Whilst this model offers producers a good return for their products, the initiative does not operate as the sole customer base for any of the SFBs interviewed in the region. Many rely upon farmers markets, distribution to small retailers and cafes/restaurants and online sales. Many also rely on another separate income stream, so whilst this can relieve certain pressures during start-up of the SF/SFB, it can also impact upon the likelihood that



the business and/or farm will become profitable by depriving the enterprise of the owners' fulltime commitment.

g. Forms of collaboration and organization between small farms and consumers

Livestock smallholders who sell their produce through friends, at the farm-gate and word of mouth incur high costs for transportation, slaughter and butchery. This significant consideration partly explains why these enterprises are often more hobby than business.

h. Other governance issues

Whilst most businesses were aware that complying with existing regulations was necessary in some cases the onerous nature of compliance was seen as a disincentive to continuing production. The nature of processing or food preparation covered by regulations is varied, ranging from the cooking of meat to packaging raw vegetables, and people's experiences and difficulties are correspondingly mixed.

Small Farms and rural livelihoods

a. Importance of household labour in SFs

Household labour constitutes the majority of the labour force for SFs and SFBs in RR29. This is not immediately obvious from the agricultural statistics (Table 1), where the figures for family labour show family members who are regular staff (excluding occupiers). However, small farms are likely to be non-commercial and are unlikely to recruit many external employees. By contrast, it is likely that larger commercial farms in the reference region (particularly arable, fruit and field vegetable farms) will use a mainly hired and seasonal workforce.

b. Farm and non-farm income in the SF's households

In Scotland, direct farm payments and 'Pillar 2' payments totalled over £553 million in 2017, and support schemes typically form a substantial proportion of total income from farming⁷². At the same time, just over a quarter of Scottish holdings are diversified (operating other gainful activities)⁷³. Small farms in RR29 which distributed produce directly (e.g. via 'vegetable boxes', internet sales and sales to farmers' markets) were therefore diversified, and this activity could provide a reasonable proportion of household income. Diversification of some small farms into tourist activities and accommodation is likely in RR29, which is a highly scenic region. Broadly, small farms were viewed as very important, with strong links with local communities, businesses and customers, alongside burgeoning interest in food

⁷² Scottish Government Rural & Environment Science & Analytical Services (2018) Agriculture Facts & Figures 2018. Available at <https://www.gov.scot/publications/agriculture-facts-figures-2018/> (Accessed 23rd November 2018)

⁷³ Scottish Government (2016) Scottish Survey of Farm Structure and Methods, 2016. Available at <https://www.gov.scot/publications/scottish-survey-farm-structure-methods-2016/> (Accessed 23rd November 2018)



provenance and local food – the latter (also described earlier as ‘symbolic’ value) is potentially a positive factor for the economic sustainability of small farms.

c. Shocks and coping mechanisms of SF households

In terms of ‘shocks’ to these enterprises, small farm households are operating in a highly uncertain political environment. Brexit forms a major shock, which will have major implications for farming subsidies⁷⁴ and access to seasonal migrant workers, who are heavily used by commercial fruit and horticultural farms⁷⁵. These issues may be more important for the larger commercial farms in the region, but may also lead to impacts for smaller farms, and ‘WOOFers’ (Willing Workers on Organic Farms) were used by smallholders from RR29. Other ‘knock on’ effects of Brexit on the wider rural economy⁷⁶ are difficult to characterise amidst continuing uncertainty but could also have an impact.

Focus group participants discussed several factors that constrained production which are broader challenges to small farms, some of which can be conceived as ‘shocks’ – extreme weather and low food prices. Notably, the last 12 months saw an extremely cold and snowy winter in Scotland, followed by a very dry summer. Climate change is likely to exacerbate extreme weather events. Other factors mentioned by participants relate to a challenging environment, including the impacts of supermarket retail, abattoir refusal to take small numbers of livestock for slaughter, high land prices, difficulties in distributing perishable food and the complex regulatory system. Coping and adapting to these issues, and wider problems in the agricultural sector (e.g. subsidy reliance, an aging workforce) is likely to be an ongoing process.

Role of Small Food Businesses

a. Main insights and patterns

A number of SFBs commented that the major strength of the business is the provenance of their products. In RR29, the main channels to market was reported to be online sales, farmers markets, small retailers and direct to private individuals. There are a number of large farm shops operating in RR29 often with a coffee shop attached, however these tend to be SMEs that largely stock fresh produce from an attached farm (rarely a smallholding) and carry items from larger businesses.

RR29 contains two cities and a number of other large urban towns. In Stirling, a new initiative called ‘Neighbourfood’ has started up replacing the recently disbanded Stirling Food Assembly. Neighbourfood is an online platform for food businesses in RR29 through which customers place an order and receive a specific time and place to pick up their order during

⁷⁴ <https://www.politico.eu/article/uk-presents-post-brexit-plans-for-agriculture/> (Accessed 23rd November 2018)

⁷⁵ <https://www.bbc.co.uk/news/uk-politics-45900563> (Accessed 23rd November 2018)

⁷⁶ Moxey, A. and Thomson, S. (2018) Post-Brexit implications for agriculture & associated land use in the Highlands and Islands. Report to the Highlands & Islands Agricultural Support Group: May 2018. Available at https://www.sruc.ac.uk/download/downloads/id/3702/post_brexit_implications_for_agriculture_and_associated_land_use_in_the_highlands_and_islands.pdf (Accessed 15th October 2018)



the week. The producers are given 80% of the final sale and the remaining 20% goes back to the hosts of the platform and organisers, Forth Environment Link. Whilst this represents a significant return on the cost price to the producer, businesses involved in the initiative report that it does not represent a significant contribution to their overall income. Similarly, farmers markets are popular amongst all SFBs but often the cost to have a stall, transportation and behind the scenes labour costs often means the farmer markets do not turn a profit. Instead, some have utilised the farmers markets to advertise their business and available produce; *“if you looked at the profits you make on these things, you would cry! It’s about being there, and your face is in front of people”*.

The SFBs that have developed a relationship between small retailers and cafes/restaurants identify an important reciprocity between the businesses. Building relationships with chefs willing to take on seasonal and changing produce can be quite a challenge for many growers and SFBs. The higher cost of produce is a barrier; as chefs commented that the price of ingredients was a key concern as the cost of a meal had to incorporate the price of the ingredients used.

b. Labour in SFB work

The restaurants also accounted for the highest number of permanent employees. The remainder of the SFBs commonly had only one or two employees, both from the same household and often a couple working together. Volunteers and apprentices were a common source of labour for many vegetable and salad growers (WOOFers), but this resource is not reliable and can be difficult to source. Whilst many mixed horticulturists and box schemes are still working out their growing seasons, the need for labour also changes and varies according to the seasons. As quite a few businesses do not represent the sole income for the household, the need to keep labour costs to a minimum is apparent.

c. SFB income

Aside from 2 restaurants, the overall annual contribution to the household income from the SFBs did not reach more than 40%. Largely the SFBs in the region are supplemented by additional household income from another job. Having another job impacts upon the amount of time being able to devote to the SFB and this constitutes the largest barrier for increasing production and innovation.

d. Shocks and coping mechanisms of SFB households

Brexit and a potential downturn in the economy of the country were widely cited as concerns for the future of SFBs in RR29. They recognised their services and artisanal products may be considered luxury items and not household staples due to the higher price involved; *“I’m a “nice to have” and I know that”*. Restaurants and cafes noted the significance of tourism to their business especially during the summer period when accessibility issues are reduced due to the finer weather and key online searchable words such as ‘Scottish food’ and ‘local’ direct tourists to their businesses.



The Future

a. Main objectives and priorities of SF and SFB for the future

SFs and SFBs in RR29 are predominantly a lifestyle choice rather than an economic necessity. Objectives and priorities were essentially similar between SFs and SFBs. Some people simply wanted to continue to *“enjoy it and not let it become a burden”* while others were keen to increase production, educate consumers wherever possible and encourage healthy, sustainable eating of good quality, locally produced, food. Ultimately both SFs and SFBs spoke of a desire to make a profit to enable them to take a wage and build up savings while still enjoying the lifestyle though many people thought this was an unlikely achievement; *“we have to break even and we need a miracle”*.

SFs and SFBs believed they are valued at a local level: *“people really appreciate quality food, they like to buy locally”*. This is borne out by returning customers and positive feedback, but respondents felt that they were not valued nationally or by people who weren't customers; *“People that know us, appreciate what we do, and they appreciate the quality, and they're willing to pay extra for it. But the wider public couldn't care less”*.

b. Risk perception by SF and SFB

Financial shocks to the household are of paramount concern. As many SFs and SFBs rely on full time jobs to enable them to continue production, a reduction in household income could have a dramatic effect. Maintaining good health and keeping their customers are crucial to continued success. Brexit is also a major concern, not least because many people rely on seasonal volunteer workers from EU (e.g. 'WOOFers') and subsidies or grants that they fear may be lost. Limited internet is also an issue for some rural areas making internet sales difficult. Climate change, extreme weather and diseases affect both livestock and horticultural producers, resulting in negative consequences on both finances and production levels, while the continued consolidation of abattoirs resulting in greater distances being travelled, is a significant issue for livestock producers.

An additional challenge is lack of access to land and adjacent affordable housing that is preventing people, particularly young people with limited incomes, from starting their own SF or SFB. This constraint is a risk to the food system and consumers ability to source short supply chain, sustainable foods both now and in the future. Secure rental agreements are highly important for organic farming, which has long-term principles; this is an additional burden for farmers on 2-5 year leases.

c. Food system forecast in 5, 10 and 20 years

It is difficult at this time to identify how the food maps may look in forthcoming years. There is a concern about Brexit and how it may impact on the overall food system. Whatever the outcome, smallholders and small food businesses report that there needs to



be a change in the way consumers value food in general, and an increased awareness and appreciation of local food and short supply chains.



Annex: List of resources

q. List of key experts interviewed

Key stakeholder typology	Interviews	
	Men	Women
Civil society organizations		5
Advisory services	2	
Total	7	

r. SF and SFB interviews and focus groups information

Stakeholder typology	N° of participants						How were they contacted?
	Interviews			Focus Groups			
	Men	Women	Total	Men	Women	Total	
Farmers	5	11	16	3	4	7	All contacted via Email or Facebook
Producers' cooperatives							
Horticulturalists	2	2	4				
Slaughtering facilities							
Processors (small/large)	0	3	3				
Wholesalers							
Retailers							
Caterers	3	0	3				
Other small food business				3	2	5	
Exporters							
Importers							
Farm inputs suppliers							
Civil society organizations	2	4	6				
Advisory services							
Agricultural administration/Ministry of Agriculture							
Consumers' groups/organizations							
Local administrators and policy makers		1	1				



Political leaders and PMs							
Other programs/initiatives							
Nutritionist							
NGOs							
Traditional and religious leaders (for Africa)							
Total	33			12			

We are grateful for the use of the 2016 June Agricultural Census data, courtesy of Agricultural Census Analysis Team, Rural and Environment Science and Analytical Services Division, Scottish Government.





WP3

Lochaber, Skye and Lochalsh, Arran and Cumbrae, and Argyll and Bute (RR 30) –United Kingdom– Food System Regional Report

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Table of Contents: Food System Regional Report

1) Socio-economic and agricultural profile of the reference region.....	829
2) Key products and regional food balance sheet.....	832
3) Food system: Key nodes and flows and role of small farms and small food businesses.....	834
3.1. Key product 1: Chicken eggs	834
3.2. Key product 2: Salad leaves	835
3.3. Key product 3: Lamb	837
3.4. Key product 4: Beef.....	839
4) Typology of small farms in the reference region.....	840
4.1. Crofts.....	841
4.2. Small Livestock Farms	841
4.3. Small Horticultural Enterprises.....	842
4.4. Hybrid Agricultural Enterprises.....	842
5) Governance	843
6) Small Farms and rural livelihoods	846
7) Role of Small Food Businesses.....	847
8) The Future	848
9) Annex: List of resources	851



Socio-economic and agricultural profile of the reference region

RR30, in western Scotland, covers an area of over 14,000km² and includes mountainous and upland landscapes, a long and indented coastline, and several islands. The area had a population of just under 100,000 people in 2016, this was a small decline (c. -1.9%) in population from 2011⁷⁷. This contrasts with a population increase of 2.0% for Scotland as a whole, over the same time period⁷⁸. In 2016, 15.3% of the population in RR30 were children, with around six out of ten people (59.4%) at working age and about a quarter (25.3%) at old/pensionable age¹. A comparison with the respective figures for Scotland in 2016 (16.9% children, 64.6% working age, 18.5% old age²) shows that older people are relatively over-represented in RR30, and working-age people are under-represented. RR30 is very sparsely populated in comparison with Scotland as a whole, with a population density of 7.0 people per square kilometre in 2016 (Table 1; Scotland: 69 people per km²)⁷⁹. The largest towns in the region are Fort William (population: 10,450 (2012)), Dunoon (9,540) and Oban (8,540)⁸⁰.

Mapping⁸¹ shows that the vast majority of land in RR30 is poor quality agricultural land. Small areas of land at lower altitudes will support improved grassland, and mixed agriculture can be supported in some very small patches of land in the far south of the region. Agricultural data shows that almost all of the agricultural land which is used (c. 89%) is rough grazing (Table 1). The farm size distribution shows that almost half of the holdings (c. 47.4%) were less than 5ha (UAA) in size. While cattle and sheep farms dominate agricultural output across the region⁸², RR30 also contains a large number of croft farms: the vast majority of the region is within the area covered by the traditional Crofting Counties and New Crofting Areas⁸³. Crop area data (Table 1) shows that small farms contain a significant proportion of the horticultural crops, fruit and potatoes in the reference region; emphasising that there may be greater diversity in produce on smaller holdings, compared with the dominance of cattle and sheep grazing on the larger farms. Just over 6% of all residents in RR30 are employed in agriculture, forestry and fishing, this proportion is well above the respective figure for

⁷⁷ Figure derived from National Records of Scotland: Nomenclature of Units for Territorial Statistics (NUTS3) Population Estimates by sex and single year of age, 2011-2016. © Crown Copyright 2017. Data available at <https://www.nrscotland.gov.uk/files/statistics/population-estimates/special-area-2011-dz/nuts/2016-nuts-pop-est-tab2.xlsx> (Accessed 16th July 2018)

⁷⁸ Based on National Records of Scotland Population Estimates (Current Geographic Boundaries) available at statistics.gov.scot. Contains public sector information licensed under the Open Government Licence v3.0. © Crown copyright. Data supplied by National Records of Scotland.

⁷⁹ Source: page 25 of National Records of Scotland (2017) Mid-Year Population Estimates Scotland, Mid-2016: Population estimates by sex, age and area. Available at <https://www.nrscotland.gov.uk/files/statistics/population-estimates/mid-year-2016/16mype-cahb.pdf> (Accessed 14th November 2017). © Crown Copyright 2017. Data supplied by National Records of Scotland.

⁸⁰ Data: National Records of Scotland Estimated population of settlements by broad age groups, mid-2012. Available at <https://www.nrscotland.gov.uk/files/statistics/population-estimates/special-area/mid-2012-settlements/2012-pop-est-sett-local-main-tab2a.xls> (Accessed 14th November 2017). © Crown Copyright 2014. Data supplied by National Records of Scotland.

⁸¹ Land Capability for Agriculture in Scotland: The Macaulay System Explained. Available at http://www.hutton.ac.uk/sites/default/files/files/soils/lca_leaflet_hutton.pdf (Accessed 14th November 2017).

⁸² Based on Scottish Government RESAS mapping of "Farm type by agricultural parish, 2016". Available at <http://www.gov.scot/Resource/0052/00521305.pdf> (Accessed 14th November 2017)

⁸³ See <http://www.gov.scot/Topics/farmingrural/Rural/crofting-policy/new-crofting-areas> (Accessed 14th November 2017) for description of the areas associated with croft farming.



Scotland (1.7%)⁸⁴. Additionally, accommodation and food service activities employ 12.4% of people in RR30, compared with only 6.3% of people in Scotland as a whole.

Table 1: Basic data for the region

Indicators	Data per Region - Nuts 3
Land size (km ²)	14,169.2 ⁸⁵
Population (thousands of people)	99.511 (2016) ⁸⁶
Density (people/km ²)	7.0
GDP (thousand USD/inhabitant)	35.410 (2016) ⁸⁷
Total labour force in AWU	2,756.8
Total number of holdings	5,073
Total Agricultural area (ha)	949,885.3
Total Utilized Agricultural Area (ha)	818,098.0
Agricultural Area in Mountain Area	727,580.6ha
% of UAA in the RR	57,73%
Average Farm size	Median: 5.6ha (UAA)
Number of farms by UAA farm size: 0-5, 5-20,20-50, >50ha	]0-5ha[: 2,405 farms [5-20ha[: 1,168 farms [20-50ha[: 438 farms >= 50ha: 1,062 farms
Average size of farms < 5ha of UAA	Median: 1.9ha (UAA)
Area of main crops (ha) (list the relevant crops below)	Barley: 1,517.8ha Forage crops: 327.2ha Oats, triticale, mixed grain: 160.2ha Wheat: 69.4ha Horticultural crops: 22.4ha Fruit: 12.1ha Potatoes: 11.0ha
Area of main crops (ha) in farms < 5ha of UAA (list the relevant crops below)	Forage crops: 14.4ha Horticultural crops: 13.2ha Fruit: 9.0ha Potatoes: 5.6ha
Livestock (LSU) per type (list the relevant types below)	Sheep: 60,044.4LSU

⁸⁴ Derived from Scotland's Census (<http://www.scotlandscensus.gov.uk/>). Bulk data files, SNS Data Zone 2011. Table QS605SC. © Crown copyright. Data supplied by National Records of Scotland.

⁸⁵ Derived from GIS analysis of a) Office for National Statistics: NUTS Level 3 (January 2018) Generalised Clipped Boundaries in the United Kingdom. Contains National Statistics data © Crown copyright and database right [2018]; Contains OS data © Crown copyright and database right [2018]. b) Ordnance Survey: Meridian™ 2 (lakes). Contains Ordnance Survey data © Crown copyright and database right 2015.

⁸⁶ National Records of Scotland: Nomenclature of Units for Territorial Statistics (NUTS3) Population Estimates by sex and single year of age, 2011-2016. © Crown Copyright 2017. Data available at <https://www.nrscotland.gov.uk/files//statistics/population-estimates/special-area-2011-dz/nuts/2016-nuts-pop-est-tab2.xlsx> (Accessed 16th July 2018)

⁸⁷ Based on Eurostat: Gross domestic product (GDP) at current market prices by NUTS 3 regions [nama_10r_3gdp] (Last update: 28-02-2018) (Accessed 10th July 2018) converted using exchange rate of €1:\$1.1385 (31st March 2016). Source: https://www.ecb.europa.eu/stats/policy_and_exchange_rates/euro_reference_exchange_rates/html/eurofxref-graph-usd.en.html (Accessed 10th July 2018), divided by population figure given above.



	Cattle (all): 57,131.6LSU Dairy cows: 11,319.0LSU Horses: 1,033.6LSU Poultry: 401.7LSU Pigs: 322.7LSU Goats: 23.6LSU
Livestock (LSU) per type in farms < 5ha of UAA (list the relevant types below)	Sheep: 2,581.1LSU Cattle (all): 1,264.4LSU Horses: 206.4LSU Poultry: 85.2LSU Dairy cows: 20.0LSU Goats: 9.9LSU
Annual work units (AWU) by UAA farm size: 0-5, 5-20, 20-50, >50ha	]0-5ha[: 635.0]5-20ha[: 469.3]20-50ha[: 266.0 >= 50ha: 1,386.5
Total family labour per farm size: 0-5, 5-20, 20-50, >50ha	]0-5ha[: 53.0AWU]5-20ha[: 28.5AWU]20-50ha[: 28.0AWU >= 50ha: 148.5AWU

All figures except land size, population, density and GDP are derived from the 2016 June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, Rural and Environment Science and Analytical Services Division, Scottish Government. Note that figures shown do not include data from holdings with a utilised agricultural area of 0ha, and that some figures have not been published for disclosure reasons. Annual work units calculated using farm labour types in the Agricultural Census and suitable coefficients. Livestock units calculated using coefficients of Eurostat⁸⁸ and Nix (2003)⁸⁹.

Furthermore, the Land Reform Act (Scotland) 2016 was passed as part of the Scottish Government's aims to "...prioritise transparency, accountability and community ownership"⁹⁰. The Act has a significant influence on a number of areas relevant to agriculture, including community rights to buy land for sustainable development and tenant farmer rights, and has led to the establishment of the Scottish Land Commission⁹¹. Given the highly concentrated nature of land ownership in Scotland, where a small number of people and bodies own a large proportion of private land⁹², it is possible that this legislation will provide new opportunities and access to land and resources for small farmers and small food businesses. However, the full implications of this very recent legislation are uncertain, but are likely to become clearer in future.

The UK's referendum decision to leave the European Union in 2016 has led to widespread and continuing uncertainty over what the results of the Brexit process will be. However,

⁸⁸ [http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Livestock_unit_\(LSU\)](http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Livestock_unit_(LSU)) (Accessed 23rd June 2018)

⁸⁹ Nix, J. (2003) Farm Management Pocketbook 34th Edition (2004). Imperial College London, Wye Campus. Data reproduced by DEFRA, available at <http://adlib.eversite.co.uk/adlib/defra/content.aspx?id=000il3890w.198awldohj69f3> (Accessed 23rd June 2018)

⁹⁰ Cited from <http://www.gov.scot/Topics/Environment/land-reform> (Accessed 14th June 2018)

⁹¹ See <http://www.gov.scot/Topics/Environment/land-reform/LandReformBill> (Accessed 14th June 2018)

⁹² Described in Land Reform Review Group (2014) The Land of Scotland and the Common Good: Report of the Land Reform Review Group. The Scottish Government, Edinburgh. Available at <http://www.gov.scot/Resource/0045/00451087.pdf> (Accessed 15th June 2018)



recent analysis on the implications of Brexit for agriculture and land in the Highlands and Islands of Scotland found that Brexit is likely to “...accelerate existing trends of declining agricultural activity, land abandonment and a shrinking agricultural workforce, with limited scope for alternative land use activities”, with corresponding adverse effects on the food and drink sector⁹³. Arguably, the remoteness of the reference region and large number of very small farms (crofts) mean that it is particularly vulnerable to political and economic changes.

Key products and regional food balance sheet

a. Key products produced and consumed in the region

The food production in RR30 is dominated by cattle and sheep production however the bulk of this production does not originate on small farms and falls outside of the empirical study which SALSA has conducted. However, small scale production of cattle and sheep remains significant and small farms typically raise one or both these livestock animals making them obvious choices as key products. The crofting system in particular is configured with a number of small farmers enjoying exclusive access to a small area of land on which their residence and farm buildings stand and with shared access to a much larger area of common grazing that is typically classified as Less Favoured Area (LFA) poor quality land but which supports extensive sheep and cattle systems. Cattle and sheep are also important to non-crofting areas within RR30. The importance of this livestock dates back millennia as evidenced by the traditional livestock animal breeds in RR30 developed to suit the climate and terrain including highland cattle and Hebridean sheep.

While farms in RR30 are not typically traditional mixed farms many do support a variety of activities including egg and poultry production either alongside other farming activities and/or in conjunction with non-farming employment. The majority of small farms are not the exclusive sources of income for farmers and egg production is economically viable requiring little processing or specialist input to provide food for self-consumption and a relatively easily marketable surplus. Data shows that small farms (UAA < 5ha) in Western Scotland held c. 15.7% of the laying hens on farms in the reference region: a total of just over 3,500 birds. As an estimate, this population could produce over 880,000 eggs per year⁹⁴.

Salad leaves are also widely produced on small holdings throughout RR30. The introduction of poly-tunnels in recent decades has allowed the cultivation of a number of crops that would not otherwise endure the harsh climate. Small holders and crofters often grow a variety of

⁹³ Cited/adapted from page iv of Moxey, A. And Thomson, S. (2018) Post-Brexit implications for Agriculture & Associated Land Use in the Highlands and Islands: Report to the Highlands & Islands Agricultural Support Group. Available at https://www.sruc.ac.uk/download/downloads/id/3702/post_brexit_implications_for_agriculture_and_associated_land_use_in_the_highlands_and_islands.pdf (Accessed 15th June 2018)

⁹⁴ Based on June Agricultural Census (2016) data (data tables courtesy of Agricultural Census Analysis Team, Rural and Environment Science and Analytical Services Division, Scottish Government). 3,581 laying hens, estimated annual egg production based on 246 eggs/bird/year (source: Hyline Brown Management Guide 2014, cited in SAC Consulting (2017) The Farm Management Handbook 2017/18. SAC Consulting: p222. (Available at <https://www.fas.scot/downloads/farm-management-handbook-201718/> (Accessed 23rd July 2018)



salad leaves, tomatoes and soft fruits alongside hardier, more traditional field crops such as potatoes and carrots. In fact, agricultural data shows that a majority (c. 59.2%) of the area of horticultural crops (vegetables, flowers and nursery plants, grown either outside or indoors) in RR30 is found on small farms (UAA < 5ha)⁹⁵. Therefore, although the overall area of horticultural crops in RR30 is small (below 23ha), as a result of the lack of high quality agricultural land, the contribution of small farms to total vegetable production within RR30 is likely to be considerable.

b. Balance of production and consumption of key products in the region

In terms of the balance of production and consumption of key products in the region, it is important to note that production and consumption in RR30 are very different from one another. In line with the UK-wide food system the bulk of the products that are consumed within this region are imported from other regions and other countries. The UK food retailing sector is dominated by large supermarket chains that do not primarily source produce from small producers nor do they source produce from the regions in which the stores are situated, and RR30 is no exception. The food that is produced in the region is largely retailed through supermarkets and therefore the link between production and consumption at the NUTS3-level is relatively weak. Furthermore, the livestock systems that have emerged involve systems known as ‘store lambs’ and ‘store cattle’. ‘Store’ animals are reared on one farm, and then sold, either to dealers or other farmers for fattening or finishing on other farms. RR30 rears cattle and sheep before selling them to other regions for finishing. This system has emerged because grazing land is of variable quality and breeding animals during clement weather can be profitable on LFA land whereas year-round grazing to fatten animals is not generally profitable. The system is reinforced by the fact that poorer land (for example most of RR30) is not used to produce feed for livestock. The result is that the region does not directly consume its own livestock – rather it exports it into a national supply chain. Agricultural data indicates that small farms in RR30 (UAA < 5ha) hold nearly 10,000 lambs, which is only c. 4% of lambs in the region⁹⁶; the same Census data shows that around 2.9% of the beef cattle in RR30 are found on small farms. It is important to note that due to the ‘store’ animal system described above, and the complex movements of animals in Scotland, animal numbers may be very different to meat production.

It is also interesting to note that much of Scotland’s lamb is exported to England and further afield. Consumers in Scotland prefer beef to lamb. Furthermore, lamb is much more of a seasonal product throughout the UK with the market orientated to producing spring lamb through spring and summer and importing lamb from New Zealand during the autumn and winter. This gearing of livestock makes the UK both the third biggest importer and third largest exporter of lamb in the world⁹⁷.

⁹⁵ Based on June Agricultural Census (2016) data (data tables courtesy of Agricultural Census Analysis Team, Rural and Environment Science and Analytical Services Division, Scottish Government)

⁹⁶ Based on June Agricultural Census (2016) data (data tables courtesy of Agricultural Census Analysis Team, Rural and Environment Science and Analytical Services Division, Scottish Government). (Cattle figure based on LSU)

⁹⁷ See <http://beefandlamb.ahdb.org.uk/market-intelligence-news/will-lamb-imports-new-zealand-return-normal-2018/> (Accessed 15th June 2018)



Little is known about the balance of consumption of eggs in RR30 although it seems probable that eggs are primarily supermarket bought and produced outwith the region by large scale commercial producers.

Salad leaves are equally likely to be predominantly supermarket bought and part of a national and international supply chain, especially for household consumption, however, significant amounts of specialist horticultural crops are sold at farmers markets or supplied directly to restaurants and pop-up food businesses or as farm gate sales, but this is very much a niche enterprise.

c. Official statistics and key products in the region

In Scotland, the June Agricultural Census is an annual exercise which collects extensive data on farm labour, crop and land areas, and numbers of livestock and animals present on farms. This, along with other data sources, contributes to the production of detailed statistics, estimates of farm inputs, outputs and incomes, including data on crop and meat production (weight and value)⁹⁸. The use of economic and accounting methods can be used to provide estimates for smaller areas of Scotland. However, gaining an understanding of important information on key products, specific sources of inputs, production locations and transport (which, for meat products, may need to account for 'store' and 'finishing' elements) and distribution of outputs and consumption patterns requires further data collection and the qualitative expert insights described here.

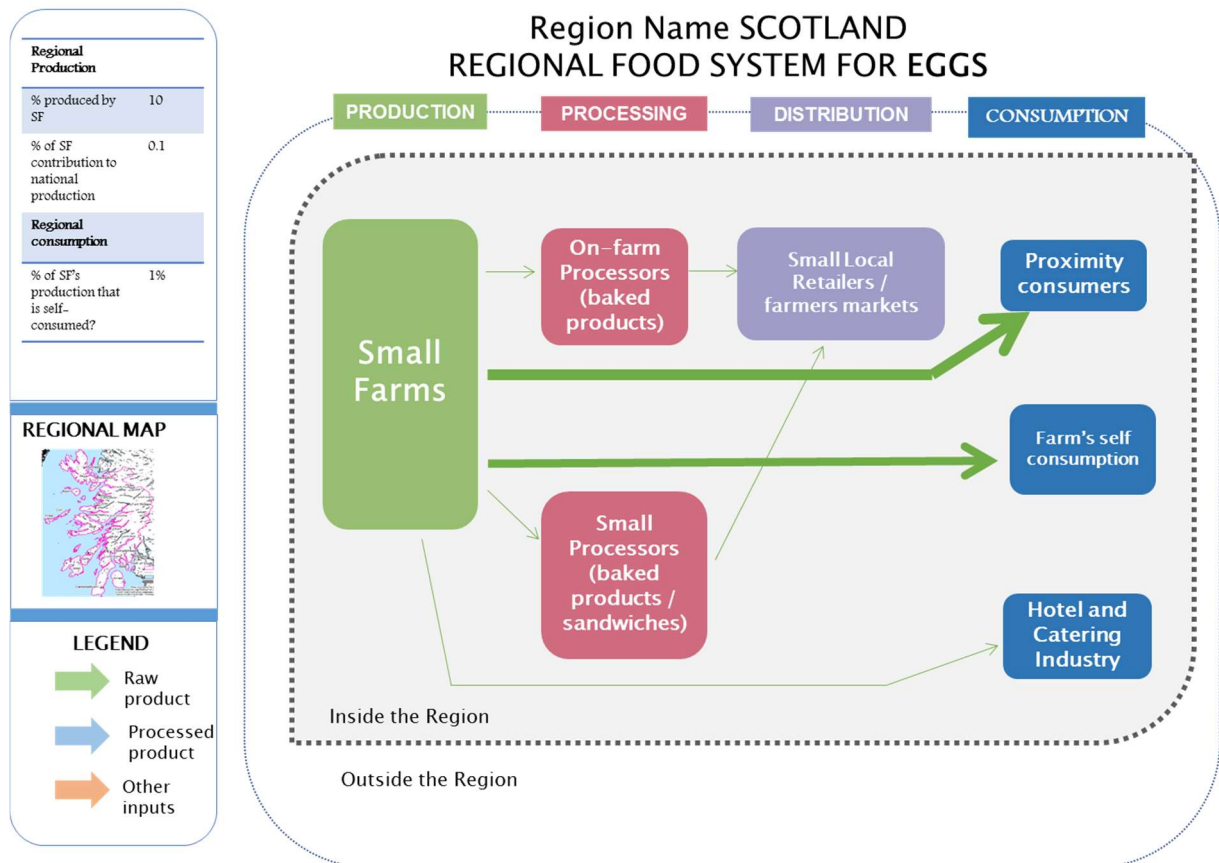
Food system: Key nodes and flows and role of small farms and small food businesses

3.1. Key product 1: Chicken eggs

Many of the small farms in the region keep poultry (predominately chickens) either for personal consumption of eggs or to sell locally. Sales occur primarily on the farms, either directly with the producer or indirectly via farm gate sales where honesty boxes are used and consumer are often not known to the producer. The primary purchasers are locals or tourists visiting the area. Some of the produce is also sold in farmers' markets. There is little processing of eggs beyond boxing although some artisanal cake making can be found at community-run food or entertainment events such as village festivals and charity fund raisers. Due to the informal distribution arrangements little is known about volumes or values of small-scale egg production in RR30 however informants did provide anecdotal evidence of both market and non-market sales and exchanges. There was no suggestion that this system was particularly vulnerable to shocks (except perhaps the risk of avian influenza) but this is difficult to verify. An analysis of data reported by farmers (cited in Section 2) suggests that overall egg production from small farms in RR30 may be considerable.

⁹⁸ See: Scottish Government (2018) Economic Report on Scottish Agriculture 2018 edition [Microsoft Excel workbook]. Available at <http://www.gov.scot/Resource/0053/00536695.xlsx> (Accessed 15th June 2018)





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3.2. Key product 2: Salad leaves

- a. Nodes in the regional food system: production, processing, commercialization and retail

Salad leaves that are produced on a small scale are primarily sold locally, although it is important to note that the food system may vary considerably at different times of the year. Salad leaves are grown commercially or for personal consumption and exchange in poly tunnels along with vegetables and soft fruit. Poly tunnels are a recent innovation supported by subsidies, in order to mitigate the hostile local climate. As with eggs sales occur primarily on the farms. Locals and tourists that make their way to the farms buy salad leaves directly from the farmer. Some of the produce is also sold in farmers' markets. Still, a considerable amount is directed to local restaurants and hotels, and agricultural data (see Section 2) suggests that small farms may make a large contribution to the total production of salad leaves and vegetables in the reference region.



b. Flows connecting the different nodes in the regional food system

Farmers' markets are not organised strategically in RR30 and many areas did not have an active one; for example, on the Island of Bute. Farmers' markets are organised on an ad-hoc basis being largely dependent on the efforts of local keen enthusiasts meaning that they are unstable. According to several participants the good-will of an enthusiastic organiser can be the difference between having a vibrant, regular market or not.

A range of small local farm-shops, grocery stores and butcheries can be found across the region, catering to the local needs although these tend to be concentrated around larger population centres where tourists boost the market. Much of the region is remote and supermarket delivery vans are a common sight, connecting remote communities to the UK's major retailers bypassing local supply.

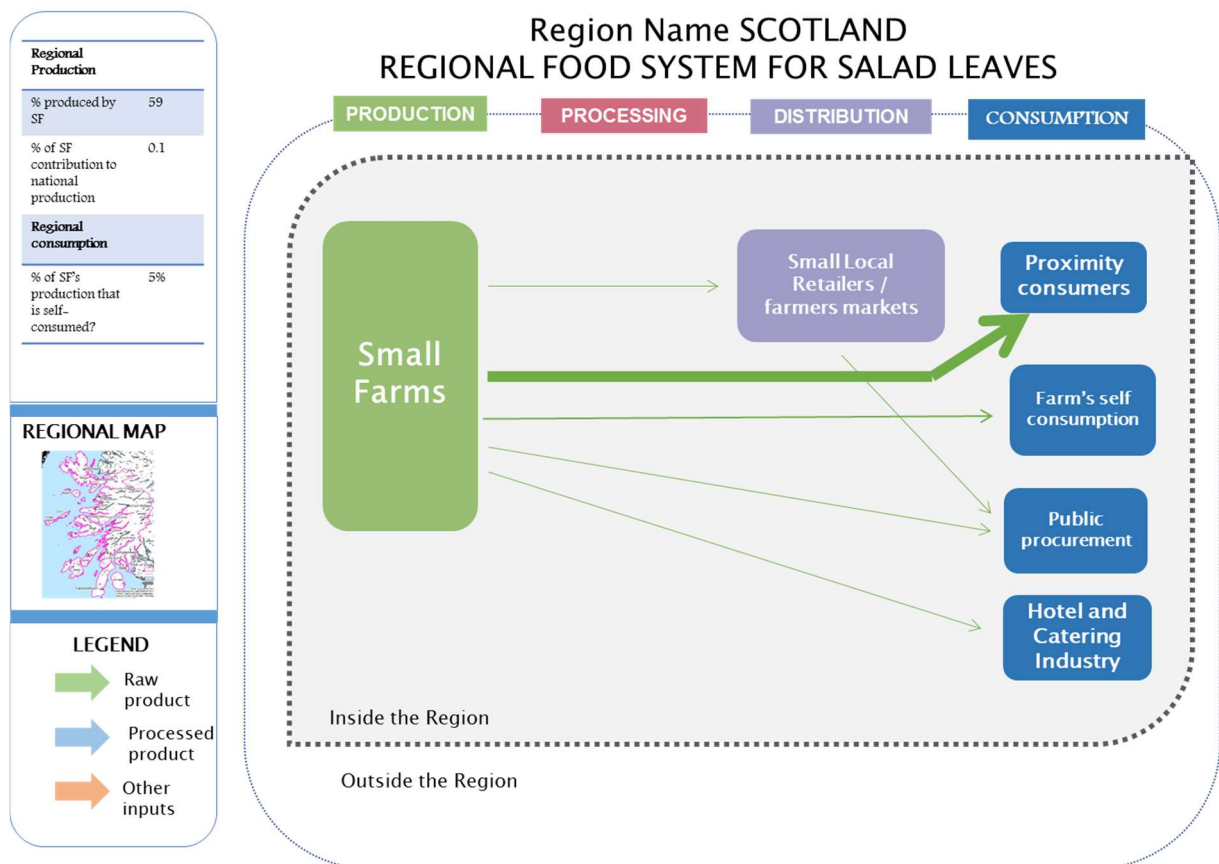
c. Role of small farms and small food businesses within the food system

Salad leaves are also marketed directly to local restaurants and hotels, which are the most common SFB types in the region, under exclusive contracts. These establishments typically offer high-end gastronomic experiences or premium products focusing on local fresh food. One horticultural grower complained about the inherent instability of this channel with a change of chef, and therefore different requirements, being sufficient to curtail a profitable contract.

d. Importance of household self-provisioning in small farms and small food businesses

Of course self-consumption is a major part of the food system for food producers with several owners of poly-tunnels informing us that they produced the bulk of their vegetable consumption particularly in summer months when a wide variety of products are produced during the extended daylight hours of these northerly areas.





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3.3. Key product 3: Lamb

- a. Nodes in the regional food system: production, processing, commercialization and retail

Small farms in RR30 hold around 4% of all lambs in the region. From this, an approximate 95% is exported from the region for fattening (store) through either a livestock market (mart) within the RR or through a market outside the RR (Dingwall). About 5% of the overall production is kept for personal consumption (self-provision – “1 for the freezer and the neighbours”). The main slaughter facility that serves the northern part of the area is outwith the region at Dingwall. To the South and in the vicinity of Glasgow, Paisley provides abattoir services.

- b. Flows connecting the different nodes in the regional food system

The most important nodes for the production of livestock are located outside the reference region. A slaughterhouse at Dingwall, a consolidated facility which has replaced local



slaughterhouses, plays a central role in the direction of food flows (beef and lamb) from and to the north of region, relating to small-scale farming. Similarly, a mart (livestock auction market) at Dingwall is the place where most of the livestock passes from the RR to be finished in the northeast or south of Scotland. Further north, the only other option to send the livestock to store is through a smaller local mart e.g Lochboisdale, Oban, Tìree.

The lack of a slaughtering facility is an evident obstacle in the development of meat processing capacity in the RR. Currently, only limited butchery and sausage making takes place in the area and the rest of the livestock designated for slaughtering is sent to facilities outside the RR, to be re-imported in the region already processed. Due to the large levels of production, however, the small farms of the RR are self-sufficient regarding meat, especially lamb, the consumption of which is not very popular in the area.

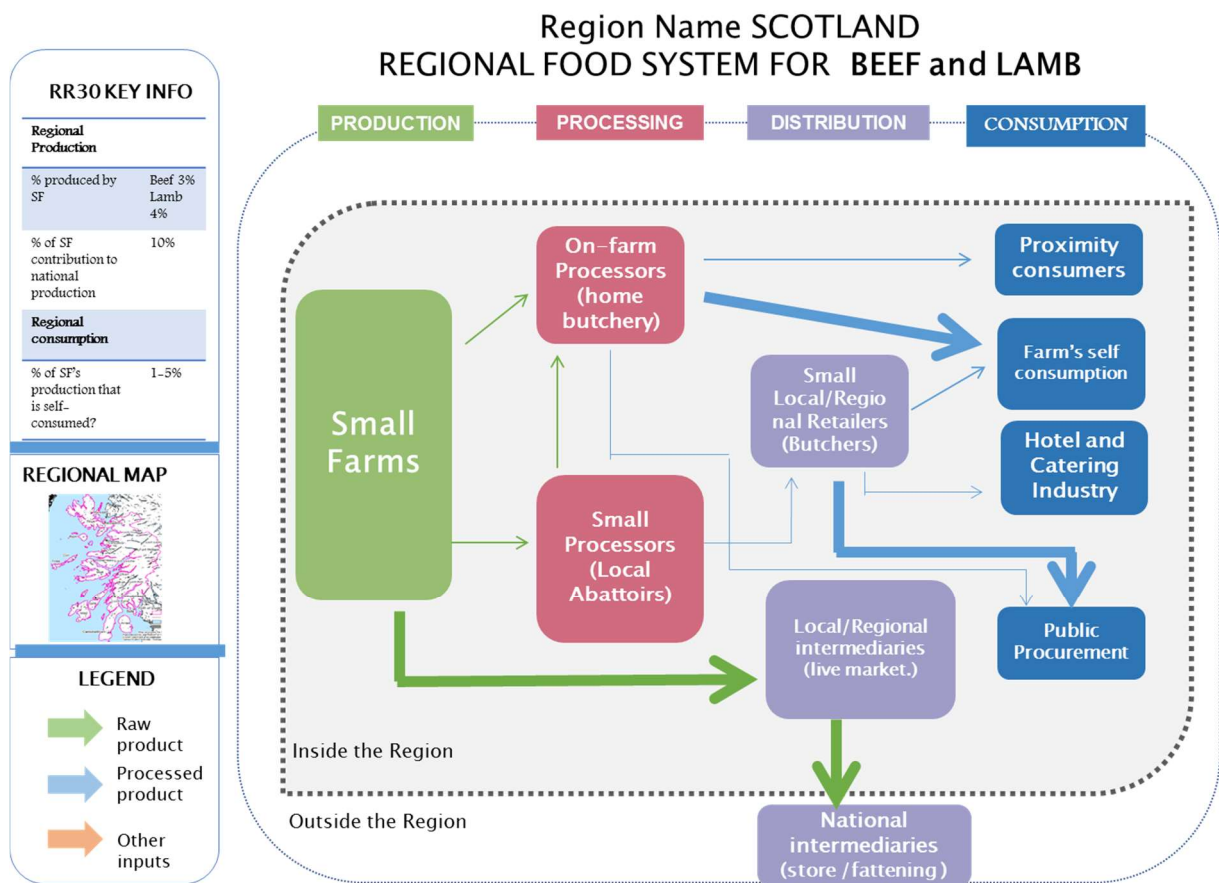
c. Role of small farms and small food businesses within the food system

There are one or two small slaughter facilities within the region accounting for a small amount of the produce. Notably, there is a tradition of 'keeping one back' for crofting enterprises. This means that producers keep one or two animals for personal consumption or sharing with neighbours. Occasionally, services or land rent may be paid in kind (1-2 carcasses). Unofficial slaughtering was mentioned by several small farmers who were prepared to slaughter livestock themselves particularly in circumstances where an animal had broken a leg or suffered some injury but was otherwise thought to be perfectly edible. In parts of the south of the region that is served by a small local abattoir, some sheep are finished and distributed locally.

d. Importance of household self-provisioning in small farms and small food businesses

Consumption of lamb is not generally very popular within the RR and the small farm households that do eat it are mostly self-sufficient in lamb. As the production model is a closed flock system, there is only limited import of livestock; occasionally a farm will procure a ram or a ewe from either the local mart or the mart outside the RR.





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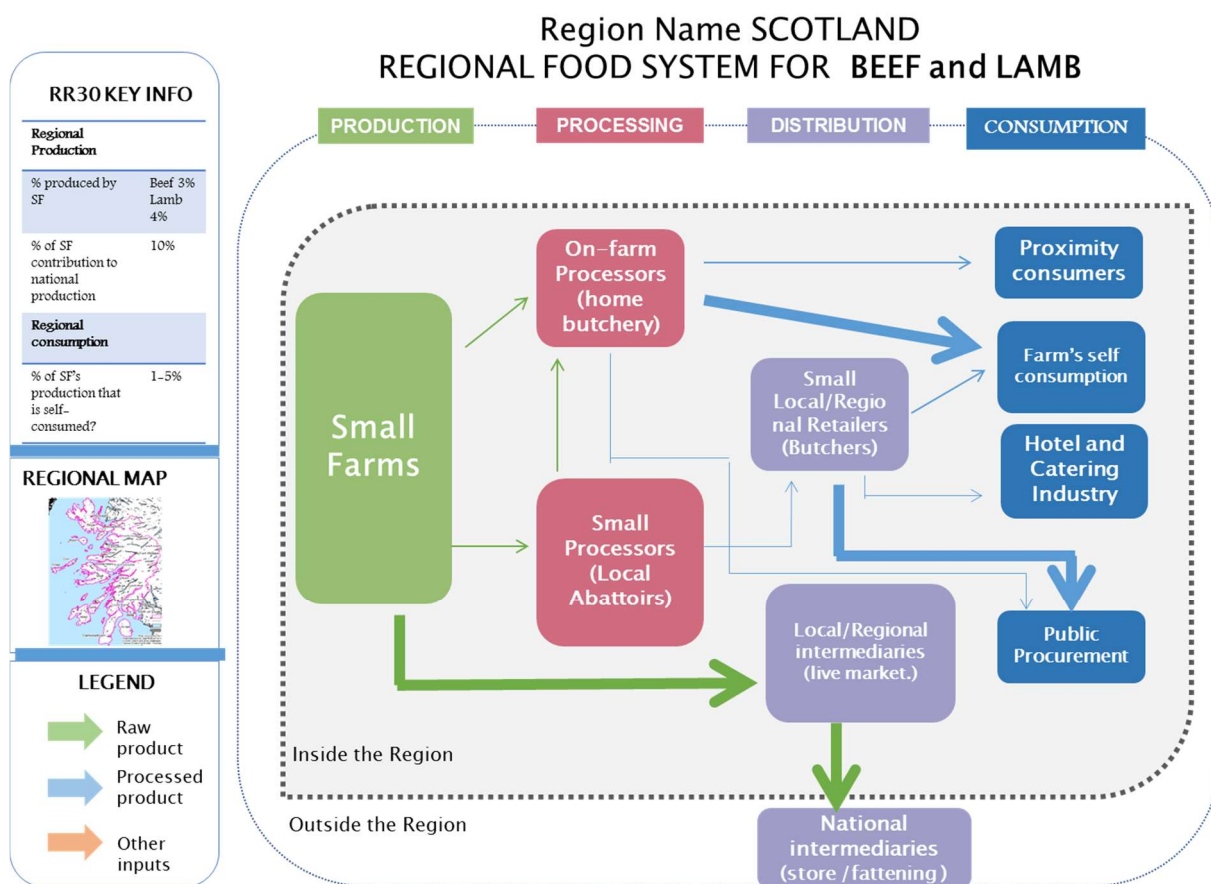
3.4. Key product 4: Beef

Agricultural data shows that around 3% of the beef cattle in RR30 are found on small farms, although (as with lamb), this raw figure will not reflect the movement of cattle or the production of meat. Approximately 99% of the animals which will ultimately be slaughtered are exported from the region for fattening. The issues around slaughtering are identical to those discussed for sheep above, in short the lack of adequate facilities within the region. Equally, issues around the 'store' lamb system are replicated in beef production with production being optimised with separate rearing and fattening enterprises typically in different geographical areas. As the production model is a closed herd system, there is only limited import of livestock; occasionally the farm will procure a bull or a cow from either the local mart or a mart outside the RR. Most meat consumed in the RR originates from the national supply chain (wholesalers and supermarkets) outside the RR. 'Home kill' consumption is less likely as cattle are much more difficult to slaughter than sheep.

The lack of abattoirs within RR30 and in other parts of Scotland is a topic of much speculation and various plans to open regional facilities have been proposed including a



current initiative to open an abattoir in Portree (the main town on the largest island in the region). Historically abattoirs did operate on a smaller scale within each region of the UK and Scotland was no exception but economies of scale and improved transport infrastructures aligned with concerns about hygiene and animal welfare standards are amongst the reasons put forward for closures and the emergence of larger, centralized facilities. Whether local abattoirs can be economically viable or not remains the subject of conjecture but small-scale livestock farmers were generally supportive of exploring this option and highlighted a desire for small local abattoirs to receive some form of subsidy.



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Typology of small farms in the reference region

Small holdings in this RR can be considered under 4 general types, namely: Crofts, Small Livestock Farms, Small Horticultural Enterprises, and Hybrid Agricultural Enterprises. All these 4 types of small farm produced surplus food for the food system.



4.1. Crofts

Many small farms in the reference region are “crofts⁹⁹”, a traditional agricultural unit characteristic of the RR, with the crofters deriving a significant part of their income from other sources. Crofting is also a social system characterised by its common working communities, or ‘townships’. Individual crofts are typically established on 2 – 5 ha of in-bye or better quality agricultural land capable of supporting forage, arable and vegetable production although the size, climate and market environment discourage arable production. Each township formally shares poorer quality hill ground as extensive common grazing for cattle and sheep. Agriculturally, the overwhelming majority of the land in the Highlands and Islands is classified as Severely Disadvantaged in terms of Less Favoured Area Directive, however, these areas receive the lowest LFA payment. Under these circumstances most crofters find it impractical to work exclusively in agriculture therefore are typically part-time farmers holding down second jobs. Many crofters do not limit themselves to the production of one or two agricultural products, but rather produce a variety of produce, depending on the circumstances of the respective croft. Nevertheless, the most common produce type is meat, as sheep and cattle represent the most profitable use of the terrain, due to lack of economically viable arable land under current economic conditions. This lack of arable land forces the largest proportion of sheep and cattle to be sent for store outside the RR, as even grazing is effectively seasonal and does not suffice for the local production.

Crofting is legally constituted in particular areas known as crofting counties, with some additional ‘new crofting areas’ established in 2010¹⁰⁰. The system originates from a land rights movement which was a reaction to the Highland Clearances. A very limited area of RR30 is not within crofting areas: small farms which are not crofts do not enjoy the special arrangements of crofting notably the nominal rents paid to the land owners nor the access to common grazings.

4.2. Small Livestock Farms

Crofting legislation applies to the ‘crofting counties’ or new crofting areas. A very small proportion of this reference region, in the far south, is not in a crofting area and more general arrangements apply. In these non-crofting areas there are a number of small livestock farms that are typically privately owned and farmed by the owner or tenanted and owned by a large landowner. A major distinction between a croft and a small farm in this RR (beyond the issue of ownership) is that small farms do not enjoy a share of common grazing therefore additional grazing are often leased on a short-term basis.

Land ownership in this RR, as throughout much of Scotland, resides in the hands of a few wealthy individuals in the form of large estates but whereas crofting arrangements keep rents relatively low and protect agricultural land, in non-crofting areas landowners exercise more control over farms and land-use more generally. Tenant farmers operate most of the non-croft agricultural holdings and access to agricultural land tends to favour larger holdings.

⁹⁹ See <http://www.crofting.org/faqs/67#what-is-a-croft> (Accessed 15th June 2018)

¹⁰⁰ See <http://www.gov.scot/Topics/farmingrural/Rural/crofting-policy/new-crofting-areas> (Accessed 15th June 2018)



Where small holdings (that are not crofts) exist the primary holding can be very small (1-2ha) and can only produce livestock if additional grazing or forage is rented. The project team found specialist breed cattle such as Highland Cattle and Dexters that were raised in part as hobby or show animals, their owners deriving income from full-time employment off the farm and running the farms at a loss. That said, these enterprises still produced surplus meat that was sold into the food system.

Both small livestock farms and crofts may practice basic processing making jams and preserves and/or provide guest accommodation (bed and breakfast).

4.3. Small Horticultural Enterprises

Numerous small horticultural enterprises were found. These food producers typically owned a small plot of land (<5 Ha) on which they produced high value horticultural products both in poly tunnels and in small outdoor plots. The popular use of poly tunnels allows the cultivation of a range of herbage vegetables and fruit vegetables but earth vegetables (e.g. carrots and potatoes) are also grown in outdoor plots. These producers sold through a variety of channels including contracts with restaurants and direct selling to the consumer via farmers markets, box schemes and farm gate sales.

It must be noted that small horticultural enterprises were, in some cases, also a component of crofts, small farms and hybrid agricultural enterprises as detailed below but were also a discreet type of small farm in many cases. For example, a croft might also have a poly tunnel and produce vegetables but the small horticultural enterprises distinguished here were not crofts in that they did not share common grazing nor enjoy the protection of crofting legislation.

4.4. Hybrid Agricultural Enterprises

Our research encountered a number of agricultural enterprises where food production was, in some sense, a secondary goal. These enterprises included:

- A Buddhist community with a productive horticultural garden tended by devotees and volunteers seeking spiritual enlightenment. The garden was professionally managed by a full-time gardener and produced a substantial amount of the food that the community and its paying guests consumed. They had an orchard and poly tunnels along with earth vegetables and herbage vegetables.
- Community gardens: There are a number of community gardens within the region established, not primarily to produce food but to engender community wellbeing yet cultivating food surplus for the local food system. These enterprises are typically recipients of public funding, donations and volunteer services. They are community owned and the labour is primarily community volunteers.
- Third sector organisations: Some horticultural enterprises exist to provide a specific social function for example a horticultural enterprise in Bute that rehabilitated young offenders. Here surplus food was produced and sold at the farm gate and



considerable investment had gone into poly tunnels and the development of a food producing establishment. however the focus of the enterprise was rehabilitation. Similar enterprises provide work experience or educational opportunities for the disabled and/or people with learning difficulties. The small scale production from such enterprises is typically exclusively consumed within the region either through community events, direct sales or box schemes.

Governance

a. Main interactions of SF and SFB with governance structures in the region

The main formal governance structures with which the local SFs interact are grant awarding bodies and advice/training providing institutions. They utilise the established pathways to apply for funds and receive application support and training. The farmers tend to seek local markets and develop relationships with their returning customers, be they consumers or businesses (restaurants, hotels, local shops or chefs). Many exhibit a trend to innovate through the development of collaborative initiatives and business-oriented thinking. However, as the SFs rarely provide the farmers with considerable income, the latter have to seek additional income sources, both internal and external, through diversification and pluriactivity. Most of the SFs do not produce significant amounts of food, as they are oriented towards a less production intensive model, with focus on non-production objectives (promotion of a healthy lifestyle, environmental services, and maintenance of the local community).

Due to environmental (remoteness), infrastructural (transportation routes; broadband access) and regulatory (legislation about livestock transportation; centralised slaughterhouse arrangement) and market (expensive fees for farmers' markets; demand for very fresh produce) constraints, the farmers tend to operate very locally and restrict themselves to outlets that are geographically close to their location. The latter is not the case with livestock that often has to be sent across large geographical distances for store or slaughter. With regard to norms, a large proportion of farmers uphold the notion that a crofter has to "work the land". Absenteeism is considered a bad practice that negatively affects crofting in general and impacts the wellbeing of the crofting communities. Animal welfare concerns and environmental awareness are quite widespread among the farmers, even though conservation often conflicts with farming priorities, especially regarding the protection of predator species, causing dissent between the various groups involved in governance.

b. Levels of governance and their relative importance for SFs and SFBs

The local, regional, national and international (EU) levels of governance are at play in the case of SFs in the region. The EU level is most involved in grant and subsidy allocation [e.g. Basic Payment Scheme (formerly known as Single Farm Payment), LEASS (Less Favoured Area Support Scheme)] as well as access to imported inputs (machinery, feed, organic soil enhancement). The national level is responsible for the distribution of international and national funds [e.g. CAGS (Crofting Agricultural Grant Scheme)], as well as the investment



of financial resources from the EU level in the provision of supporting services (e.g. training and advice).

The intricacies of responsibility delegation are quite complex and often recipients of support may not have a clear idea where the funds originate from. Furthermore, application bureaucracy levels are high and many candidates find access to funds challenging. Technical issues with the actual distribution further deepen the access problem, creating animosity between the state actors and the farmers. At the regional and local level, a range of institutions, established and funded through a variety of sources (state and private), provide supporting services, focusing mainly on representation, training and advice, legal support, and occasionally financial support as well. Local actors often come together to resolve local issues and respond to specific local needs (e.g. establishment of local farmers' markets, lobbying).

c. Constraints impairing full participation in the food system

Matters of labour seem to be among the most significant constraints that SFs face. Due to land base and production size, most SFs cannot financially support themselves, yet the farmers seem to believe that if they had access to and could afford to employ reliable labour, they could significantly increase their production levels. Another issue that they face is that because of the size of their holdings, the subsidies that they are eligible for are usually very low and therefore transaction costs (bureaucracy and professional advice) are disproportionate. As a result, they may abstain from even applying. Additionally, official regulation of livestock transportation may also obstruct cost-effective production as the production size of small-scale farms coupled with transportation costs render maximisation of production levels ineffective. Another aspect to be pointed out is the impact of farm type. Even though the majority of SFs in the region are classified as "crofts" and have access to a variety of support tools specifically developed for crofters, farmers whose holdings do not fall under the croft label (most often smallholdings) do not have access to most of the tools that crofters do, despite the fact that the land in itself and the utilised practices may be the same between the two farm types. Even within the crofter group however, age of the farmer and farm size affect the access of the recipient to grants and other funding opportunities, with younger farmers having access to more alternative choices due to favourable legislation and holdings (non-crofts) below a certain size not being recognised as actual commercial entities and therefore being excluded from funding opportunities.

d. External policies, decisions and social norms affecting food systems

A range of norms affect food systems in the region. Local small-scale food production is widely perceived as more sustainable and of better quality than intensive large-scale farming produce, and its contribution to local communities is largely acknowledged as an important factor that maintains social cohesion. Nevertheless, despite the fact that many SFs strive to uphold practices like organic farming, improved animal welfare, and permaculture, official regulation often discourages them from obtaining formal certifications and/or achieving higher levels of conformity to best practices. For example, organic certification is widely



considered as unprofitable with potential returns not cost-effective. Furthermore, even though many farmers strive to provide their livestock with high animal welfare levels, they believe that the fact that they are required to transport the animals to slaughterhouses located far away from their locations (often even outside the region), reduces the quality and market value of their produce as the animals become stressed and suffer unnecessarily before slaughter. Moreover, compliance with livestock transportation rules has proven to be prohibitively expensive for SFs, directly impacting production levels. Another point that should be made is the extent of priority conflicts between biodiversity conservation and agricultural production. Many farmers cited issues with protected predatory species that directly impact the SF livestock. Several agri-environmental and conservation schemes are in place but the farmers' priorities might not always align with conservation priorities and perceptions of scheme outputs seem to differ significantly among the two.

e. Gender issues intersecting governance issues

Gender equality is promoted through the legislation and women widely participate in agricultural activities. They are often involved in lobbying activities, spearheading campaigns for the promotion of innovation in SF (e.g. development of local slaughterhouses). Yet, traditional exclusions still exist and practices do not always reflect the objective of gender equality. Women seem more likely to promote diversification activities, especially art-related, and are the ones most often involved in the provision of tourism-related services implemented on SFs.

f. Other actors and processes important for the regional food system

The maps were deemed representative of the situation in the region.

g. Forms of collaboration and organization between small farms

There is very limited collaboration among small farms in the region, with the exception of the occasional farmers' market. In the case of salad leaves, the existence of a cooperative means of transportation of produce was made evident during one of the focus groups, even though its existence does not directly affect the map representations.

h. Forms of collaboration and organization between small farms and consumers

There are no significant collaboration channels between farmers and consumers.

i. Relationship between small and large farms, and between small and large businesses

There is limited to no collaboration between small and large farms in the region.

j. Other governance issues



Two significant issues were made evident during the focus groups, both of which have been recurring themes during the qualitative data collection: restraints in terms of health and age of farmers and predation issues.

Small Farms and rural livelihoods

a. Importance of household labour in SFs

Household labour is integral to most small farms with all family members contributing to the business. Many older farmers with grown-up children or childless, find themselves unexpectedly working into their retirement with little planning for the future. More positively several parents of young children valued the lifestyle as a beneficial childhood environment and this factor was put forward as a rationale for maintaining a small farm.

b. Farm and non-farm income in the SF's households

Many agricultural enterprises were said not to be profitable and were sustained with support from non-farm income. This has always been a part of crofting areas with crofts originally established at a scale that would require the crofting family to give labour to the estate owner. This could take the form of 'kelpling' (collecting seaweed as cash crop), fishing during the mackerel season, building walls or otherwise labouring on the 'laird's' estate. This legacy has left most crofts at an uneconomic size to sustain family livelihoods. Many have been amalgamated over the decades leaving some crofters in possession of what amount to medium sized farms with multiple shares in the township to which they belong but typically crofts are still part-time enterprises. Some are too small to overcome the transaction cost of obtaining subsidies. Many do not qualify for grants including agro-environmental schemes. Re-forestation schemes, for example, require a minimum size of land to qualify.

c. Shocks and coping mechanisms of SF households

Enterprises of all types are subject to shocks. Given the predominance of livestock in this RR many farmers and advisors recalled livestock disease outbreaks when asked to think about past shocks. The Foot and Mouth outbreak of 2001 was particularly prominent. Although the outbreak was indiscriminate of farm size, extensively grazed animals on common grazings were particularly exposed to this contact disease. There was some suggestion that small scale livestock farmers including crofters might be more resilient to livestock disease incursions because SF household incomes are not exclusively dependent on a single revenue stream; farmers tending to be part-time or farming tending to be more diversified at the small scale.

Another shock that generated discussion was Brexit. The degree of uncertainty following the decision by Britain to leave the European Union is worrying to small farmers and small farm businesses for whom stability and predictability are valuable commodities. That said there was a general feeling that EU farm subsidies have not been geared to supporting small farms



and that the likely reform of agricultural subsidy post Brexit is an opportunity for small farms to benefit.

Role of Small Food Businesses

a. Main insights and patterns

Small food businesses often aim at providing high quality products and services, originating from the region and developed as representations of the local tradition. They support the local communities and offer access to essential products and services for the local population and to luxury products. However, the local populations in RR30 are generally well served by supermarkets not only through a network of stores but through home delivery services. Price competition results in most households accessing supermarket produce for the majority of food. Artisanal shops including butchers and specialist retailers tend to be relatively expensive and are not the main source of food for local residents. They are popular with tourists and promote the regions produce which is in turn a benefit to local communities. There is also a resurgence in artisanal produce throughout the UK and microbreweries (such as the Bute Brew Co), cheesemongers, bakeries and local ice-cream producers are a growing sector in the RR.

b. Labour in SFB work

With little food processing in the area and what little there is typically operating at a larger scale, for example Arran Creamery which has 6 employees and is owned by First Milk, the SFB's we researched included small retailers or artisanal producers. Labour was comprised of family members or locals on a full-time or part-time basis. Availability of labour was not said to be a constraint although it is likely, especially in the more remote parts of the RR, that this is an issue. There was also some indication that availability of suitable business premises was a constraint in Rothesay and potentially more widely. Migrant labour was also a concern but not especially for SFBs at the SALSA scale.

c. SFB income

Household income was, in many cases, supplemented by additional employment, often by the spouse.

d. Shocks and coping mechanisms of SFB households

Brexit was considered a significant shock for SFBs in relation to the general uncertainty created. European tourists were said to be good customers of artisanal produce, visiting farmers markets and thought to have more of a taste for regional gastronomy than typical UK tourists.



The Future

SFs across RR30 face future uncertainties across the whole range of social, environmental, economic and political dimensions. In the short-term, many farmers prioritise maintenance of their holdings (fencing, general infrastructural upkeep). For the long term, depending on the individual circumstances (age, length of farming background) issues surrounding succession and retirement preoccupy many SFs who are faced with the prospect of infirmity and incapacity without any realistic succession plan. Parents of younger children, when asked whether the children would continue the family farm, generally reported that children should be 'free to decide' and there did not seem to be evidence of long-term succession planning, although there was some indication that this pattern was pronounced for SFs who were farming as a lifestyle change as opposed to those who had farmed for generations. Grown-up children were in many cases already working away from the locality and did not intend to take over the SF. In short, there appears to be a cultural trend away from family succession particularly for small farms that did not offer particularly lucrative opportunities.

Environmental: Many SF enterprises prioritised 'green values' particularly horticultural establishments. Their USP is often aligned with pro-environmental practices including low-input, sustainability and (although less frequently) permaculture. This was less evident for livestock keepers.

Economic: There was an aspiration to 'break-even' in many of the SFs which were part-time operations, typically supported by paid employment. This part-time configuration was a further barrier to family succession as the farms often did not support even one full-time farmer. Excepting those approaching retirement, there were general aspirations to be more productive and to diversify. In the short-term, SFBs generally prioritised survival, particularly where the business was not financially independent as in the case of several new start-ups. Challenges included creating a critical mass for the business to be self-supporting and priorities included attaining better market access, diversifying and securing investment. In the long-term, businesses prioritised growth. Several highlighted the development of branding as a key objective including a croft selling a niche Hebridean wool product and a small brewery selling local craft beer. There were also aspirations to smooth out the seasonality affecting much of the region whereby a short summer season is followed by a difficult trading environment with fewer visitors/customers.

Access to Land: All types of SFs cited issues around land ownership as critical risks. While crofts are in a privileged position being subject to a number of legal protections it remains extremely difficult to acquire a croft with commercial values throughout the region acting as a deterrent to new small-scale agriculture. Where the land is not crofted, many small livestock keepers are either tenants or rent additional grazing land under, what they described as, insecure tenancy arrangements and are at risk of the land owner selling to a developer or a larger farm. Small horticultural establishments are also at risk in a property market not supportive of small-scale agriculture due to high land values.



Labour: A general decline in agricultural activity aligned with declining populations generally throughout the region is also perceived to represent a risk to traditional farming activities particularly around livestock rearing where communal activities such as gathering and shearing sheep require a vibrant local community to participate.

Succession: Older farmers worried about issues related to age and health with long-standing issues around succession existing throughout the region. Youngsters cannot buy farms easily making it difficult for families to continue the farming tradition. This is accentuated in small farms where there is not enough income to support more than one, often part-time, farmer.

Brexit: Britain's departure from the EU is the most prominent political uncertainty for SFs. The unknown effects of Brexit on Single Farm Payments and other subsidies is particularly important for livestock farmers who are proportionally more dependent on SFPs and other subsidies.

Predation issues: Trade-offs between conservation values and farm income due to predation are seen as a risk to the enterprise particularly for sheep keepers in relation to sea eagles. Ecological protection was frequently cited as potentially damaging to agricultural production.

Infrastructure: Farmers were concerned that the local market would need to expand before productivity could be scaled-up and, in the case of livestock, infrastructure change (for example local abattoirs) would need to be developed to make the future more viable than the present.

Brexit is of concern to most food related businesses due to uncertainty over the direction of agricultural support and general prospects for the UK economy.

Access to Land: There is also some interest in land reform. One business, for example, faced constraints around moving to larger premises because of traditional patterns of property ownership on the island of Bute. Without access to land many interviewees saw little prospect of long-term prosperity for agriculture related businesses.

Seasonality: SFBs often described a short summer season during which peak sales were healthy in contrast with a seasonal decline which presented a challenge to business viability.

Economic Outlook: The general prospects for RR30 were sources of risk to many SFs. A view that government needs to increase commitment to regional support in terms of infrastructure and to help with systemic economic problems in the Highlands and Islands was evident in many interviews. Certain locations including Bute were perceived as socially as well as economically disadvantaged. Low educational attainment leads to a poorly skilled workforce. Access to specialist business advice was variable. Other parts of the region, in contrast, have more developed tourism and were reported as more vibrant (for example Skye). The general remoteness of the region was seen as disadvantageous in terms of adding cost to inputs and raw materials, involving costly distance to markets and restricting the



development of local services including abattoirs and business parks due to low population and small market size, however one business saw 'lack of competition' as opportunity.

a. Food system forecast in 5, 10 and 20 years

According to the participants, the relationships represented on the maps are unlikely to change in the future, unless some radical external change takes place. Even Brexit seems unlikely to change the distribution channels.



Annex: List of resources

- a. List of key experts interviewed

We're not able to do this due to data protection restrictions.

- b. SF and SFB interviews and focus groups information

Stakeholder typology	N° of participants						How were they contacted?
	Interviews			Focus Groups			
	Men	Women	Total	Men	Women	Total	
Farmers	17	11	28	1	3	4	Email
Producers' cooperatives				1	2	4	Email
Slaughtering facilities					1	1	Email
Processors (small/large)		1	1				
Wholesalers	1		1				Email
Retailers							
Caterers		1	1				Email
Other small food business		1	1				Email
Exporters							
Importers							
Farm inputs suppliers							
Advisory services	2		2	2		2	Email
Agricultural administration/Ministry of Agriculture							
Consumers' groups/organizations							
Local administrators and policy makers	1	1	2				Email
Political leaders and PMs							Email
Other programs/initiatives	1	2	3				Email
Nutritionist							
NGOs							
Traditional and religious leaders (for Africa)							
Total	39						

