

Quality labels as drivers of periurban livestock farming resilience

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Abstract: *The purpose of this study is to analyse the contribution of local food certifications in maintaining and developing the farming system in periurban areas. The case study is the periurban area of Pisa, a medium-sized Italian city, representative of urban sprawl and Mediterranean farming systems. The methodology combines quantitative and qualitative analysis. 12-years statistical data on the evolution of the livestock system were compared with interviews to the local food chain's actor, to assess the evolution of "Carne Bovina di Pisa", a private label promoted by the local livestock producers' association. While statistical data have revealed a constant decreasing of livestock producers in the area, results from interviews have shown that this project has allowed to maintain livestock in the periurban farms, where farmers especially engaged in short food supply chains. Nevertheless, despite the initial enthusiasm of both farmers and consumers toward the product, several factors have hampered the evolution of such project and so the evolution of the farming system. These factors are especially connected to the distribution and marketing of supermarkets. By the one side supermarkets can mobilise bigger quantities of product, and allow a greater visibility of the project, by the other side they have difficulties in the adaptation to traditional and artisanal product processing. The constant capacity of intermediary actors to mediate between different actors, may support the resilience of such projects. For this reason, actions of coordination are needed to guarantee the sustainability of the certified food chains.*

Keywords: *local food network, periurban agriculture, interviews, Italy*

Introduction

Farmers are recognised as fundamental actors in the maintenance of the landscape, the soil fertility, the biodiversity of a territory. Farmers are considered as "intermediaries" between ecological-productive and social systems; this explains why the evolution of agricultural sector has been so deeply affected by global and local shocks. The former depends on global dynamics of market, socio-political and environmental development, such as the economic crisis and raw material price volatility, or climate change. In the case of livestock production, the abolition of the Milk quota in 2015 have been connected to a rise of the milk production in European Union and a consequent decrease of the prices and profits for the farmers (European Commission, 2009). The emergence of periodic global food safety crises as Avian influenza, or BSE, had strong consequences locally on the farming system and at the same time they have alarmed the public, which now seeks more and more for local and traceable products. Instead, local shocks are linked to territorial development dynamics. In urban and peri-urban areas, urban pressure has often led to a decrease in agricultural surface, due to competition for land use between agriculture and the city (Mazzocchi et al., 2014). With the term *urban sprawl* literature refers to a rapid and unregulated urbanisation, a very low-density development outside of city centres (EEA, 2006). According to ISPRA (2015) almost 60% of the urbanization process between 2008 and 2013 has taken place in

agricultural areas, especially on arable land (48%), while only 22% has been in open urban areas, and 19% in natural and protected areas.

One of the main factors influencing land use is urban rent, which shows significantly higher values than those of agricultural rent. The process of urbanisation marginalises agricultural activities: agriculture becomes a residual activity (Darly and Torre, 2013) in a territory where its position was traditionally predominant. One first consequence of urbanisation is the competition for natural resources, especially land and water, both for housing, infrastructures and industrial purposes. This competition came from the loss of agricultural land but also from the fragmentation of land and agricultural areas. Beyond the loss of UAA due to the increasing of urbanisation, the loss of agricultural land means also the less accessibility of soil for periurban farmers due to possible further urbanisation, which influences the price of land both to buy and to rent, sometimes at the limit of land speculation (Mazzocchi, 2014). This phenomenon creates also land insecurity (Tolron, 2001), for which the answer is shorter rent contracts in prevision of the more rentable urbanisation. This point also can influence crop sequences and the crop management.

The fragmentation means several things: the reduced size of the plots (Cavallès and Wavresky, 2007), that leads to a more difficult rationalisation of the practices; the increasing distance of the plots with related costs of transportation and waste of time (Tolron, 2001); in this way the fragmentation may reduce the sustainability of existing farming systems (Van Veenhuizen and Danso, 2007). Considering these evidences, the competition for natural resources in periurban areas tends to create at the same time a process of intensification of agricultural practices, due to the need of saving the scarce natural resources and a process of abandonment of the farming activity (Pascucci, 2007).

At the same time some positive externalities of farming practices are limited as the control of flooding. All this because agriculture is practised in a strongly anthropic environment and its practices needs to cope with modified external conditions. As several authors have pointed out (e.g. Henderson, 2005; Darly and Torre, 2013), there are also social components to take into account related to the conflicts and constraints that come from the coexistence in the same area of different community's interests and activities.

According to literature periurban farming systems are farming systems characterised by a process of *adaptation* of the farming practices (Tolron, 2001): the process of urbanization has caused the change of external condition and it has also impacted the internal condition of the farm, since with urbanisation some practices are no more sustainable (Pascucci, 2007; Tolron, 2001; Heimlich, 2001).

In this context the *resilience* is defined as the ability of a system to absorb shocks and rearrange maintaining the same function, structure and identity (Darnhofer, 2010). According to López-Ridaura et al. (2002), the resilience of the agricultural system is one of the key elements in assessing its sustainability. In this perspective, according to authors, if by the one side urban pressure may threaten the agricultural production, by the other side it may create new opportunities for farmers to develop resilience strategies.

According to Heimlich (2001) for example, farms located in periurban areas have other advantages, linked to the proximity (organizational and geographical) to urban markets, urban enterprises (in industrial areas), and infrastructures; especially periurban farmers can benefit from less transactional costs, considering the proximity with commercial stakeholders, that are usually concentrated in urban and periurban areas. Moreover, periurban areas seem to be more dynamic for the farm enterprise, than rural areas due to heterogeneity of actors and initiatives that characterize a territory with recent economic changes. The proximity with

urban areas may also offer a possibility for wage differentiation among the members of the family farm, between farm and off-farm jobs. At the same time, it can help part-time labour, especially for low income agricultural activities and in this way, it may sustain the preserving of agricultural activity in periurban area, while rural and marginalized areas are characterized by the abandonment of agriculture (Heimlich, 2001).

Several authors (Aubry and Kebir, 2013; Paül and McKenzie, 2011) argue that one of the essential conditions for agricultural resilience in periurban area is the development of and the participation in local agri-food system and networks. In their study on periurban farming system's food capacity, Filippini et al. (2014) have observed a correspondence between the presence of local meat labels and the maintaining of livestock production in the territory, confirming the relationship between the local market and the labels suggested in other studies (Ansaloni, 2009; Tregear et al., 2007).

The purpose of this study is to show the contribution of local food certifications in maintaining and developing the farming system in periurban areas.

Up to now the interest of literature on livestock production in periurban areas has been focused especially in analyzing its social functions, as in social farming, and less for its production capacity (Busk et al., 2006). Several constraints in fact are connected to the maintaining of livestock production in proximity of urban area, concerning for example the manure management, or the production of smells. At the same time, the presence of a livestock production integrated with cropping system is essential for the maintenance of the soil fertility (Bonaudo, et al., 2014).

In the case of periurban farming system, the presence of livestock farms near the consumers, and the possibility of on-farm direct selling, reassures the consumers about the production's quality as well as it makes them participants to the environmental sustainability (Ansaloni 2009). In our opinion, local markets could represent for many farmers in periurban area an opportunity for the perpetuation of the farming activity. This will help to control and restraint the decrease in the number of farms that affect globally the farming system.

Methodology

Case study

The *Area Pisana* is a group of six municipalities located in Tuscany, Italy. This is a periurban area of almost 200,000 inhabitants around the main town of Pisa, which undergone to an urbanisation process during the last decades with an annual 3% urban growth rate (Marraccini et al., 2015). The *Area Pisana* is composed of an inland area and of a hilly area. The inland area is a reclaimed area, delimited by two main rivers (Serchio and Arno) and a lake (Massaciuccoli lake) and hosting the regional natural park of San Rossore. The farming systems of the inland area are mainly arable crops and livestock oriented (Ruiz-Martinez et al., 2016). The hilly area is part of the *Monte Pisano* (maximum altitude 900 m above sea level) and is mainly devoted to olive groves on bench terraces managed by a majority of hobby farmers (Gennai-Schott et al., 2014). Farming systems are deeply changing since the '90 (Marraccini et al., 2012), with a reduction (number of farms and surface) of the more specialist farms as the vegetable ones and a concentration of livestock breeds similar to those found in other EU areas. Livestock breeding was once one of the main traditional farming activities in the area in small-scale mixed farms. Even though cattle and sheep farms are still the most widespread in the area, in the last three decades they have decreased significantly (84% for cattle farms and 73% for sheep farms).

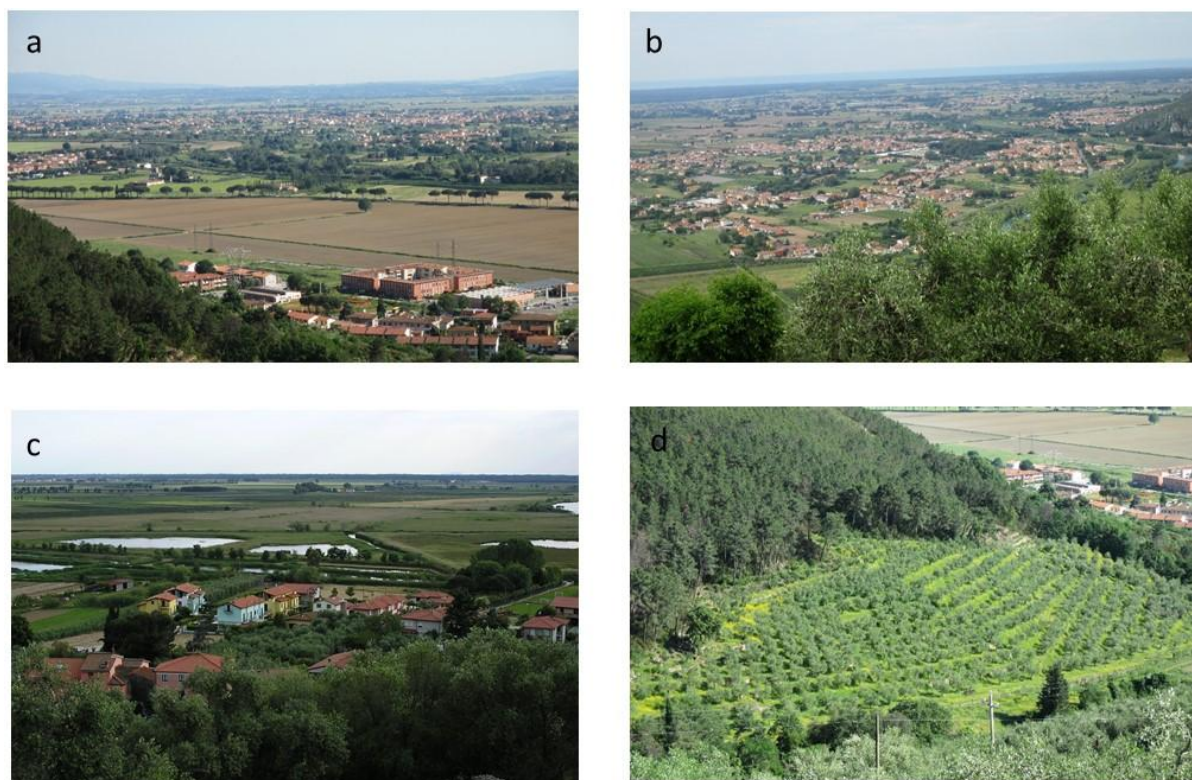


Figure 1. Agricultural diversity of the Pisa urban region: a) small scale cereal-oriented farms nearby the Monte Pisano hilly area; b) the small-scale vegetable and permanent crop oriented farms in the Northern highly densely urbanized area; c) large livestock and arable farms in the Northern area within the San Rossore Regional Natural Park; d) olive groves oriented farms in the Monte Pisano hilly area. Photos by Elisa Marraccini.

The *Carne Bovina di Pisa* project

The (DAUME (*Durabilité des agricultures Urbaines dans le Méditerranée*) project had the purpose of assessing the sustainability of periurban farming in the Mediterranean basin. In the project a specific workpackage was dedicated to analyse the agri-urban projects, defined as projects carried out by private actors and/or public bodies, which consider at the same time agricultural and urban interests (Loudiyi et al., 2018). For the *Area pisana* case study, a first analysis of the existing agri-urban projects was performed by Marraccini et al. (2013). Among them, the *Carne Bovina di Pisa* (CBP) was selected for a deeper investigation and the results are presented in this paper. The project was initiated and coordinated by the local livestock producers' association of Pisa province, hereby called *APA (Associazione Provinciale Allevatori)*. The project officially started in 2000 by the definition of the product specification. The purpose of the project was to preserve the gene pool of local cattle, by organizing a food chain which aim is to valorise such local breed. The project is coordinating farmers, local livestock producers' association, slaughterhouses and local supermarkets around a common label which distinguish livestock produced in the Province of Pisa. The label qualifies two breeds: *Mucca Pisana* and *Limousine*.

The *Mucca Pisana* is a mixed race, native to the Province of Pisa, characterised by medium height and dark brown coat. Traditionally used in the area both for dairy production and as working animal, with the development of agrarian machinery and dairy production the use of such animal had decreased, causing the risk of extinction between the Seventies and the Nineties. Nowadays it is breed for its meat, which is considered of a high quality. The animal is one of the 16 minor Italian cattle breeds of limited diffusion recognised and protected by the Italian ministry of agriculture (AIA, 2011). The *Limousine* is originally from the region of Limousine in France and it is now one of the most widespread beef cattle breeds in the world. It is characterized by a bright red coat and a medium size. Both animals have an excellent yield at slaughter, which varies from 62 to 64% on live weight. To be commercialise under the CBP certification, the animal should be born, growth and process in the Province of Pisa.



Figure 2. Mucca Pisana and Limousine (source: http://www.parcosanrossore.it/imm/foto/attivita/galleria_02.html) and the label Carne Bovina di Pisa (source <http://web.tiscali.it/apapl/myfav3.htm>)

Interviews

The interviews were carried out in 2013 and were addressed to 9 actors (Table 1). The actors were selected because they have a specific function inside the project: production, processing selling and funding.

Table 1 Actors description: while farmers and supermarkets the interviews refer to different actors, in the case of the Region the two actors interviewed represent the opinion of just one actor

| Actors (n°) | Description – territorial scale of activity | Main role in the project | Code |
|--------------------------------|--|------------------------------------|------------------------|
| Farmers (3) | Private actor (1) and Public actor (2: Regional Park, University) – periurban area | Production (3) and direct sale (2) | FAR1; FAR2; FAR3 |
| Butchery (1) | Private actor – province | Processing and sale | ButG |
| Supermarkets (2) | Private actor – periurban area | Processing (1) and sale (2) | Sup |
| Pisa livestock association (1) | Private-public actor – province | Initiative and coordination | APA |
| Region of Tuscany (2) | Public institution – region | Funding | Reg |

The semi-structured interviews had the objective to understand the role of each actor inside the project, the reason why the actor participate, the social network developed by the actor to carry out the project, the project's timeline and the main constraints and opportunities the actor found.

The results of the interview were organized in a grid developed in the framework of the DAUME project (Table 2).

Table 2 Grid of Analysis of actors' interviews

| |
|--|
| Description of the actor |
| Purpose of the project according to the actor |
| When the actor entered in the project and why |
| Main role of the actor in the project |
| Actions carried out by the actor in the framework of the project |
| Other actors the actor is related |
| How the actors work together |
| Territorial level of actions |
| Management of the project |
| Main changes in the timeline of project |
| Main constraints perceived by the actors |
| Main benefits perceived by the actors |
| Future development perspectives |

Results

Evolution of the livestock production in the area

We have analysed the data of the annual livestock census at the municipal level (Istituto Zooprofilattico Sperimentale, 2017) in order to understand the short-term dynamics of cattle farms in the Area. As highlighted in Figure 3, the overall number of cattle livestock farms in

the area is generally decreasing shifting from almost 90 in 2004 to 40 in 2016. This decrease seems to be linked to the farm dynamics of the three main inland municipalities, Pisa, Cascina and San Giuliano.

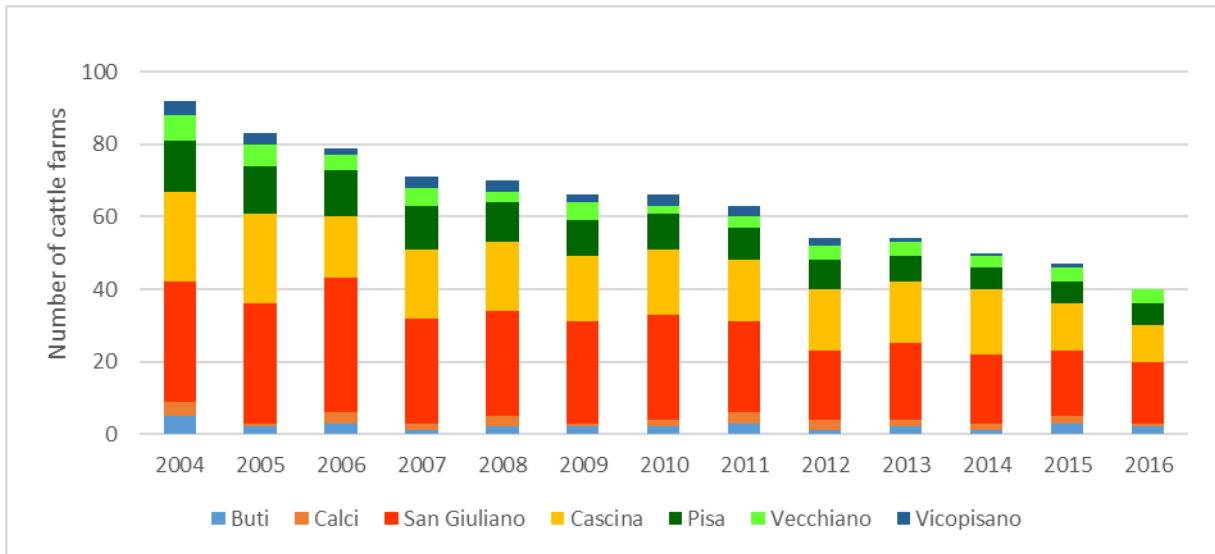


Figure 3. Short term dynamics of cattle farms in the Area Pisana (Italy). Source of the data: Istituto Zooprofilattico Sperimentale, 2017.

When looking at the livestock units, we can observe a significant increase of the cattle livestock units (LSU) in the same municipalities, for instance in Cascina LSU increased from 264 in 2002 to 721 in 2016 and in Pisa from 313 in 2002 to 722 in 2016. Only the case of Vecchiano showed an important decrease from 2002 to 2006 (Figure 4).

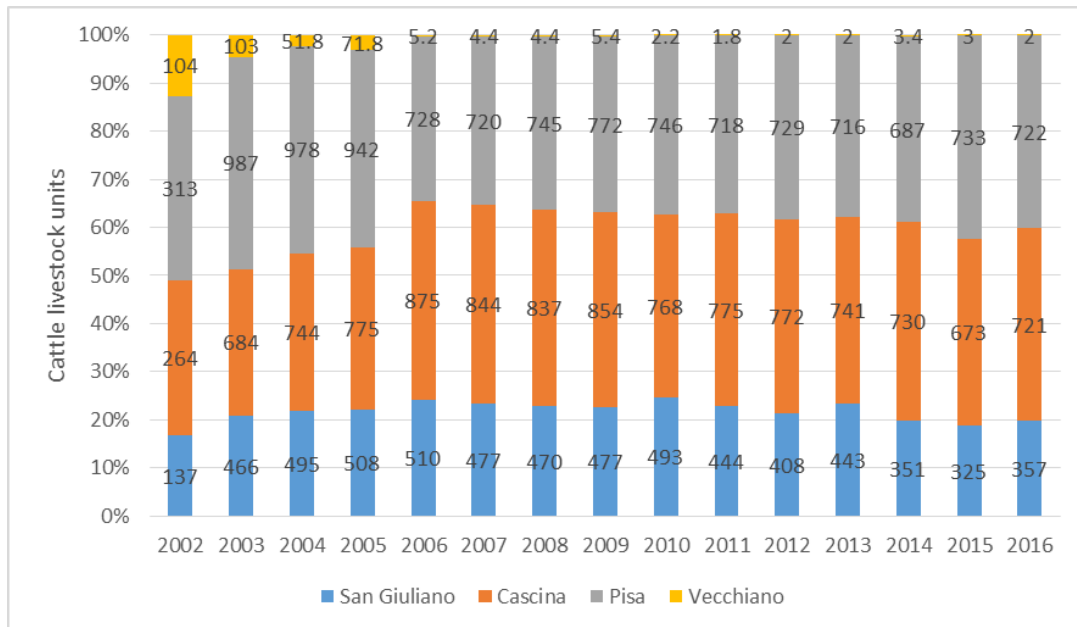


Figure 4. Short term dynamics of cattle livestock units in the four most livestock-oriented municipalities of the Area Pisana (Italy). Source of the data: Istituto Zooprofilattico Sperimentale, 2017.

These short-term dynamics are in accordance with the long-term dynamics showed by the last agricultural censuses. When looking to the main cattle breed, it is possible to observe three different patterns. On the one side, the local *Mucca Pisana* breed was stable from 2006 to 2016, even though the LU are still low. On the other side, some breed slightly decreased in the same time span, as such the *Chianina*, another local breed protected through a

Protected Geographical Indication (PGI) or the Charolais. Finally, the Limousine breed slightly increased in the same time span.

The Carne Bovina di Pisa project

In the next sections the results from the interviews are presented according to the grid of analysis.

Description of the actors this section belongs to the methodology and should be placed there

APA is the local representativeness of the Regional association of livestock producers. APA is financed mainly by public funds (80%) and the membership fees of the farmers (20%). Their main function is to represent livestock producer interests, technical assistance, the improvement and the preserving of gene pool of cattle breed. They are responsible of the management of several origin certifications beyond CBP: other certifications are “PGI Chianina”, “Agnello da latte pisano”.

Table 3 summarize the main characteristics of the interviewed farmers’ production farms production. All the farms are located in the periurban area and they mainly rely on pasture.

Table 3 Farms’ characteristics

| Farmers | Ha. | Number of animals | Type of breeding | Organic |
|---------|-----|-------------------|----------------------------|---------|
| FAR1 | 284 | 70 | Mucca Pisana and Limousine | Yes |
| FAR2 | 420 | 50 | Mucca Pisana | No |
| FAR3 | 100 | 60 | Mucca Pisana and Limousine | Yes |

FAR1 is a private family farm. The manpower is composed by two brothers and one external worker. While one brother is more dedicated to animal breeding, the other is more focused in the slaughterhouse and the sale of the animal. Alongside the production and the sale, they also organise an agri-camping for the tourists in the summer, and didactic farms’ activities for schools during the school period.

FAR2 belongs to the University’s research centre of the University of Pisa. Despite being part of a public institution, the farm is privately managed, since the production does not receive any public funding. Beyond the cattle breeding, the farm has a dairy production which is both sold directly to consumers and to a milk factory. Furthermore, the milk is occasionally sold to a local cheese factory. FAR2 participates also to a social farming project for the professional re-inclusion.

FAR 3 is part of the Natural Regional Park “San Rossore”.

The Butchery (ButG) is a small private family activity; they do both the slaughter of the animal and the sale of the meat. In the shop, the family sells also different kind of local-typical and traditional products: olive oil, pasta, cheese, etc.

The supermarkets (Sup) are located in the city of Pisa, even if in two different neighbourhoods. They are part of two big supermarkets (Conad and Coop). Nevertheless, the management of the supermarket’s activity is the responsibility of each supermarket manager.

Purpose of the project according to the actor

According to APA, the project CBP has the objective of maintaining on the area livestock farms that are not only focused on Chianina, which is the most widespread local breed in Central Italy and labelled by a specific PGI, but also to have livestock productions dedicated to Limousine and Mucca Pisana. To do so, they decided to develop a quality label to promote the market of these breeding. According to the actor the label has just the meaning of providing a recognition of the quality of the meat in front of the consumers.

According to the institutional actors in the Tuscan region, the project has the purpose of maintaining the biodiversity of the native breed. The farmers that participate in the project are in fact sustained by the second RDP pillar of 2007-2014 CAP, dedicated to biodiversity and not for example by the first pillar focused on competitiveness.

In general, both farmers, butchery and supermarkets agree that the purpose of the project is to maintain the biodiversity of the local breed by the mean of a quality label that valorizes the product in the market. The food chain is thus at the service of the local breed diversity.

When and why the actor entered in the project

The project was initiated in 2000 by the initiative of the local representation of APA: they were observing a rapid decreasing of the number of Mucca Pisana cattle in the area.

The farmers interviewed were included in the project in different times and for different reasons. FAR1 who also had a role of representativeness in APA, was asked in 1995 – so before the project officially started – to host some cattle because of the concrete risk of extinction. According to FAR3, the participation in the project started in 2010 and was imposed by institutionally the Region. FAR2 entered in the project in 2007 because of the commercial agreement with a supermarket, but they were already breeding the Mucca Pisana since 1994 for research purposes.

The Supermarkets enter in different time: one in 2008 and the other in 2011. Both actors have participated in a strategy of valorisation of local products. According to one actor, the general purpose is to support the local economy; at the same time the project CBP helps the sale of the product, because there's a label which guarantee the traditional quality and the hygienic control in front of the consumers. The BSE has reinforced the already existing trend of certification and the traceability. The other supermarket also stated that, being more selected the meat coming from the label is of good quality in comparison with the same meat not part of the CBP. Both supermarkets have also visited the farms where the animals are from and they liked how the farms were managed.

Finally, the private butchery was asked to join the project, to promote the label and because of its artisanal way of processing the meat.

Main role and actions carried out by the actors in the project

APA acts in two ways in the project. On the one hand their actions are dedicated to the animal production: APA is responsible for the technical assistance of the animal breeding, how the farmers work and the animal welfare; it takes account of the number of animals, their growth; they monitor the animal to understand when the animals are ready for the slaughter and thus the sale. As representative of farmers they are also responsible to send the demand for the RDP funding to the Region. On the other hand, they mediate between the farmers and the actors responsible for the slaughter and/or the sale. By monitoring the growth of the animals, they are also in the position of organising the provision of the animal among the different commercial actors. They also mediate between farmers and commercial actors, in the decision of the price; according the farmers this is especially important in their commercial relationships with supermarkets, where the power market is usually unbalanced in favour of the supermarkets. Their participation in the project is no-profit: they need to preserve animal production in the area for their survival of the association.

The farmers are mainly responsible for the animal production. F1 is the unique farmer that has organised also a direct sale of the meat to consumers; to do so, a part of the animal is slaughtered in an artisanal slaughterhouse, and inside the farms.

The supermarkets received the animal from a slaughterhouse part of the project (not interviewed here) and finish the processing of the meat inside the supermarket. For one of the supermarket, since the processing is standard and the Mucca Pisana needs a longer meat aging, it has been decided to buy and sell only the Limousine. On the opposite side the slaughterhouse has decided to buy and sell only Mucca Pisana, for the most typical and artisanal meaning of the product.

The Region just provides a source of financing which is not so economically relevant, as admitted by the actors. The institutional actor had not contributed in the composition of the product specification, since the label CBP has a private status. The role of the region is thus different than the role played in other typical but public certifications, such as GPI or PDO.

The food chain and the food network of the project (actors, relations, spaces)

Figure 5 shows the food chain organised in the framework of the CBP project. In other words, it shows the linear and vertical concatenation of the different actions actors perform, from production to consumption.

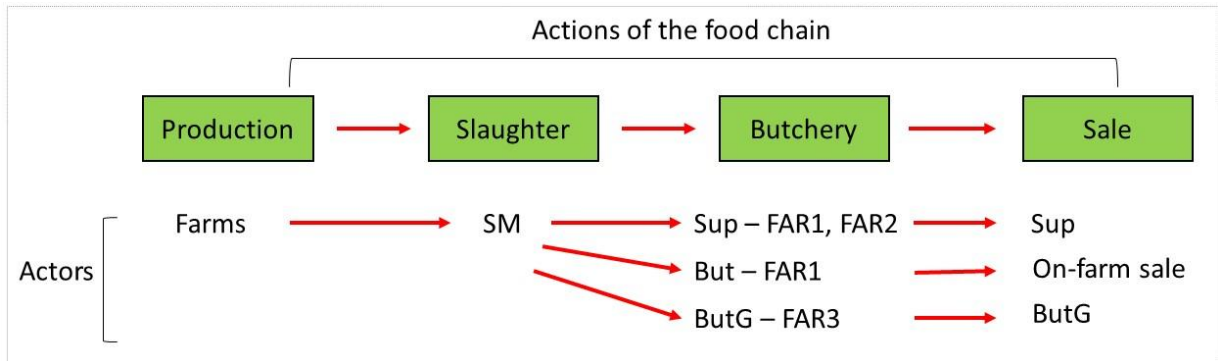


Figure 5. Food Chain of CBP

All the production is done in the farms. In 2013 the project included seven farms: five farms are located in the periurban area of Pisa, while the rest are in the South of the province. The production is thus typical of the periurban area. According to APA this is due to the fact that in the rest of province the livestock production is already well organised around the GPI Chianina, which is typical of Tuscany. In other words, there is no need for another quality label.

The processing of the meat requires two steps: the slaughter, which cannot be done in the farm, but only in specific slaughterhouses, and the butchery of the meat. There is only slaughterhouse (SM) in the framework of CBP project in agreement with APA for the killing of the animals (actor not interviewed). SM is not located in the periurban area but in the Province. From here the meat follows different chains according to the agreement between the farms and the different spaces of sale. In the case of the sale through supermarkets, the butchery is done by the supermarkets. Here the provision of the meat and the price are managed by APA. In the case of on-farm direct sale, FAR1 has done an agreement with a butchery (But); FAR3 sells the meat to ButG. The meat that ButG cannot process is sold outside Tuscany in organic food chains, and so without using the CBP label.

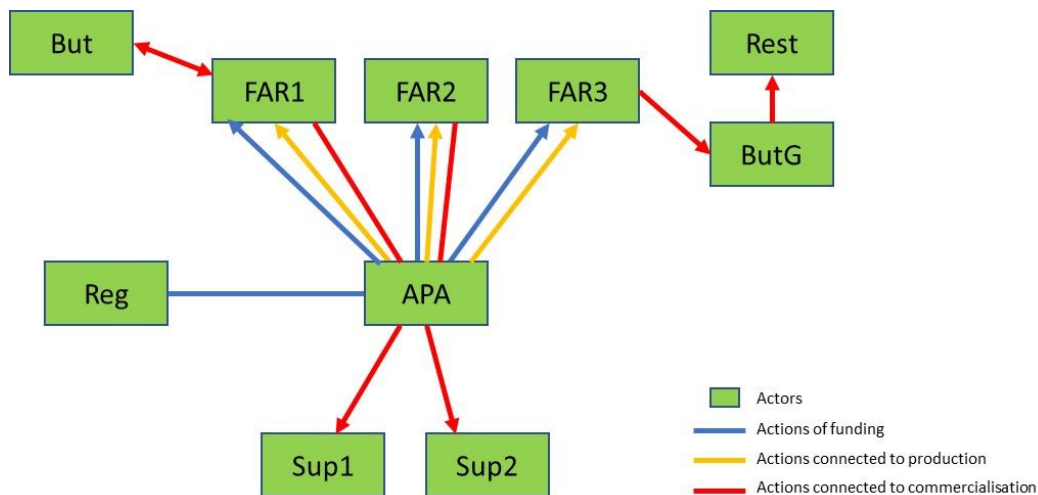


Figure 6. Food Network of CBP

Figure 6 shows the food network created by CBP. The focus is thus on the horizontal and complex relationships, where the concatenations of actions are contextualised in the “social life” of food. In the Figure it is possible to see three main links between the actors, representing the actions carried out by the actors: the funding, the actions connected to the production, the actions connected to the sale. The funding – that has said have a marginal impact on the economy of the farm – comes from the Region and reaches the farmers through APA.

Beyond the breeding of the animal, the actions connected to the production are related to the control on the animals’ welfare, the monitor of the growing, and the updating of the breed registry. These actions are all the responsibility of APA, which main purpose is to taking care of the animal production in the territory of the province of Pisa. Finally, the actions connected to the sale are partially responsibility of APA. APA plays an important role in mediating the position of farmers and supermarkets in the price decision and in the provision of the animals. Beyond this, FAR1 has organised also an on-farm direct sale, for which it has organised a connection with a small butchery, not located in the periurban area of Pisa; this connection was organised by FAR1 independently from APA. FAR3 sells all the CBP product to ButG, which sells a part of the production to local restaurants, as well as to private consumers. This sale is not managed by APA, and the agreement between FAR3 and ButG was done independently. In other words, the food chain organised by APA creates a food network that affect indirectly the economy also of other commercial actors that are not directly touched by APA.

The main constraints and positive impacts of the project

According to APA the worst constraint in the project is the dramatic decrease in the number of livestock producers as well as the numbers of animal in the area, beyond the project. In this sense the most important impact of the project is the increasing of the animals connected to the label in the territory. According to the actor interviewed in 93 there were less than 250 animals in the area while in 2013 are 600. Nevertheless, they noticed that the farms that participate in the project have reduced the number of animals each one since 2000: FAR1 for example, had to change slaughterhouse and had to reduce the number of animal to process. Another important constraint is the difficulty in selling the Mucca Pisana to the supermarkets: they prefer the Limousine’s animals, because the Mucca Pisana requires special artisanal processing. The Mucca Pisana remains a niche market that needs special marketing campaigns. Nevertheless, consumers demand for it, they recognised the importance of the project.

According to FAR1 and FAR2 the most important positive impact of the project is connected to the possibility to have the opportunity to market locally a traditional and traceable quality product that is thus recognised and valorised by the consumers. The role of APA is fundamental, first for its capacity to control and organise the production and second because of its fundamental mediating capacity in the price decision with supermarkets, which influences also the capacity of farmers to maintain high prices also in the on-farm direct sale. The constraints perceived by the farmers are especially linked to the production and to internal structure of the farm: according to FAR1 for example, the urban pressure has affected the pasture of the animals.

According to the slaughterhouse one of the main constraint of the project is the lack of artisanal slaughterhouses capable to process the meat of Mucca Pisana. Supermarkets do not have these abilities, and this may affect the future development of the project.

According to supermarkets the project has made marketable a traditional local product, enabling the traceability, and guaranteeing the controls both on animal welfare and basic hygienic requirements. Considering the increasing attention of consumers in these aspects of the food consumption, the project has allowed supermarkets to differentiate the offer of animal product. Nevertheless, the main constraint is the processing of the Mucca Pisana breed, which is too artisanal for the standard processing of supermarkets.

Discussion and Conclusion

The analysis of CBP has revealed that projects may be a possible tool to reinforce and maintain agriculture in periurban areas. It is a fact that most of the livestock productions that participate in such project are located in the periurban fringe of the Pisa's city. The project has provided farmers with an economic revenue for their efforts in maintaining the biodiversity; supermarkets have the possibility to offer a local traceable product to consumers, where the quality is guaranteed by controls on animal welfare by technical experts. The project has also offered opportunities to the farms, to organise experiences of direct sale principally addressed to Pisa's citizens. Despite farmers perceive the constraints in producing in the urban shadow (Tolron, 2003; Heimlich, 2011), as for the management of pasture, they have adopted the resilience strategies as the organisation of on-farm direct sale (Aubry and Kebir, 2013; Paül and McKenzie, 2013), and the project has provided a certified and guaranteed product, to assure the consumers (Ansaloni, 2009). In other words, in such project the spatial proximity with urban areas is a determinant element, in a dynamic process of development which is the result of adaptation's strategies both from the farmer's perspective and the perspective of the other stakeholders.

Similarly, the project has impacted other commercial actors, as processors and groceries, that even if they were not initially included in the project and they are not directly connected to APA in the food network, they were contacted by the farmers to collaborate in their activities. This result is interesting since it provides opportunities of economic development for other commercial actors. Despite the important contribution of the project, the actors highlight several constraints. These constraints are especially connected to the decrease of farmers for the production, or the lack of specific butcheries and slaughterhouses for the process of the meat which should be artisanal.

The fundamental role of a coordinating actor is recognised by all the actors, not only for its capacity to initiate the project and include all the relevant actors, but also in its capacity of sustaining the resilience of the agriculture, and the resilience of the other economic activities connected to it. As expressed in literature, the governance of the project is fundamental in creating, and maintaining the distinctiveness of the product and producers over time, in mobilizing the support from local public institutions, in developing collaborative relationships among economic actors and in protecting local producers from unfair competition (Arfini et al., 2016).

In the case of CBP the initiative came from a private organisation and the funding received by PSR were not so economically important. Thus, it was the effort of the individual stakeholders and the governance capacity of the initiator that has allowed the project to establish and maintain a new local food network.

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