



salsa
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small food businesses and
sustainable food security

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SALSA Living Document (Task 7.4), 2.0 version (Deliverable 7.2) - Task Leader: FAO-AGDR

1. Background

The “**Small Farms, Small Food Businesses and Sustainable Food Security**” (**SALSA**) project brings together 16 partners, from European and African countries and the UN system, who have a unique blend of multidisciplinary expertise and experience from a wide range of geographical and socio-political realities. The project is supported by a high-profile international Expert Stakeholder Panel (ESP), whose members include experts and key stakeholders in the area of small farms and food and nutrition security (FNS).

The aim of the SALSA ‘**Living Document**’ is to document the main outcomes that have emerged throughout the four years of the SALSA research project and to associate them with key messages.

The elaboration of the Living Document follows the research progress assimilating the lessons learned from the various Work Packages (WPs – see below, Table 1). The document represents a mechanism for consolidation of key results, ultimately feeding into the final report.

Table 1. List of Work Packages

WP1. Transdisciplinary theory building and analytical framework
WP2. Estimating the distribution of small farms and their actual and potential production capacity
WP3. In-depth assessment of food systems in the 30 reference regions
WP4. Participatory foresight analysis
WP5. Analysis of the governance of small farmer organization and food chains
WP6. Enabling conditions for small farms and small food businesses
WP7. Communication and joint learning
WP8. Project management and coordination

2. The Living Document as a learning process

Originally, the idea was to “open” the Living Document for a limited amount of time after one of the identified key deliverables had been finalised. This in order to allow SALSA partners and the ESP to provide insights and perspectives and thereby learn from each other.

An initial proposal of key deliverables (12) from SALSA was identified (listed later, in Table 2) and the aim was that the Living Document would be updated by the partner technically responsible following each deliverable.

The agreed process was carried out for some key deliverables. However, during the progress of the project the partners resolved to redesign the concept and, subsequently, the structure of the document. During the different phases of the project the discussion on the deliverables has been ongoing and in some cases, they have been significantly questioned and revised.

In addition to that, the postponement of the finalization of some deliverables contributed to a distancing from the original plan, including the Living Document.

SALSA partners collectively decided to suspend the work on the Living Document and subsequently to renew the concept and structure of the document. This process required some time and



ultimately a decision was taken to work on the document only at a more advanced research stage. It was also decided to aim at communicating results in an easy to understand way and not for researchers only.

As in the original plan, updating the Living Document will involve the technically responsible partners. Each responsible partner will carry out the following tasks in this order:

- a) Adding the Executive Summary (about 1-2 pages) of the key deliverable to the Living Document
- b) Adding 2-3 key messages to each summary, emphasising in particular any novel results found.
- c) Technical partners can also include key messages related to other deliverables (not those identified as the 12 key deliverables), indicating number and title of the deliverable.

The FAO team is in charge of collecting the inputs from the technical responsible partners as well as revising and adapting them to a proper communication language. The same key message (or a similar one) can result from two or more key deliverables: the FAO team will harmonize the messages and make sure that there is no redundancy.

The FAO team will validate the revised version with the responsible partners, consolidate the inputs and produce a final version.

This final version also includes in *Annex 1* a note entitled *Developing a SALSA narrative*, which aims to make the results of each Work Package easily accessible to the different SALSA target audiences.

3. Key deliverables and associated messages

The list of key deliverables (12) to be included in the Living Document is provided below. They are listed in chronological order (by month of expected delivery in the project), together with the name of the partner institution technically responsible for the relevant key deliverable.

Table 2. List of Key Deliverables

<p>#1. Deliverable 1.1. Report: Initial Conceptual framework. <i>Università di Pisa (UNIFI)</i></p> <p>#2. Deliverable 2.1. Report on the estimated spatial distribution and key characteristics of small farms in Europe. <i>Universidade de Évora (UÉvora)</i></p> <p>#3. Deliverable 1.2. Report: Analytical framework and criteria for the identification of small farms and for their differentiation. <i>Universita di Pisa (UNIFI)</i></p> <p>#4. Deliverable 2.3. Methodological report and guidance for the use of SENTINEL-2 data in assessing and monitoring of small farms and crop production. <i>Universidade de Évora (UÉvora)</i></p> <p>#5. Deliverable 2.4. Report on the assessment and characterization of small farms distribution and spatial characteristics obtained from SENTINEL-2 data. <i>Universidade de Évora (UÉvora)</i></p> <p>#6. Deliverable 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. <i>Universidade de Évora (UÉvora)</i></p>
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#7. Deliverable 3.3. Synthesis report on the main insights gained from the in-depth assessments in 30 regions (Synthesis report). *Universidade de Évora (UÉvora)*

#8. Deliverable 5.1. Report on the governance arrangements and their influence on the contribution of small farms and food businesses to food availability, access, utilisation and stability. *The James Hutton Institute (JHI)*

#9. Deliverable 5.2. Report on governance frameworks and gender. *The James Hutton Institute (JHI)*

#10. Deliverable 4.2. Synthesis report on the future potential role of small farms in FNS in Europe in 2030 and 2050: results of a foresight assessment. *Universitat Politècnica de València (UPV)*

#11. Deliverable 6.1. Report on enabling conditions and existing policy instruments that are, directly or indirectly, to promote the development of small farms and a corresponding tailoring of international cooperation and agricultural research for development. *Highclere Consulting S.R.L*

#12. Deliverable 6.2. Strategic framework for guiding decision-makers in the choice of appropriate support instruments (including the related evaluation and learning arrangements). *Highclere Consulting S.R.L*

#1. Deliverable 1.1. Report: Initial Conceptual framework.

Responsible partner: *Università di Pisa (UNIFI)*

Executive Summary of the Deliverable

Deliverable D1.1 provides the initial Conceptual Framework (CF) for the SALSA project. It gives the definitions of the key terms and categories that will be used in SALSA, together with a conceptualisation of the food system used as a frame in the rest of the project.

The structure of the document derives from the overarching research question:

What is the contribution of small farms and of the related food businesses (SF/SFB) to sustainable FNS in a wide range of food systems?

This query was then divided into three hypotheses, to be investigated throughout the project:

Hypothesis 1: Small farming is a relevant source of sustainable food production (availability) for many regional food systems

Hypothesis 2: Small farms and small food business provide food and incomes for rural households (access and utilization's assets and capacities) in many regional food systems

Hypothesis 3: Small farms and small food business increase food systems' diversity thereby contributing to their resilience (stability)



The initial CF first addresses FNS definitions, adopting the one given by FAO at the 1996 World Food Summit and then reaffirmed in 2009: *“food security exists when all people, at all times, have physical, social and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life”*. Four FNS dimensions (availability, access, utilisation and control) will be considered in the field research at different scales (from the global to the individual), according to the Work Packages aims and informative needs.

Successively the concept of sustainability is considered and briefly explored in its three dimensions: environmental, social and economic. In addition to these, it is argued that the vision of a sustainable FNS must include the utilization phase, and in particular consumption choices and related diets.

In the following section the criteria for the identification of "small" farms are discussed. Since different structural, economic or social criteria can be used, and different definitions can be utilised in different regions, the need for an agreed definition, possible with common thresholds, has been emphasized. Three groups of criteria are identified: structural, economic and related to the role of the households. Pros and cons of the various options are discussed, to finally adopt a structural criterion with a common threshold: *small farms are those with less than 5 hectares of land*. A degree of flexibility is recognised for each region, also with the use of additional economic criteria. A similar analysis is dedicated to the definition of small food business. In SALSA, food businesses will be considered as long as they are in some way directly related to small farms.

The largest part of the document is then dedicated to the conceptualisation of "food system" and to the definition of a process of food system mapping, to be developed at regional level by each partner. A classic a-spatial definition of a food system, with articulation on activities and outcomes is given. Then the functioning of small farms within food systems is discussed through a scheme highlighting the main income and labour flows centred on the farm/household. It is recognised that food systems differ greatly from one reference region to another, and that the consideration of the geographic space and spatial attributes are crucial for an effective comprehension, and mapping, of the system. It is also argued that the distinction, within a given system, between food production and food consumption sub-systems is useful to better describe flows and patterns. This is particularly true in relation to food consumption patterns, which can be used as a conceptual starting point for the field research and for a detailed map of the regional territorialised food systems. This section ends with a draft sample map, suggested as example of a possible outcome of the mapping exercise that each team will carry out in WP3.

The following section focuses on the role of governance. A distinction is suggested between internal and external governance (to the food chains) as a useful frame for the analysis to be conducted in each region. The presence of multiple sources of governance and the need to take them into consideration in the analysis is also underlined.

In the last section the focus goes back to small farming, with a preliminary identification of the main contributions that small farms are expected to give to sustainable FNS. The issue of vulnerability is also discussed: in particular, it is argued that a field in which small farms can give a relevant contribution is system vulnerability reduction or mitigation. The set of key SF/SFB contributions to sustainable FNS is only a broad indication, to be validated and integrated through the field research.



Executive summary of a related deliverable: 1.3 The empirically grounded Conceptual framework

The initial CF (D1.1) was consequently revised in the light of the SALSA project outcomes. The result is the Deliverable 1.3, an empirically-grounded conceptual framework. This document, which hinges on the project findings and on the subsequent collective reflections conducted among SALSA partners, integrates, refines and in some cases revises the initial assumptions about the key concept and categories expressed in the initial version of the CF.

The empirically grounded conceptual framework is mainly based on the field research conducted in the selected reference regions and elaborated in the regional reports. This key informative (and reflection) base has been enriched by elements derived from the eight SALSA Work Packages (WP) and elaborated following a participated and transdisciplinary process, which hinges on interactions with experts and stakeholders at different levels and through different tools, in addition to desk analysis and field research conducted in each region.

Each section of the document explores one of the key concepts of SALSA. In particular the analysis focuses on what defines “small” farms, on the types of small farms' connections with the food system and with the broader environment, and on the types of small farms' contribution to FNS, with a summary of what was argued in the initial CF, followed by the reflections triggered by the project. A last section provides an exploratory analysis of the contributions given by the different small farms' types identified in the project.

The analysis is grounded on the overall reflections triggered by the project, but also illustrated and enriched by the reference to specific examples (of regions, of public or private initiatives, of single farms and households). An important contribution has also been given by the transdisciplinary processes (web-conferences, participatory exercises) through which additional information, anecdotal evidence and reflections have been harvested from a diversified range of sources. The interactive processes helped to go beyond the quantitative observation of the current small farms' and food systems' conditions, to reflect on specific cases that local stakeholders and experts consider key to understand the potential and future of small farms.

Key messages related to Deliverables 1.1 and 1.3

- 1) With regard to the farms, "**smallness**" is first and foremost a relational concept. It must be considered in each geographical or sectorial context in relation to the farms' capability to activate alone - or not - a range of capabilities and functions, and to achieve a certain degree of control over its own development trajectory. In this view, a farm can be considered "small" when the size of one or more of its resources (land, labour, capital) put the farm in a disadvantaged position respect to farms with bigger size, and pushes the farm towards the establishment of connections through which these limits can be overcome.
- 2) Small farms **contribute** to food and nutrition security by filling the gaps of industrialized chains in terms of land exploitation, local varieties and local market channels. They contribute to alleviating overall poverty (through income provision for the households) and its effects on FNS (also through self-consumption extended to friends and neighbours through reciprocity relations). Moreover, they contribute to general access to fresh nutritious food, and to the



safeguard of food traditions, reproducing a food-based local social fabric through which the food systems' diversity and resilience are enhanced.

- 3) The forms and the relevance of small farms' contribution to food system outcomes, and to FNS in particular, depend on their **connection with the system**. The choice/balance between self-provision and economic integration is one of the main elements that shape this connection. Thus, a system approach is well suited to grasp the specificities of SF/SFB networks and their contribution to FNS.
- 4) The capability of small farms to **cooperate** and engage in coordinated initiatives is favoured by a vibrant social fabric on the one side, and on the presence of proactive policy initiative on the other. Public support to the creation of local food systems (food policy councils, support to farmers' markets, tailored safety regulation, etc.) can strengthen food and nutrition security based on a diversified array of business models, networks and governance arrangements which hinges on the active role of small farms and small food business.

#2. Deliverable 2.1. Report on the estimated spatial distribution and key characteristics of small farms in Europe.

Responsible partner: *Universidade de Évora (UÉvora)*

Executive Summary

Deliverable 2.1 describes the analytical process that enabled the development of the European-level map with the estimation of the distribution of small farms at the NUTS-3 level. D.2.1 includes the methodological approach used for its development, which combined diverse datasets, from EUROSTAT and national statistics, and data obtained from key experts in different countries. This report includes a set of maps indicating the distribution of small-scale farms (considering both structural and economic dimensions) within Europe, based on the thresholds defined in SALSA's conceptual framework for classifying small farms in two ways: by physical size (farms with less than 5 ha of Utilized Agricultural Area; UAA) and by economic size (farms with less than 8 Economic Size Units; ESU of Standard Gross Margin; SGM). By combining the results of the European small farms mapping and cluster analysis with the EDORA (European Development Opportunities for Rural Areas) structural types, this report illustrates how the 25 reference regions representing the diversity of small farm situations across Europe were selected.

5.2. Key messages related to deliverable 2.1.

- 1) A **typology of six small farm types** was elaborated from a variable cluster analysis and EDORA dataset, accounting for the diverse structure and distribution of small farms in Europe.
- 2) **Three main groups of NUTS-3 regions** were identified across Europe.
 - a. Predominantly agricultural regions (Clusters 1, 2 and 3).
 - b. Regions with a balanced distribution between agriculture and other land uses (Cluster 4);
 - c. Regions with little agricultural land surface (Clusters 5 and 6).
- 3) The **high variability in the spatial distribution and types of small farms in Europe** that were identified in Deliverable 2.1. means that better information is needed in support of policy development.



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#3. Deliverable 1.2. Report: Analytical framework and criteria for the identification of small farms and for their differentiation.

Responsible partner: *Università di Pisa (UNIFI)*

Executive Summary

The overarching research question developed in the Conceptual Framework conveys the core objective of SALSA (*What is the contribution of small farms and of the related food businesses to sustainable FNS in a wide range of food systems?*) by highlighting that the research follows a systemic approach.

This Analytical Framework (AF) builds upon the Conceptual Framework to identify objectives and methodological steps of such systemic approach and to guide data collection and analysis (to be carried out as part of WP3) in all the reference regions (RR), at NUTS 3 level (identified in WP2). It also serves to analyse and interpret data once collected.

This AF addresses Small Farms (SF) and Small Food Business (SFB) contribution to food and nutrition security from different standpoints: from the perspective of the regional food system into SF/SFB and, vice versa, from the perspective of SF/SFB into the regional food system, combining multiple data collection methods. Overall, the process follows a regional approach to understand the territorial context and, by means of subsequent comparative analysis, the differences between territories.

The AF includes and describes three main steps:

Step 1 comprises a preliminary analysis of the food systems identified in each RR, focusing on the balance of production and consumption, based on desk analysis and exploratory interviews with key informants. It will bring to an estimated quantification of a food balance sheet for each RR and to a first draft map of the food system.

Step 2 addresses small farmers, in their connections within regional food systems, to understand their contribution to food and income provisioning in rural household and the extent and characteristics of market integration. The analysis will be carried out through in-depth interviews aimed at gaining a more detailed understanding of how SF/SFB operate.

Step 3 focuses on the analysis and mapping of the food system and sub-systems identifiable within the selected RR. The aim is to explore the role played by the various food system actors in relation to selected staple food items. This step will bring to the definition of 3-4 specific food maps, still at NUTS 3 level, in which main food systems actors and flows related to specific food consumption patterns are identified and discussed. In order to assess and validate the research outcomes, a final regional workshop (on the regional food system as a whole) will be carried out, particularly focusing on governance and gender issues affecting small farms and small food businesses.

Key messages related to this deliverable

SALSA developed three main **research hypotheses**:

1. SF are a relevant source of sustainable food production (availability) for many regional food systems



2. SF and SFB provide food and incomes for rural households (access) in many regional food systems
3. SF and SFB increases food systems' diversity thereby contributing to its resilience (stability)

The following table summarises the hypotheses identified in SALSA, and the relevant analytic questions identified for each one (presented in Deliverable 1.1), in the rows. The columns indicate the three macro-phases of the methodology –previously described –to address the analytical questions. Each phase is operationalised through specific data collection protocols developed in subsequent phases (in WP3). It should be noted that these are logical, rather than chronological, steps.

Research Hypotheses	Phase 1. Analysis of the food systems	Phase 2. Analysis of the small farms	Phase 3. Analysis of the small farms in the food systems
<i>HP 1: SF are a relevant source of sustainable food production (availability) for many regional food systems</i>	Which are the most relevant food consumption patterns in the different regions, and their relationship with SF and SFB? (WP2 and WP3) Which food system actors and activities are involved in the generation of the FNS outcome in the reference region?	What is the estimated production capacity of SF in each region (together with WP2)?	Which are the most significant differences between different regions in Europe regarding the role of SF and SFB in the food systems and towards FNS (comparative analysis in WP3)?
<i>HP 2: SF and SFB provide food and incomes for rural households (access) in many regional food systems</i>	How do SF and related SFB contribute to FNS within the food system?	How are SF and related SFB connected to the food system?	What are the system mechanisms involved in the generation of the outcome? (WP3). How do gender relationships affect features, evolution and contribution to FNS? (WP5) What are the barriers that prevent SF from delivering better FNS outcomes? (WP6).
<i>HP 3: SF and SFB increase food systems' diversity thereby contributing to its resilience (stability)</i>		Which types of SF are identifiable within each region regarding their livelihood strategies and contribution to FNS? (WP3). What are the evolutionary patterns of SF and how they could be profiled in relation to their future perspective? (WP3/WP4).	What are the main trends of change in the food systems and the factors that are perceived as influencing the future role of SF for FNS? (WP4). What are the key regulations and governance arrangements influencing SFs activities? (WP5). What are the enabling conditions that would allow SFs to deliver better FNS outcomes? (WP6). Which typology of SF can be used to frame the identification, systematization and communication of the enabling conditions? (WP6).



#4. Deliverable 2.3. Methodological report and guidance for the use of SENTINEL-2 data in assessing and monitoring of small farms and crop production.

Responsible partner: *Universidade de Évora (UÉvora)*

Executive Summary

Deliverable 2.3. is a report on the main methodological steps implemented in the framework of Work Package 2 (WP2) to produce a crop type map for small farms in each reference region (see D.2.4 report). Accordingly, this report is not focused on presenting the results about the usefulness of Sentinel data in providing accurate crop type maps, but rather in providing a detailed explanation about the main methodological chain applied for the use of Sentinel-1A/B and Sentinel-2A/B data for crop type mapping in small farms.

The results about crop types and production potential, as well as the assessment of the effectiveness of Sentinel data, are presented in Deliverable 2.4. The methodological guidance within D.2.3. can be seen as a good-practice 'toolkit' that describes the main technical and methodological steps to better use spatial and statistical tools (e.g. ArcMap, Google Earth Engine, and R), as well as Sentinel data, to create crop type maps, including the strategy to select the field points, which is a crucial step in the whole process. It is as such that this methodological guidance plays a key role in providing useful technical recommendations for those dealing with remote sensing data for crop type mapping.

Key messages related to this deliverable

1. A **methodological approach** based on three main steps was implemented to produce remote sensing-based crop type maps for each reference region.
2. The **sample point collection** to identify different crop types in each reference should be defined based on two main criteria:
 - i) the agricultural landscape diversity, and
 - ii) the accessibility of each sampled square
- 3) Overall, for the 21 reference regions, a total of 85 Sentinel-1 and 61 Sentinel-2 **mosaic images** were produced.

#5. Deliverable 2.4. Report on the assessment and characterization of small farms distribution and spatial characteristics obtained from SENTINEL-2 data.

Responsible partner: *Universidade de Évora (UÉvora)*

Executive Summary

Aiming to support the assessment of small farms' role in contributing to food production and food security, the SALSAs work package 2 (WP2) was planned to demonstrate the benefit of remote sensing technology in providing accurate and timely information on the crop types, area extent, and yield estimates. Such information is crucial to objectively quantify the crop production capabilities of small farms.



Deliverable 2.4. presents the main results achieved in what concerns the usefulness of Sentinel-2 satellite data, as well as Sentinel-1 for some regions, to produce spatial information about the main crop types, crop area and crop production estimations in small-scale farming systems over 21 reference regions (20 from Europe and one from Africa). The results produced, in particular the crop production estimations for a set of key crop products were obtained by combing the information from the small farmers' interviews collected under the scope of WP3.

Together with the synergies created with the WP3 team, a valuable crop data set was built with more than 12,230 crop plots visited in the field. This asset allowed WP2 to provide a detailed analysis about the usefulness of Sentinel data to produce crop type maps and originate a set of quantitative results about the relative importance of small farms in terms of food production at regional level.

Overall, this report brings new results about the usefulness of remote sensing technology, in particular the Sentinel-1 and Sentinel-2 satellites, as a valuable tool to accurately assess the contribution of small-scale farming systems to regional food security.

Key messages related to this deliverable

1. **Sentinel-1 and Sentinel-2 images can produce good classification accuracies** (mean values: OA = 81.6%, K = 0.74, and Fscore = 70.2%) for several crop types under small scale farming systems for different environmental and territorial conditions.
2. Crop area from both data sources (statistics and Sentinel) showed very high correlation (R2 = 0.96), demonstrating the **suitability of Sentinel data in producing crop area estimations for small scale farms**.
3. Small farms are responsible for a **very high percentage of the total regional production for a set of crops** (e.g. citrus in Castellón, and tomato and pepper in Haouaria).

#6. Deliverable 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.

Responsible partner: *Universidade de Évora (UÉvora)*

Executive Summary

This document presents the small farm typologies developed from SALSA's sample (n=892) and provides a detailed comparative analysis on the key characteristics and livelihood strategies of each of the types, identifying similarities, differences and trends.

WP3 data collection was done through 5 major steps described in D.3.1. and D.3.3. The data used in this report was gathered through the second step of this process: small farm interviews. Step 2 provided direct information on small farms and small food businesses from a survey based on questionnaires to a diversified sample of small farms in each region.

The data analysis consisted of a multivariate analysis which includes ordination and clustering methods. Multivariate and cluster analysis are used to identify explanatory variables (discriminating variables) and to group farms in homogeneous types. Through this method, five main types – or clusters – of small farms have been identified.



The results are divided into two main sections. The first one provides a description of the typologies obtained through the cluster analysis, the second one shows a deeper comparative analysis of the main attributes characterising each of the types.

Key messages related to this deliverable

- 1) **Five main types of small farms** were identified to reveal the diverse small farm situations and livelihood strategies in our sample. These SF types are divided in two big groups: weaker market oriented and strong market oriented.
- 2) The development of types allows to improve our understanding on small farms and their role on food and nutrition security, as it is a **tool that reduces complexity** and allows us to make sense of small farms' diversity. The variability and differences between the types will allow for improved research outcomes and policy recommendations.
- 3) **Food self-provisioning** is important for all small farmers and in all regions there is exchange of food items with neighbours and friends (networks and social cohesion) that do not enter the market sphere.
- 4) A variety of small food businesses provide **links between small farms and their markets**, and the businesses themselves are a source of livelihoods and market connections for rural households, however in our reduced sample they are not the main link between small farms and the market.

#7. Deliverable 3.3. Synthesis report on the main insights gained from the in-depth assessments in 30 regions (Synthesis report).

Responsible partner: *Universidade de Évora (UÉvora)*

Executive Summary

Deliverable 3.3. presents an in-depth comparative assessment of the local and regional food systems analysed in SALSA. Its aim is to improve the understanding of the current and potential role of small farms in regional Food and Nutrition Security (FNS). This deliverable is a synthesis report on the main insights gained from the analysis completed in the 30 reference regions studied in SALSA.

The report is divided into 6 different subsections, each providing a different analysis contributing to answer SALSA's main research questions: first, a summary of the key socio-economic and agricultural profiles of the regions analysed is provided; second, the production estimations obtained in WP2 are compared to official statistics; third, an innovative approach to quantifying small farms' contribution to their regional food and nutrition security (availability dimension) is presented; fourth, a comparative analysis of small farms' market linkages is provided and the key patterns discussed; fifth, the key factors shaping food systems are identified; and finally, the small farm typologies obtained in D.3.2. are contrasted against the key characteristics of their particular regional food systems. At the beginning of each section, the key highlights are provided.

The results contained in Deliverable 3.3. bring new insights to the current debate around small farms and their contribution to FNS, which argues that small farms are still a key element of global FNS. Our results are in line with these arguments and bring a much needed focus on European small farms, evidencing that there are still many small farms in Europe supporting regional FNS with locally supplied and produced food.

Key messages related to this deliverable



1) **Three food system groups** were created to analyse SF's contribution to regional availability of the products studied: Small farms (SF) in group A are generally part of shorter chains that keep SF production locally. In group B, SF are also part of short food chains or alternative food networks, but some part of their production also goes into mainstream commercialisation pathways. SF in group C are generally export oriented.

2) **Food systems found in group A are more prevalent in Africa and Eastern Europe. Group B is more common in Eastern and Southern European food systems. And group C is most common in Southern European food systems.**

3) **A balanced distribution is observed across the 3 types of food systems:** 34% are locally oriented; 34% of them are export oriented, and 32% are balanced in terms of both locally sourcing food and exporting it;

4) Southern European (SE) small farms establish, in average, a lower **number of commercialization pathways** for their products than the other 3 macro-regions. In SE, the agricultural sector is specialised and organized, thus, easily granting access to SF to mainstream markets. This could imply a lower need for SF to find alternative paths to commercialise their products.

5) **Key actors for small farms** in SE and food system group C are cooperatives and processors; for small farms in Northern Europe (NE) and small farms group B, proximity consumers are the key actor; and for small farms in Eastern Europe (EE) and Africa (AFR), and food system groups A and B, farm and household self-provisioning is the main actor;

6) The **self-consumption flow** is present in 92% of the food systems analysed. The relative importance of this connection diminishes from AFR to EE to NE to SE progressively. The more specialised and export oriented the food system is, the less important is the self - consumption flow for small farms.

7) **Large farms** play an important role for SF's mainly in food systems where the sectors are well organised and specialised. In those cases, changes on, or the absence of medium - large farms could break the sector's organisational structure, causing shocks to small farms who would struggle to access the markets they access currently through cooperatives, processors and distributors. This also means small farms have less control on their production, prices, etc. and depend on the governance arrangements created by the more powerful farmers.

#8. Deliverable 5.1. *Report on the governance arrangements and their influence on the contribution of small farms and food businesses to food availability, access, utilisation and stability.*

Responsible partner: *The James Hutton Institute (JHI)*

Executive Summary

Small Farms and Small Food Businesses are impacted by a whole array of regulations, public policies, cooperative associations, social and network norms, and financial realities. Identifying governance arrangements that better enable SF and SFB to participate in regional food systems is key for understanding their potential to contribute to Food and Nutritional Security.



The ways in which Small Farms and Small Food Businesses thrive under various governance arrangements is highly varied across regional and national contexts, across agricultural and farming sectors, and across different types of small farms. This report identifies enabling governance arrangements across the following parameters:

- a. Regulatory/legal frameworks
- b. Public policies & programmes
- c. Private food chain governance
- d. Local or traditional arrangements
- e. Collective action/coop arrangements
- f. Subsidy & Other Financial Support

The scaler impacts and administration of arrangements was also considered at the household, community, regional, national, macro-regional (international), and global levels, as were the impacts to the main food system activities: production, consumption, processing, and distribution. We identify 9 governance forms that our qualitative data indicates most enable SF and SFB to contribute to FNS.

1. Food Quality/Safety Regulations
2. Coop Arrangements & Associations
3. Climate Adaptation Frameworks
4. 'Alternative' or 'Traditional' Agri-Food Networks
5. State Subsidies & Financial Support
6. Rural Development Programmes
7. Farm Advisory & Extension
8. Mutual Farming Practices
9. Public Policies & Programmes

From within these 9 governance forms, comparative analysis of quantitative and qualitative data highlight 3 forms most enabling SF and SFB contribution to FNS.

1. Coop Arrangements & Associations
2. Climate Adaptation Frameworks
3. State Subsidies & Financial Support

Quantitative data indicates that both the emergence of governance structures and participation in them is more active where subsidy uptake is higher. SF in most European regions are highly dependent on EU and State monetary support. Less developed economies, where subsidy uptake is low and regulatory frameworks are less evident, are more reliant on cooperatives and help from neighbours. Data showed that where there were low levels of cooperative participation, relative to other forms of governance (e.g. subsidy regimes), nevertheless, coops were considered highly enabling for both SF and SFB. Factors relating to low cooperative participation included: resistance based on socio-political histories; lack of access to coops; and correspondence with high levels of subsidy uptake.

Adaptation to environmental change is a critical issue and the lack of national level policy, designed for and implemented at the regional level, is the most significant gap in governance for SF and SFB.



Research participants in RRs more immediately affected by environmental change showed higher levels of concern about the stability of their regional food system. The destabilising effects of environmental change on food systems were the highest concern for SF in the African case studies. While we strongly recommend appropriate, locally-scaled climate adaptation governance as enabling for SF and SFB, there is little evidence in the primary data that this is present in any of the reference regions.

Results show that SFs make the most significant contribution to food security where these farms are subsistence based, or when mixed commercial farms contribute to family income in less developed economies. SF and SFBs face multiple challenges in terms of land access, production support, and access to markets.

Existing governance arrangements are inadequate to enabling SF and SFB to achieve their potential contribution to regional FNS.

Key messages related to this deliverable

- 1) SF and SFB are important to regional FNS, particularly at the **household scale** and there is potential for small producers to increase FNS contribution to re-localised food networks.
- 2) **Climate change adaptation governance** should be prioritised as a matter of urgency for the sustainability of small farms, especially in less developed economies where subsidy uptake and/or cooperative participation is low.
- 3) **Agricultural support programmes** can enhance access to land for new entrants and better support farm succession planning, particularly where rural depopulation pressures are prevalent, and/or where land tenure is threatened.
- 4) **Public/private governance arrangements in Kenya and Ghana** should promote cooperatives for small producers allowing better market access and reducing exploitation by middlemen.
- 5) **Rural development programmes** could better support small-scale processing, packaging and distribution enterprises strengthening the regional food system.
- 6) **Agricultural extension services** should be more widely available in remote rural regions providing more targeted production support for SF.
- 7) National Governments should adopt a more **tailored approach to the regulatory standards** for SF and SFB (without compromising on food safety).
- 8) **Regional-scale food strategies** are needed embracing traditional markets, alongside new virtual food networks. SF and SFB can only contribute to regional food security if they have reliable access to markets. The best markets for SF/SFB are those providing multiple outlets and channels.

#9. Deliverable 5.2. *Report on governance frameworks and gender.*

Responsible partner: *The James Hutton Institute (JHI)*

Executive Summary Deliverable 5.2 addresses the role of women in small-scale farming, particularly in relation to governance frameworks associated with FNS. Findings draw upon:



- A literature review in nine Salsa regions
- Regional workshop reports from 21 Salsa RRs
- Statistical analysis of interviews from 30 Salsa RRs

Salsa confirms that women represent an important resource in food systems across Europe and Africa, comprising between 1/3 to 1/2 of the agricultural workforce in the study countries. Just over 1/3 of participants in SALSA's reference region surveys were women and increasing numbers of women are coming into the agricultural sector as new entrants across Europe.

Previous literature on gender dynamics in agriculture does not typically differentiate between farms of different sizes. Deliverable 5.2 addresses this gap, finding that across both the African and European study countries, when women lead farms (i.e. are identified as the primary decision-maker), they are more likely to do so at smaller scales than when men or multiple farm leaders are identified. Female led farms are much less common than male led farms in Africa. Female-led farms are more common in some parts of Europe (e.g. 45% of Latvian farms, ~30% of Polish, Portuguese and Italian farms are led by women).

Gender disparities are comparatively stronger in the African study countries. While we know that there are pervasive gender inequalities in the agricultural sector across Europe, these were not recognised as an important issue by stakeholders at the SALSA Regional Workshops in Europe where there is more egalitarian representation in small-holder organisations. The smaller-scale of female-led farms means that there is typically a higher percentage of female led farms amongst small-scale farms in Europe compared to large-scale agriculture. However, female-led farms are more likely to be located on marginal land and more likely to be focused on self-provisioning than male-led farms. European workshop reports identify few formal (e.g. legal) barriers to women for establishing viable farm businesses, but strong gender norms and cultural barriers persist.

In Africa, women led farms also tend to be less educated than male-leads and operate less productive farms, owing to lower access to inputs, equipment and labour. Women thus appear more vulnerable to shocks and stresses in some (but not all) regional food systems in the study countries.

SALSA interviews found that women are more commonly active in certain types of small farm. These are:

- **Part-time farms**, which are characterised by younger farmers who have weak market integration.
- **'Strugglers'**: older and poorer farmers, with weak market integration.
- **Multifunctional smallholdings**, which produce a variety of commodities and use hired labour.



The research found important commonalities in the role of women in food systems in Africa and Europe. There are well established, gender-based patterns of household-level roles in food production, decision-making and sales. Women in both Europe and Africa are recognised as playing particularly important roles in household food provisioning and are more likely to be involved in processing and other on-farm diversification activities. Women are more likely to be involved in value-added processing, and thus are particularly impacted upon by regulations addressing food safety (one of the most commonly cited type of governance that impacted upon small farms in the European RRs). Women are also more likely to be involved in direct marketing, particularly in Africa.

Key messages related to this deliverable

1) **Targeted measures to support women in agriculture** are common in some of the African countries but typically driven by public/private initiatives (e.g. development agencies). In Europe, EU countries are obliged to analyse the situation of women in rural areas and take these into account when designing their rural development programs. However, with the exception of Spain, where there are targeted supports for female entrepreneurship in rural areas, there was little evidence of specific interventions to support women on farms (of any scale) in Europe. Although there are targeted programs in Africa, in both Europe and Africa, the failure to collect gender disaggregated gender when evaluating measures means that it is difficult to determine the effectiveness of these programs. This also contributes to the invisibility of women, their roles and specific issues within the agricultural sector.

2) Women are under-represented in the **leadership of farming organisations**. Women in Africa often represent more than half of farm operators, but rarely occupy leadership roles in farmers' organisations (except women farmers' organisations). Women are somewhat better represented in leadership of agricultural companies. Women (in Europe) are underrepresented in leadership roles of agricultural organisations (although representation in targeted small-holder organisations is more egalitarian). The exception is Norway, where quotas have been introduced. Women tend to have a stronger role in farm-level decision-making in Europe than in Africa. New entrants to farming in Europe demonstrate more egalitarian gender relations. Overall, increasing numbers of female-led farms are being seen across Europe but there remain substantial gender imbalances in most countries.

3) **Access to land** is a gendered issue in many countries, due in large part to cultural norms of (patrilineal) inheritance. This impacts on access to capital and other resources (e.g. land acts as collateral or as a requirement for accessing subsidies or joining cooperatives). Women are less likely to inherit land, and therefore tend to have smaller farms.



4) There are important **distinctions between Europe and Africa**. Women are recognised as the major food producers in the African countries and thus important players in the food system. The link between women in agriculture and food security is well established in the five African countries studied; this is not the case in Western Europe. In Europe, food insecurity is more likely to be related to age (e.g. children, seniors) than gender. Older households in the African study countries and some parts of southern and eastern Europe rely on subsistence-oriented production to secure the household food supply.

#10. Deliverable 4.2. Synthesis report on the future potential role of small farms in FNS in Europe in 2030 and 2050: results of a foresight assessment.

Responsible partner: Universitat Politècnica de València (UPV)

Executive Summary

Deliverable 4.2. – the second deliverable from SALSA’s Work Package 4 - contains the comparative analysis carried out from the 13 regional reports (collected in D4.1) that gathered the outcomes of the participatory foresight workshops conducted in 13 different regions representing the different types of food systems in Europe and Africa studied under SALSA project. The aim of the foresight workshops was to assess the potential role of small farms and small food businesses in regional FNS under alternative future scenarios for 2030/2050 and to identify the main determinants of the capacity to respond.

One of the main results from the comparative analysis is the identification of key objectives to be achieved to enhance the potential contribution of SF and SFB to regional FNS. In total, 67 objectives envisioned by stakeholders were identified and then grouped given their similarity.

A second outcome stems from the assessment of the role of SF and SFB in regional food systems under alternative future scenarios –defined by a diversity of drivers that shape more enabling or constraining settings for these holdings. The scenario narratives regionalised from common scenario frameworks by workshops’ participants were compared allowing for some main insights. The deliverable also contains the comparative analysis of the action plans (grouped by clusters of objectives) from the different regions, which illustrates the way the settings of the scenarios would condition the feasibility of the proposed actions.

Finally, the deliverable summarises, from this comparative analysis, a number of key messages addressed to different types of key actors and domains identified that, according to the stakeholders in the workshops, have in their hands the possibility to carry out the necessary actions to reinforce the potential contribution of SF and SFB to regional FNS. This corresponds also to the way stakeholders identified those responsible for the necessary actions to be carried out (“who should be doing what”).

Key messages related to this deliverable

1) Six key objectives were identified to enhance the potential contribution of SF and SFB to regional FNS: (1) SF and SFB have knowledge and access to inputs, technology and innovations; (2) SF and SFB have access to value-addition processes; (3) SF and SFB have significant share of the regional food supply and are well connected to diverse markets; (4) Food culture in the region has changed: consumers are aware and value regional SF products; (5) SF and SFB are empowered (politically, economically and socially) and receive financial and technical support from the public sector, and (6) SF and SFB contribute to environmental protection and climate change adaptation through sustainable production, diversification and preservation of the genetic heritage.



2) For these objectives to be achieved, it is necessary that all the food system actors **undertake several actions, both individually and, in particular, in a coordinated manner**. These actors are: (1) Public administrations, including local, regional, national and EU level; (2) Civil Society; (3) Consumers; (4) SF and associations; (5) SFB and associations; (6) Upstream and downstream actors; and (7) Research institutions.

3) **Three main insights can be extracted from the regionalised scenario narratives comparison**. First, the contribution of SF/SFB to regional FNS is highly dependent on the social and economic context where they operate, but even in the most constraining scenarios where the regional FNS is inadequate, they can keep playing a role in securing food to a minority of vulnerable groups. Second, the debate on the future of SF/SFB goes beyond their role in FNS, and it is indissolubly linked to other outcomes of the food system, namely the preservation of rural landscapes and environmental services, and the support to employment and rural communities. Third, collective action and cooperation seems an essential ingredient not only to seize the opportunities created by enabling factors, but, even more importantly, to overcome and resist the threats that the more constraining scenarios imply.

#11. Deliverable 6.1. Report on enabling conditions and existing policy instruments that are, directly or indirectly, to promote the development of small farms and a corresponding tailoring of international cooperation and agricultural research for development

Responsible partner: Highclere Consulting S.R.L

Executive Summary

The aim of the D6.1 on the enabling conditions is to present a comprehensive overview of the needs and requirements of small farms and other small food businesses on how they can be supported to benefit from various opportunities offered to them through policy arrangements (including tools and mechanisms). These enabling conditions are discussed at a macro-regional level, based on a stakeholder-based validation and prioritization process of small farmers' needs which emerged from nationally based SWOT analyses in all of SALSA's study countries:

Macro-region	Countries
Central and Eastern Europe (CEE)	Czech Republic, Poland, Romania, Latvia, Lithuania, Bulgaria and Croatia
Southern Europe (SE)	Portugal, Spain, Southern France (Vaucluse Region), Italy and Greece
Northern Europe (NE)	Scotland, Northern France (Ille et Villaine Region) and Norway
Africa (AFR)	Cape Verde, Ghana, Kenya, Malawi and Tunisia

Five priority categories of enabling conditions (policy themes) which allow small farmers to ensure the production of, access to and stable supply of healthy, nutritious food for as many people as possible, even in spite of the challenges related to small farmer trends and FNS. These are:

(1) Products, Markets and Marketing,



- (2) AKIS,
- (3) Natural Resources and Climate,
- (4) Access to Land/New Entrants and Youth Engagement in Agriculture
- (5) Better Infrastructure and Connectivity

In contrast to the European context, the Affordable Access to credit is important cross the SALSA AFR regions studied. For a macro-regionally based comparison of the specific needs and nuances of these enabling conditions emerging in each of the four macro-regions (see section 4.1.1).

Overall, the findings confirm that there are more commonalities between the priority issues of European farmers across the three macro-regions, than across the two contexts, with the exception of the Natural resources and climate policy theme, where a general concern for small farmers' climate adaptation was shared across all macro-regions in both the European and African contexts.

While macro-regional and regional variations exist, and should most certainly be taken into account, a broader level vision across the SALSA contexts related to the enabling environment for small farms emerges.

Key messages related to this deliverable

- 1) In order to continue providing the benefits to FNS and other public goods, small farmers need to be enabled with **alternative, higher value added supply chains involving consumers**, which can be achieved through niche products, local produce labels and other types of branding.
- 2) **Publically funded AKIS systems** are seen as key for providing small farms with the necessary information and education about how to achieve this, as well as upgrade their production systems, especially when considering the growing risks posed by Climate (and other challenges related to Natural resources).
- 3) Last but not least, all of the above cannot be achieved without **small farmers being enabled and encouraged to remain in rural areas** through both access to land and to innovative social arrangements for new entrants and youth. Especially for depopulating communities, investments in roads, rural services, utilities, internet infrastructures, technological and leadership education is key for assuring that small farmers can adapt and prevail in spite of the increasing challenges they might face by the 2050 horizon.

#12. Deliverable 6.2. Strategic framework for guiding decision-makers in the choice of appropriate support instruments (including the related evaluation and learning arrangements).

Responsible partner: *Highclere Consulting S.R.L*

Executive Summary

Deliverable 6.2 provides a strategic framework for guiding decision-makers in the choice of appropriate support instruments based on a synthesis of

- (1) SALSA project outputs (WP1-WP5)
- (2) SALSA participatory processes with policy stakeholders and SALSA experts (concluded in D6.1 on enabling conditions for small farms and other SALSA expert sessions)
- (3) Secondary sources stemming from both academic and practitioners' literature was also used to triangulate findings.



The conclusions are based on two separate policy tools – one for the European and the other for the African context, outlining a broad range of policy interventions in both contexts.

The resulting SALSA Strategic Framework is based on **two layers of recommendations** – (1) General recommendations for diverse entities, and (2) Territorially Tailored Food System Policies.

The **General Recommendations** for diverse entities depart from an overarching vision for small farms for the 2030/2050 horizons (developed on the basis of WP4 and WP5) with objectives, which is then further detailed through general recommendations for policy makers at EU/AU, National/Regional/Local authorities and AKIS actors.

The **Territorially-based Food System Policies** are based on three specific sub-frameworks:

- A) **The ‘General Enabling Conditions’** framework based on the macro-regional needs and enabling conditions which emerged out of SALSA’s four macro-regions, namely Eastern Europe, Southern Europe, Northern Europe and Africa.
- B) **The ‘Regional Food System Types’** framework, based on the departs from the classification of food systems types developed by SALSA in D3.3, where a distinction was made between Regional, Balanced and Export-type food systems is made.
- C) **The ‘Regional Small Farmer Types’** Framework departs from the classification of small farmer types developed by SALSA in D3.2, which distinguishes between five main types of small farms across both Europe and Africa

A detailed list of recommendations developed according to this framework can be found in section 3 of the deliverable.

Key messages related to this deliverable

1) *What changes might be needed in order to **facilitate the development of small farms**?*

In Europe the key messages regarding the changes needed have to do with adapting both the regulatory and the direct support menu of options available through the CAP to the particular needs of small farms. Benefitting from the increased flexibility of the post-2020 CAP programming period and its Strategic Plans, policy makers should seek to adapt their current mechanisms also to the specific territorial approach indicated for each macro-region.

For the African context, recommendations have more to do with paying attention to the process of policy implementation, rather than policy formulation. The lack of impact of the numerous types of project-based interventions suggested by SALSA policy stakeholders on their target beneficiaries should lead to a deeper evaluation regarding their appropriateness.

2) *How can **Agricultural Knowledge and Innovation Systems (AKIS)** become supportive of small farms?*

Overall, there is a great need for a revival of national-level AKIS, as well as the more specific FAS structures. This implies providing more financing for better staffing, resources and training in both Europe and Africa.

In a European context specifically, FAS need a diversification of services beyond basic CAP measures and education on cross-conditionalities. Art 72 of the current post-2020 CAP regulatory proposal makes provisions for budget allocation for knowledge exchange and information, which could be increased in order to help MS to support the above-mentioned changes. The upgrading of professional



education curricula at a European level has been positive but needs to be continued and properly integrated down to the regional levels where maintaining youth interested in agriculture is a priority. Independent actors, such as NGOs and LAGs, can also play an important role in the AKIS ecosystem, if provided with continued funding opportunities to do so. The EIP Operational Groups under Art 71 on Cooperation could also be dedicated to developing methods and good practices for the environmental adaptation of small farms. More macro-regionally based AKIS-related priorities could also be taken into account (see deliverable).

In an African context, other regional policy issues took priority in the discussion.

3) *In what ways can EU policy best support relevant mechanisms?*

Policy at a **European Commission** level should maintain its complementarity within the ‘A European Green deal team’ and encourage EE MS to assure complementary funding for infrastructure and rural services from the ESIF in order to assure that the post 2020 programming period will put an end to the structural issues affecting the connectivity of rural communities in the macro-region. **Research and innovation funding** could be dedicated to further improving LPIS related technologies in order to close current technical barriers preventing the achievement of cheaper compliance monitoring of small farms. Furthermore, **DG Agri** could take a guiding role towards member states in advising them towards good practices in the development of thematic sub-programs for small farms, in order to assure that the changes exposed in section 4.1 are addressed. Furthermore, any upcoming **Climate Change Adaptation** projects at a European level should be properly implemented at a national level and regional level, where small farms are found, in order to address this urgent gap in their governance. For export-based regions like Southern Europe, the lower socio-environmental requirements for non-EU states in the GSP trading scheme, as well as the lack of transparency and adaptability of Hygiene and Quality regulation (in particular PDO and PGI) is an issue worth tackling.

For the European context, **Cooperation measures** (Art 71 of the current regulatory proposal, EC, 2018b) **remain the most important form of direct support for small farms, both through short supply chain measures and through broader collaboration opportunities provided through CLLD/LEADER type programs.** The latter ones are needed in order to develop solutions for a wide range of rural issues, from generational renewal to services. During the post 2020 programming period, resources under these measures should be allocated to enhancing the collaboration and ties with consumers in all forms, as well as promoting the environmental benefits of small farms, regional, seasonal and healthy diets, especially in LFA areas – in accordance with the vision identified for small farms for 2050 articulated in section 3.2. Agri-environment measures, as well as further investments in agro-tourism infrastructures could help enhance this strategic positioning of small farms in European food systems.

European small farmer communities continue to face significant challenges with maintaining their communities alive, including generational renewal and the integration of new entrants. Continuing the Young farmers’ scheme may not be sufficient to address the small farmer population decline so the Commission could consider extending it to also recognize new entrants over 40 years old as a similar category to be nurtured through its CAP menu.

While the EU contexts has a well-developed policy menu and offers significant continuous funds (compared to more innovative, donor based AFR subsidy system), **both contexts face challenges in developing effective mechanisms for small farms.** Therefore, more cooperation on this topic through



the **EU-AFR mechanisms and cooperation programs could help cross-fertilize ideas and lead to innovation**. While AFR countries might be interested in how to develop softer supply chain cooperation measures (type LEADER, short supply chains) could help promote the territorial approach in AFR countries as well, the EU could learn from the progressive small farmer programs in the South, as well as the more technology and media based information systems for small farms. Last but not least, both SE and AFR countries face severe climate change threats and could benefit from mutual learning programs.



ANNEX 1. Developing a SALSA Narrative

The following text focuses on the various research steps and results of the SALSA project and indicates the SALSA progress beyond the state of the art.

Developing a narrative – main SALSA findings

SALSA was approved under the Horizon 2020 Call SFS-18-2015:

Small farms but global markets: the role of small and family farms in food and nutrition security

Project timeline: April 2016-March 2020.

1. The call

The expected impacts stated on the call were:

- to provide a better understanding of the role of small and family farms and small food businesses in meeting the sustainable FNS challenge (across its various dimensions) encompassing the implications on small and medium size businesses along the supply chain and within the context of demographic developments
- to help better tailoring international cooperation and agricultural research for development to the agro-food sector
- to contribute to policy making for the identification of new development models for the agro-food sector.

2. The analytical approach

In SALSA we have focused in Food and Nutrition Security (FNS) as an outcome of the food system, and therefore we have considered small farms and small food businesses in regards to their position in the food system. We have studied 30 reference regions, 25 Nuts III regions in Europe and 5 regions in Africa. In each region, we have studied the food system for four single products, each of them with acknowledged economic and cultural relevance in the region. We have adopted a territorial perspective to the analysis of the food system, by identifying the characteristics of each of the food system for single products, within the regional boundaries. Such systemic and territorial approach has allowed us to highlight the forms and conditions that small farms and small food businesses' contribution can take on, in terms of food provision, food availability and food access, to the functioning of the regional food system. Additionally, it has shed light to the specificities that allow these contributions to be recognised and valorised. We have selected this approach in order to:

- acknowledge the specificities of each territory, namely the regional contexts in which Small Farms (SF) and Small Food Businesses (SFB) operate in relation to other actors of the food chain



- (suppliers, competitors, cooperatives, customers), the existing infrastructures for food production and distribution, as well as the consumption centres and food habits;
- focus on the importance of SF's regional production and food flows, while understanding the role played by specific actors, such as SF and SFB;
 - produce empirically-grounded knowledge about this unveiled importance of SF and SFB and to guide public intervention at all levels, including local, regional and national, to improve food and nutrition security in these regions.

Facing this challenge, we formulated the initial overall research question: "*what is the contribution of small farms and of the related food businesses to sustainable FNS in a wide range of food systems?*". To answer this question, we started with three hypotheses:

Hypothesis 1: SFs are a relevant source of sustainable food production (availability) for many regional food systems

Hypothesis 2. SF and SFB provide food and incomes for households (access and utilization's assets and capacities) in many regional food systems

Hypothesis 3. SF and SFB increase food systems' diversity thereby contributing to their resilience (stability)

Acknowledging diversity, and that different types of Small Farms may have different roles in the food system in general, and in the specific regional food systems, an overall framing question has emerged, related to the hypothesis:

Which types of Small Farms are identifiable within each region regarding their livelihood strategies and contribution to sustainable FNS?

Our findings are mainly based on the research conducted in the selected reference regions (RRs) through multiple methods: interviews to key informants, survey to a sample of small farms and small food businesses, fieldwork to collect land cover and land use data to inform the remote sensing analysis, remote sensing mapping and modelling, focus groups, workshops on the governance of the food systems and workshops on future scenarios, and a continued dialogue with the SALSA Communities of Practice, at regional/national and international level. We have followed a participatory and transdisciplinary process of progressive integration and co-construction of knowledge with different actors and by means of different tools. The integration of knowledge took place among different disciplinary perspectives and in interaction with both academic and non-academic actors (such as NGOs, producers, consumers, innovation brokers, policy makers, decision makers, practitioners, etc.). Multiple researchers from various disciplinary backgrounds and skills (i.e. food



studies and rural development, sociology, geography, economics, agronomy, etc..) have brought different perspectives into the analysis of small farms' contribution to FNS. Our complementary socio-economic, spatial, and social practices analyses have allowed us to enrich the understanding on small farms' connections with the food system, and, more generally, with their political and geographical context. This transdisciplinary process also results in a higher impact of the project, as stakeholders are involved from the start of knowledge production, at multiple levels, and are thus highly aware of the outcomes of the project.

Small Farms - identification and types

The identification of a common size threshold of 5 hectares for defining small farm was needed for operational reasons. Nevertheless, the identification of common size-based thresholds showed limitations in accounting for the specificities of each region and product and in valorizing the elements that truly identify a 'small' farm vis-à-vis a 'large' one, in each particular context.

We verified the need to move towards a definition capable of integrating any size-related criterion with dynamic and relational elements, which led us to consider the functional specificities of a farm in relation to its (small) size. The idea is that "smallness" is first, and foremost, a relational concept. It must be considered, in each geographical and sectorial context in relation to the farm's capability to activate alone or not, a range of capabilities and functions, and to achieve a certain degree of control over its own development trajectory. In this view, a farm can be considered "small" when the size of one or more of its resources (land, labour, capital) put the farm in a disadvantaged position compared to farms with bigger size. On the other hand, "smallness" can be considered a positive property when the size helps perform certain functions, such as direct contact with consumers, production of goods and services with markets of limited size, possibility to monitor directly farms' operations.

We performed a survey of more than 1000 SFs from which we obtained 892 valid questionnaires, across Europe and five regions in Africa. We performed a multivariate analysis of this data. The farms in our sample cover a wide range of socio-economic and cultural backgrounds. Most of the farmers surveyed are relatively old (older than 40). The sample is unbalanced in gender terms, with males being the clear majority across all types, what may reflect the overall dominance of male farmers in Europe, but females are much better represented in our sample than in average in the European farming population.

Resulting highlights are twofold: a) for a relevant and actual SF typology, we need to move beyond the subsistence / commercial divide: most farms are oriented towards the market, more than what is generally expected, AND they produce for self-provisioning, for their own households, their families



and neighbours; b) it is possible to group Small Farmers in common types, across Europe and Africa, and the different types span across regional and market contexts.

We obtained a very clear differentiation and novel classification of SF in five types. The first significant divide is between weaker and stronger market integration – even if, as stated above, all farms have some degree of market integration – based on whether their market linkages are formalized by contracts, or whether farms invest in certification schemes or participate in cooperatives.

The first group of farms with weaker or more informal market orientation is characterized by having relatively low annual turnover and income, low or no use of production contracts, low use of hired labour, a lack of membership in cooperatives and a lack of use of certification schemes. The second group has farms with stronger and more formal market orientation: they have relatively higher incomes and turnovers, more widespread use of contract farming, they are relatively more dependent on hired labour, and a higher proportion either uses certification or is affiliated with cooperatives for marketing.

Within SFs with weak market integration, there are two different types: 1) “Part-time self-provisioners” (11% of sample, important, for example, in Scotland), relatively young, with other non-farm income sources, but still producing more for self-provisioning than for the market; 2) “Conventional strugglers” (32% of the sample, more frequent in Africa and Eastern Europe regions) have inherited the farm and have taken it up as their responsibility, they are relatively older, have low incomes and depend largely on the farm for household food consumption.

Within SFs with stronger market integration, the different degrees of entrepreneurship and innovation result in a distinction of three types: 3) “Conventional Entrepreneurs” (26% of the sample, more frequent in Southern European regions but also relatively significant in Scotland) are also relatively old, are organized in conventional cooperatives for market integration and keep their activity rather mainstream; 4) “Business Specialized” (23% of the sample, appear in many regions, i.e. Latvia, Norway, and also in Southern Europe) are relatively old but also the group with the highest income, seem more dynamic, are organized in cooperatives, and have a specialized production with added value through certification; and 5) “Business diversified” (8% of the sample, more common in Northern Europe, NE) are wealthy, relatively young and new to farming, and diversify production and relation to the market, with a diverse portfolio of buyers.

What appears as highly differentiating of small farm types is the turnover in the farm and thus the income generated, dividing small farms in between those which seem to struggle and may be close to poverty, from those small farms who are doing well, by being specialized and organized in



cooperatives, or multifunctional and integrated to the market in diverse ways. Besides market integration, the different position of small farms seems to be in a continuum between poor and richer farms. This also seems to have a context-based explanation, as some types appear clearly more frequent in some regions than in others. The importance of geographical position in the distribution of types is confirmed in the existing literature. The high degree of Food Self Provisioning across all small farms types in our sample is noteworthy. As a food system outcome, the share of the food which does not enter the formal market is extremely relevant. Most small farmers exist because they have inherited the farmhouse and land and due to cultural traditions. Despite this not being new, we found a significant number of small farmers started farming by looking for new business activities or for a lifestyle change. This means that small farming can be attractive. However, those who have opted for farming as a business opportunity (Type 1) have one of the lowest turnovers and do not seem to generate much income from the farm. The difficulties that this type of small farms is facing should be further explored and understood.

3. The contribution of small farms to regional food systems

The assessment of small farms spatial crop distribution and configuration was made possible with great detail, due to the use of remote sensing. The calculation of SF production based on remote sensing data, combined with producers and advisers' yield estimates, shows that the levels of production are fairly close to the ones indicated in statistical data, for the large majority of regions studied. This seems to indicate that small farms' production – relating to food availability - is well considered in statistical data.

We analysed 109 regional food systems for single key products, across the 25 regions in Europe and 5 in Africa. The comparative analysis across the reference regions evidences some macro-regional or sectorial patterns that influence forms and relevance of farms' connections. Small farms contribute to the regional food system partially with food that never reaches the formal market: food produced in the farm and consumed by the household, given away to family relatives and neighbors, or sold informally to local consumers. This share of food self-provisioning is present across all SF types, even those who are specialized and well connected to the market. The balance between self-provisioning and market integration frames the analysis of small farms' connections with the food system, as a key lens to understand small farms' contribution to FNS. In turn, this analysis requires a suitable conceptualization and representation of the food system. Small farms produce a high diversity of products, combining often different products for the market and for self-provisioning. SF's contribution to a large diversity also enhances landscape pattern and biological diversity.



From the food system's perspective, SF contribute to the availability of food in each region in two ways: from the contribution to regional availability – namely, for household and communities – to the increased diversity of food types and sources with consequent higher resilience. We assess the degree of their contribution based on: a) how much of the total regional production for a specific product comes from small farms; and, b) how much of the total regional production for that product stays within the region. A balanced distribution is observed across 3 large types of food systems: 34% of the 109 food systems we analysed are locally oriented; 34% of them are export oriented, and 32% are balanced, in terms of both locally sourcing food and exporting it. Southern European small farms establish, in average, a lower number of commercialization pathways for their products than in the other 3 macro-regions. In SE, the agricultural sector is specialised and organized, thus, easily granting access to SF to mainstream markets. This could imply a lower need for SF to find alternative paths to commercialise their products. Further, SF seem to contribute more to regional food availability in African (AFR) and Eastern European (EE) regions and less in Northern and Southern Europe. The relevance of the contribution is also directly related, quite predictably, to the total number of small farms that exist in the particular regions. The higher the number of small farms is, the higher their contribution to regional food availability.

At regional and farm level we have also observed some clear patterns in terms of market connections and integration into regional value-chains:

- For many of the products we studied, a high share of SF production is for self-provisioning. This is most common in Eastern Europe and in Africa, but it is also – to a lower extent - the case in Southern and Northern Europe. Even when there is a low share of self-provisioning, this can be relevant in terms of contribution to food and nutrition security for the household, in terms of easy access to fresh fruits, vegetables and meat.
- A considerable share of many products is sold directly to consumers, bypassing intermediaries, processors or retailers. This type of direct connection with consumers is likely to keep the production of SF within their region, and thus contribute to the regional food and nutrition security. This type of market arrangement is particularly important in Scotland, EE and AFR. Also, it represents an important flow for Small Food Businesses (SFB).
- Cooperatives are a key actor within many food systems (particularly in SE), organizing the specialized production and processing of raw food products. Small farmers in all regions recognise the importance of cooperatives. Where they already exist, there is a need to improve their functioning and enhance their role. Where they do not exist yet, there appears a need for their emergence.



- Large farms play an important role for SF's mainly in food systems where the sectors are well organised and specialised. In those cases, changes on, or the absence of medium-large farms could break the sector's organisational structure, causing negative shocks to SF who would struggle to access the markets they access nowadays through cooperatives, processors and distributors. This also means SF have less control over their production, prices, etc. and depend on the governance arrangements created by the more powerful farmers.

We have evidence to support the argument that SF's first connection to the market, i.e. their main buyer, shapes the type of product-focused food system (food system for each specific key product) in which they are integrated (more export oriented vs. locally oriented): when SF's main connection to the market is done through direct selling or keeping their production, the type of food system will be more oriented towards supplying locally than when SF's first connections are cooperatives or processors. In this last case, food systems tend to be specialised and export oriented.

Regarding regional consumption and production, we estimate that SF could potentially cover 100% of the demand and generate surplus in 44% of the 109 regional product food systems analysed, especially in Africa (71%) Southern Europe (46%) and Eastern Europe (36%). In NE, small farms could cover up to 20% of the regional demand in 80% of the food systems analysed. This lower figure could be explained by the smaller number of SF studied in such regions.

On small food businesses (SFB), our results suggest that a variety of small food businesses provide links between small farms and their regional markets, and that the businesses themselves are a source of livelihoods for rural households. However, the links between small food businesses and small farms were found to vary by region. Especially, the SF-SFB link was not as obvious as expected in our reduced sample, and more research is needed. Our findings hinted that SFB do not procure solely from SF's production, but instead, develop a series of territorial strategies to participate in the market. A stronger connection between SFB-SF was noted when the SFB was farm-based, meaning that raw materials were sourced directly from the farm. This increased control by SFB over their products – from production to distribution – was most common in SFB (thus, also small farms) that carried out food processing activities, such as meat curing, wine making, olive oil extraction, meal preparation, among many others. A weaker SFB-SF connection was observed in SFB whose main activity was retailing, primarily due to limited volumes and a continuous food supply from SF. In these cases, SFB reported to source from other, more steady suppliers, such as wholesalers and large retailers to remain competitive.



4. Governance of food systems

Our analysis identifies what governance arrangements (i.e. both informal and formal methods of organisation, management, and support) most enable SF and SFB to contribute to FNS. Nine governance arrangements were identified as enabling, three of which were further defined as most enabling. These are: cooperative arrangements, state subsidies and financial support, climate change adaptation frameworks.

Data shows that cooperative and collective arrangements and associations (including both formal cooperatives and informal partnerships) are of central importance to SF and SFB. These arrangements aid in production, market access, and in some cases the processing of agricultural products. While research found that cooperative participation was low, this was in large attributed to the lack of access to cooperatives. Low participation in some regions was also attributed to formal cooperatives having been a form of agricultural governance under authoritarian regimes. The success of cooperatives may also rest on factors such as the presence of historically continuous markets. The stability of both a continuous market and high levels of succession may contribute to providing more stable conditions, that in turn support collective organisation. These factors should be considered in an assessment of whether greater support for cooperatives in areas of low participation is likely to be successful.

Subsidies and financial support are enabling for SF and SFB. This was true across the full range of subsidies evidenced in this research, from state subsidies, to financial support from civil society (e.g. NGOs). Moreover, the data suggests that these governance arrangements may represent the primary enabling factor for SF and SFB around which other forms of governance respond. For example, where participation in subsidy schemes is higher: i) participation in cooperatives is lower; ii) dependence on support from neighbours is lower; and iii) the influence of regulations is higher. This is broadly true, except in the Spanish regions (RR 26 and 27) which show high levels of both subsidy uptake and cooperative participation. Secondly, where participation in subsidies is lower: i) participation in cooperatives is higher; ii) dependence on support from neighbours is higher; iii) and the influence of regulations is lower. This is broadly true, except in the Norwegian region (RR18) which shows high levels of both subsidy uptake and support from neighbours.

This suggests that dependence on other forms of support is reduced when subsidy uptake is higher. It also suggests that other forms of support are more likely to be needed under conditions of hardship (which are reduced by subsidy uptake). While we report, on this basis, that subsidies and forms of financial support are enabling for SF and SFB, we do not suggest that these governance arrangements are sustainable, or enabling, in the long term.



As to the role of women on small-scale farms, and how this impacts on their contribution to food security, when women lead farms, they are more likely to do so at smaller scales than when men lead farms (or multiple farm leaders are identified). Gender disparities are much stronger in the African study countries than in the European study countries. However, gender issues are less evident on small-scale farms in Europe than in larger-scale agriculture. Furthermore:

- Female-led farms are more likely to be located on marginal land and more likely to be focused on self-provisioning than male-led farms
- In Africa, women leading farms also tend to be less educated than male-leads

These findings are consistent with the academic literature from the study countries: women are less likely to inherit land, and therefore tend to have smaller farms. We identified few formal (e.g. legal) barriers to women for establishing viable farm businesses, but strong gender norms and cultural barriers persist.

There are well established, gender-based patterns of household-level roles in food production, decision-making and sales. Although there are targeted programs in Africa, in both Europe and Africa, the failure to collect gender disaggregated data when evaluating measures means that it is difficult to determine the effectiveness of these programs. This also contributes to the invisibility of women, their roles and specific issues within the agricultural sector.

5. Future trajectories

As a part of the research, the project has engaged regional stakeholders to **envision pathways** –and the necessary preconditions- towards a reinforced contribution of SF and SFB to FNS, and to discuss these pathways under alternative future scenarios.

Results show how, for stakeholders, this contribution is indissolubly linked to SF/SFB's **access to markets**. This access should take diverse forms, from more developed and stable local short food supply chains and public procurement, to foreign niche markets. In any case, this is inevitably associated to the acquisition of specific marketing competences by managers. This know-how could be attained by developing farm advisory services tailored to small-scale farms willing to uptake business activities (which is not the case at present in many of our research cases) and by providing advice beyond mere productive skills, and with a focus on new marketing and entrepreneurial skills. In this sense, innovation in SF and SFB has to make compatible the adoption of new knowledge and technological developments (e.g. geoinformation, ITC, blockchain, etc.) with the revalorisation of traditions, in a sort of 'retro-innovation'.

Second, a greater SF/SFB's orientation towards high quality, nutritious and healthy products is essential in stakeholders' vision. There are, also, two related elements around this orientation. One



the one hand, there is a generalised view that the future of SF and SFB would require **consumers** to be more aware about the role these holdings play in rural economy and the preservation of environmental assets and cultural heritage. On the other hand, in several regions, the need of new dedicated quality schemes for SF would be necessary. Interestingly, according to stakeholders, the existing EU territorial quality schemes do not respond to this need, due to their complexity and bureaucratic burden.

When assessing the role of SF and SFB in regional food systems under **alternative future scenarios** – defined by a diversity of drivers that shape more enabling or constraining settings for these holdings, a number of issues that came up. First, their contribution to regional FNS highly depends on the social and economic context where they operate. However, even in the most constraining scenarios where regional FNS is inadequate, SF and SFB can keep playing a role in securing food to a minority of vulnerable groups. Second, the debate on the future of SF/SFB goes beyond their role in FNS, and it is indissolubly linked to other outcomes of the food system, namely the preservation of rural landscapes and environmental services, and the support to employment and rural communities. Third, the discussions about these scenarios also revealed the importance for SF and SFB that stakeholders give to collective action and cooperation, which were highlighted as essential ingredients not only to seize the opportunities created by enabling factors, but, even more importantly, to overcome and resist the threats implied under the more constraining scenarios.

6. SALSА progress beyond the state of the art

- a) Use and application of remote sensing for crop types mapping in small scale farming systems and crop production estimates: The effectiveness of Sentinel satellite data for crop type mapping in small scale farming systems was validated: the obtained crop type maps in small farm patterns demonstrate high levels of detail and accuracy; the SALSА methodology can thus be used for identification of small farms crop types, crop area and production estimation, as well as regular monitoring of small farms' production, in Europe and elsewhere.
- b) Identifying current types of small farms relevant for Europe, using a typology that is robust enough to include some African examples.
- c) Identifying that the significant divide in types of small farms, is between low and high turnover, being all farms integrated in the market (with different degrees of market integration); and all farms with some degree of food self-provisioning to the household.



- d) Combining methodological approaches from social sciences with a strong participation component with advanced analysis from spatial and natural sciences.
- e) Gaining deeper knowledge on how regional food systems are organized around specific products and on the specific contribution SFs can give to food and nutrition security, mainly (but not only) with regard to the availability dimension of FNS.
- f) Recognising that "smallness" for a farm is first and foremost a relational concept. A farm must be considered, in its own geographical or sectorial context in relation to the farm's capacity to activate alone, or not, a range of capabilities and functions, and to achieve a certain degree of control over its own development trajectory.
- g) Observing that small farms contribute to food and nutrition security by filling the gaps of industrialized chains in terms of land exploitation, local varieties, jobs opportunities and local market channels.
- h) Identification of three types of governance structures which have the potential to be the most enabling to small-scale farms: cooperative arrangements, state subsidies and financial support, climate change adaptation frameworks
- i) A deeper knowledge of the important role that women play in small-scale farming.
- j) The conviction that public support to the creation of local food can strengthen an FNS based on a diversified array of business models, networks and governance arrangements which hinges on the potential of small farming.
- k) The understanding that the needs of small farms depend of their type and the context where they are immersed, and therefore, efficiency of supporting public policies is strongly dependent on their capacity to be flexible and adapted, at least for Europe, at the macro regional level (Southern Europe, Eastern Europe, North-Western Europe).

