Rural-Urban Outlooks: Unlocking Synergies (ROBUST)

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Snapshot: Expressions of Urban – Peri-Urban – Rural Relationships

Food system mapping

Province of Lucca, Italy

1. Brief Description

The Province of Lucca was selected as one of 30 European NUTS3 regions to research its territorial food system. The study, ongoing within the EU H2020 project SALSA (http://www.salsa.uevora.pt/en/) was carried out in 2017-2018 and specifically addresses the role of small farms and small food businesses within food systems.

The overall aim is to characterise the region-specific components of food systems: local resources, production, processing, formal and informal markets, commerce and trade, consumer-producer relations, and relations between small farms, small food businesses and the up-and downstream sectors[1]. It estimated the relative quantities of production and consumption, the processing and distribution patterns and the fluctuations. Four staple foods were selected for the analysis: fruits, vegetables, wine, and olive oil.

The study was developed in collaboration with local stakeholders, including policy makers and NGOs. To this end, a Community of Practice is facilitated, focusing on the themes of sustainable food and nutrition security and the role of territorial food systems. The food system mapping and content analysis is shared with (and enriched by) relevant stakeholders involved in ongoing policy led processes, such as the "Community for Agricultural Biodiversity and Food" in Garfagnana (a mountainous area north of Lucca city) and the "Agenda for the quality of food" on the Versilia (a coastal area), a participatory project on producing and consuming local food, aimed at devising and activating policies and actions for product quality and existing supply chains.

2. Questions and/or Challenges

The research carried out in the Salsa project addressed a broad set of questions and challenges, including:

[1] The assessment is carried out, as an iterative process, on the basis of key informants' interviews, focus groups, and small farmers' interviews, regional stakeholder workshops, including policy makers that allowed to develop and validate a participatory mapping of the food system in the province of Lucca.

> **Computing the food system balance between production and consumption, and assessing the contribution of small farmers (<5 ha).**

A synthesis "balance sheet" on production and consumption was developed based on secondary data (Table 1): it evidenced a lack of (estimated) local production to meet (estimated) consumption needs and the different role of small farming across different staple food products.

Table 1 – Balance sheet in Lucca: production, consumption and role of small farms

BALANCE SHEET	Approximate amount produced in region (ton/year)	Approximate amount consumed in region (ton/year)	Balance (consumed - produced)	% surplus-deficit on total consumption	role of small farms %
Cereals:	20610	36210.5	-15600.5	-43%	18%
Maize	17312				
Oil plants:	1824	4959.5	-3135.7	-63%	60%
Olive	958				
Vegetables:	10426	14871.8	-4445.7	-30%	72%
green house vegetables	3933				
open field vegetables	4200				
Fruits	12356	50184.2	-37827.7	-75%	32%
Wine grapes	6454	9547.1	-3093.1	-32%	44%
Animal products	2681	42575.5	-39894.0	-94%	20%
Milk	362				
Bovine	1369				

> **Identifying food system actors and activities involved in selected staple food chains in Lucca.**

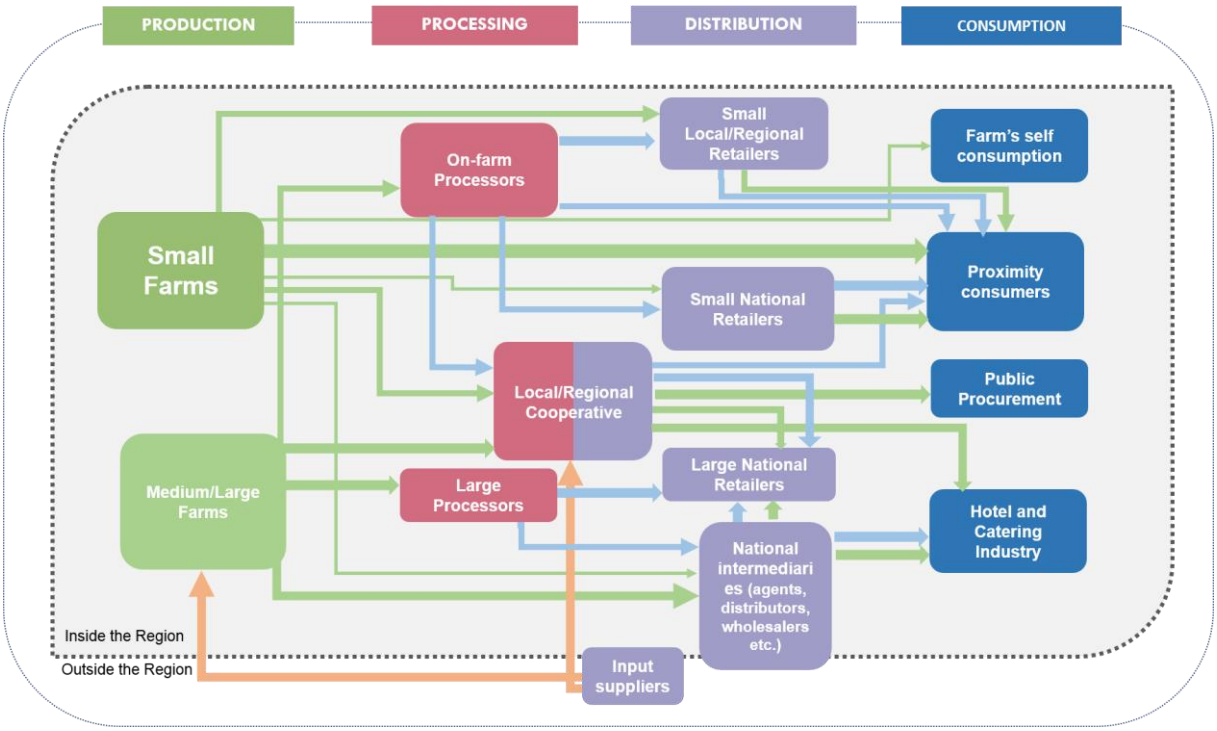
The study mapped the main actors and nodes for a set of key products in the food system and identified the fluctuations in the food system and the position (and relevance) of small farms to the regional food and nutrition security. The analysis provided a picture of the regional food system with key actors, activities and flows, as in the example in Fig. 1. The maps identify actors (farmers, processors, distributors and consumers) and arrows expressing the approximate quantification of flows referred to specific food items. The map is explained by short narratives. This food system analysis provides a knowledge base to further study the food system dynamics and support the Food Policy for Lucca (a central aim of the Living Lab). However, the following research questions remain from the analysis:

> **Where do local production, processing and consumption take place along the rural-urban continuum? What are the limits and the benefits/impacts of local food systems in linking across rural and urban areas?**

The SALSA research analysed the food system in Lucca but did not explicitly distinguish food system actors and activities along the rural-peri-urban-urban dimensions, which

are the core of ROBUST. This means that farmers interviewed could be situated in remote rural areas, the peri-urban fringe, or even within urban boundaries.

Figure 1: Food system Map for vegetables (for illustrative purposes)



Other relevant questions are:

> **How does the urban "food environment[2]" affect consumption practices? What impacts do non-local food flows have on the local food system?**

> **What benefits and (social, economic, environmental) costs would re-localized food production bring to the territory?**

For example, if open space and abandoned land would be recovered for food production, what benefits and what negative impacts are expected? And in terms of landscape, what is the value of local food? What other social and economic benefits/costs should be expected?

[2] "Food environments are created by the human-built and social environments. They are the physical, social, economic, cultural, and political factors that impact the accessibility, availability, and adequacy of food within a community or region. Food environments may be defined in terms of geographic access to food in a community or neighbourhood, consumer experiences inside food outlets, services and infrastructure in institutional settings, or the information available about food. Community food environments most closely fit within the area of environmental health practice known as "health and the built environment." (http://www.ncceh.ca/sites/default/files/Food_Environments_Public_Health_Practice_Dec_2015.pdf)

These questions will be part of the scoping activity carried out in the Living Lab in Lucca. The case study in WP3 will take stock of the results obtained in SALSA by collecting further data on how rural-urban areas are connected through food systems flows.

3. Main Insights

The potential of more beneficial relations

The food system represents an example of "relational space", which links production to food and nutrition security outcomes (for locals or non-locals). The food system networks connect rural to urban areas: for example, farmers markets and other short chain activities link the rural/remoter farmed areas to the cities, where consumers are mostly situated. Vice-versa, there are consumers and producers that are located in the remotes areas (e.g. Garfagnana) where infrastructure connections are poor and isolation may put food and nutrition security at risk.

The overlap between agricultural land and rural areas should not be taken for granted: rural areas do not necessarily equate to being agricultural land. Countryside fulfils several other functions (i.e. in line with an ecosystem services approach). There can be rural and agricultural areas that produce only for distant markets or tourists, but also rural and agricultural areas more oriented to local citizens, consumers and tourists, with an emphasis on the authenticity of the place. Moreover, other variables affect the complexity of the food system. For example, commuting, which plays a role in the food practices (i.e. you tend to shop where and while you go to work) or tourism flows, which have a significant weight in coastal areas although it is rather seasonal (with good and bad consequences).

Knowing how the local food system actually works is crucial to understanding the potential to develop and strengthen connections between rural and urban, and most importantly, what type of connections need to be activated.

Factors that enable or limit more beneficial relations

The main limitations to strengthening rural-urban connections on food are, firstly, the lack of economies of scale, due to the small size of farms and fragmentation of local productions. Developing communication and marketing targeted to local consumers and tourists, and supporting the perception of local products values (identity, typicality, maintenance of territory and landscape, fair income for farmers, etc.) could drive the local food production system.

Another key limitation is land ownership. In many cases, land is no longer owned by farmers who were active in the past. Seeking rents linked to constructed land was the main driver to land use change in recent decades. Nowadays this is strongly limited by Regional Law 65/2015 which imposes a demarcation between urban and rural territory, limiting construction outside of the urban perimeter. Understanding how resources that are no longer managed by farmers, should be valorised through emerging farmers is a key challenge.

Impact (actual, potential) of beneficial relations

The SALSA study revealed an imbalance between local food production and consumption needs (Table 1). It showed that Lucca province has a production deficit in all of the key product groups studied, especially for fruit (-75%) and vegetable fats (-63%) that are intensively purchased from outside the boundaries of the region. Local production of wine grapes and vegetables are better matched with local consumption needs, but still show production levels that are lower than the internal demand. This situation of dependence, especially for products whose quality depends on freshness (i.e., fruit and vegetables) highlights a big difference between the past where there was a strong horticultural sector in the plains, and today, where much of the potentially cultivable land has been abandoned.

This disequilibrium poses both challenges and opportunities for enhancing local production, as long as limits to competitiveness are addressed. It should be emphasized that this reasoning does not aim to support food self-sufficiency, but rediscover the value of the food system's resilience in soil cultivation: land abandonment today means compromising the possibility of cultivating these lands in the future (e.g. woodland spread).

Planning and managing multifunctional agricultural areas linked to the city would contribute to economic, social and environmental objectives, if there is an explicit orientation to eco-compatible and quality productions (i.e. in line with an ecosystem services approach).

Lastly, tourism is growing in the territory, primarily in the peri-urban areas (e.g. bed and breakfasts, holiday homes, agritourism). Despite having a reputation for gastronomy, local products and landscape, visitors often find it difficult to access the authentic values of the region. Therefore, working on a more authentic exploitation of peri-urban open spaces, both in terms of relaunching agricultural production activities and offering opportunities for recreation, will provide additional opportunities for more income and employment.

3.1. Indications of the application of the new concept of 'New Localities'

Expression of the concept of "new localities"

The idea behind strengthening a local food system is to make a linkage between what has always been considered separate (urban and rural) and a new integrated system. "New localities" should go beyond building green infrastructures and ecological corridors and develop into a continuous substratum of agricultural spaces that support the city, make it sustainable, and feed it.

Ultimately, the rural-urban "new localities" represents a vision to be realized as a set of multifunctional agricultural spaces for social interaction and free time, linked to the city, integrated with the already existing infrastructures and networks. The study of food systems and ecosystem services represents a prerequisite for the creation of this new vision of the Piana di Lucca.

3.2. Insights related to the broad area of 'Smart Development'

Information relating to the concept of smart development

There is no apparent linkage to priority areas for smart development set at the regional level. Selection of priority areas in the Tuscany region aimed at supporting employment and innovation: relating to the food system, precision agriculture was the area selected within the smart specialization strategy.

As mentioned previously, the concept of smart development in Lucca could be centred on recovering and reinterpreting the relationship between city and countryside (i.e. “retro-innovation”). Today, most peri-urban agricultural areas are not adequately used to their potential. Local products that are linked to cultural aspects and food, and biodiversity should be valorised through an integrated policy (i.e., seeds, beans, tomatoes, soups)[3].

The role of innovation

There is potential for social innovation to help define an action strategy for the rural-urban vision by supporting stakeholder interactions at different levels. For example, by developing "pilot projects" in the territory that are oriented to Local Food Systems and emphasise the role of existing realities. One aspect, for example, (to be addressed by the Living Lab) relates to the limits of the current Rural Development Plan of Tuscany, which does not allow to operate on agricultural soils located on urban areas.

Examples of good (and bad?) practice in smart development and/or the contribution of rural-urban synergies to smart regional growth.

In relation to local food systems, the Italian framework presents good practices, such as “bio-districts”. These are niche experiences to be observed even if, for the moment, these have been implemented in rural contexts only. The idea to create a “Biodistretto” for Lucca was raised but was then shelved.

[3] A relevant actor located in in Garfagnana is the Regional Bank of Germoplasma, one among the ones established in Tuscany seeking to safeguard, through the ex situ conservation, regional autochthonous varieties. Conceived as a system of banks of the germplasm (seed banks, collection fields, etc.), the Bank carries out all operations aimed at safeguarding the genetic material in it, from any form of contamination, alteration and destruction.

Data Sources and Indicators

The research carried out within Salsa Project relied on the integration of different available data sources: secondary data sets available at European, National and local level and primary data collection via key informants and farmers' interviews, focus groups, and regional workshops.

Table 1 Data / Indicators for Example 1

Data / Indicator	Source
Name of data source / indicator	Citation, website link, organization
Total land size of Lucca Province, Population Population density	Eurostat(European), 2015, http://ec.europa.eu/eurostat/statistics-explained/index.php/Agriculture_statistics_at_regional_level#Further_Eurostat_information
GDP (EURO per inhabitant)	Eurostat, 2013, http://ec.europa.eu/eurostat/statistics-explained/index.php/Agriculture_statistics_at_regional_level#Further_Eurostat_information
Total labour force in AWU, Total number of holdings Total agricultural area (ha) Total utilized agricultural area (ha) Agricultural area in mountain area % of UAA in the region Average farm size Number of farms by UAA farm size Utilized agricultural area by UAA farm size (ha) % of farms < 5 ha of UAA % of farms < 8 ESU % of UAA occupied by farms < 5 ha of UAA Average size of farms < 5 ha of UAA Area of main crops (ha) Area of main crops (ha) in farms < 5 ha Total livestock units by UAA farm size Livestock (LSU) Livestock (LSU) in farms < 5 ha of UAA Annual work units (AWU) by UAA farm size Total family labour Economic size (SGM or SO) by UAA farm size Production (total and in farms < 5 ha)	Istat (national), 2010, http://dati-censimentoagricoltura.istat.it/Index.aspx
Average consumption on food product items and categories	EFSA, (European level), NUTS 0, 2005/2006, https://www.efsa.europa.eu/it/food-consumption/comprehensive-database (more recent data is available)
Number of Farmers markets and location on the province of Lucca	Coldiretti (local farmers' association), updated

Key informants interviews, farmers interviews, focus groups, regional workshops	Data is available in SALSA project deliverables upon request

4. Critical Appraisal of Data Use

Knowing how the local food system works is crucial to understanding the potential to develop and strengthen connections between rural and urban. This research provides an interesting and valuable knowledge base on the territorial food system in Lucca, which will be further assessed and expanded throughout the life of the Living Lab.

5. References

Gianluca Brunori; Francesco Di Iacovo; Laura Fastelli; Francesca Galli; Lucia Palmioli; Paolo Prosperi; Massimo Rovai. Lucca (RR 11) Italy. Food System Regional Report. Work Package 3. Salsa Project, http://www.salsa.uevora.pt/en/