SUFISA

SUFISA PEAR REPORT
AN EXTENDED SUMMARY

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ALMA MATER STUDIORUM
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AGRO-ALIMENTARI

Emilia Romagna

Pear report

An extended summary

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Introduction

The purpose of this report is to investigate the policy requirements and market imperfections, and their implications for the resilience of pear supply chain in the Emilia Romagna Region, Italy (Figure 1), as part of the EU-funded Horizon 2020 project, SUFISA (Sustainable finance for sustainable agriculture and fisheries). This extended summary has been derived from a much larger report, which is available from: http://www.sufisa.eu/publications (project reports).

Italy with over 700 thousand t/year of production is the 3rd largest pear producer (after China and USA) and is by far the largest pear producer in the EU28 (Belgium, according to the largest European producer, produces less than half of the pears of Italy), holding about 30% of the production of pears.

Furthermore, Italy produces almost all (> 95%) of the Abate Fétel pears (of French origin) of the world; Abate Fétel is one of the most prestigious varieties; 2/3 of the production Italian pear tree in general and 90% of Abate Fetel is concentrated in a small part of the Po Valley, in the provinces of Modena, Ferrara, Bologna and Ravenna, then in a limited range (ISTAT, 2016).

Figure 1. Case study area: Emilia Romagna Region

The pear has found in the Po Valley an ideal environment of cultivation from the beginning of the 1900s. In fact, the land in which the crop has developed is peculiar as it deals with alluvial plots surrounding the Po river area. Moreover the climate of this area, cold and foggy in winter and very hot and sunny in summer, gives the pears specific and unique phenotypic characteristics such as, for example, rust of the epidermis of the Abate pear. However, the element that has characterized the

most production of pears in the typical area of Emilia-Romagna is the fruit tradition of the local producers.

There are 6.700 farms, 88% of farms are located in the plain with and average size of farms cultivating pear of 5-10 ha. These are highly specialized farms with long rotation period, which is around 20-25 years. Sixty-percent of farms specialized in horticulture are run by people between 45-65 years old, about 20% by people between above 65 years old. Especially financial

regional institution is committed in promoting organizations and cooperatives with the main purpose of improving transparency and renovates this sector.

Main conditions affecting farmers' strategies

Regulatory conditions

The important role of Producers' Organizations (PO) in fruit sector, it is well known since 1972, with the establishment of the Common Market Organization (CMO). POs have been one of the main instruments provided by the CMO for fruit and vegetables since its establishment. The majority of Italian POs are specialized in apples and pears representing the 89% of the Value of market production. Fruits and Vegetables POs are more than three hundred (MIPAAF, 2016). In Emilia-Romagna there thirty-two POs of which eighteen include pear fruit producers. The fragmentation is very high and cause lack of power. The main novelty of new CAP is that historical titles will move to new uniform titles
Analyzing potential effect of this homogenization process in Italy, for Specialized Fresh Fruit Farms there would be a notable increase in the base payment per hectare. A value more than double in the south-central area it has been estimated (Canali; 2013). Particular attention has been paid to useful tools to support quality production in the new Rural Development Plan. Such support is developed both in terms of members to the certification systems and to their promotion, taking into account the close relationship between quality and environmental sustainability that are expressed primarily in Organic production and Advanced Integrated.

In 2011, European Union decided to abolish the use of Ethoxyquin on the base of the Program review of Active Substances Contained in Phytosanitary products (Directive 91/414 / EEC). Ethoxyquin is a chemical considered in some countries as a food preservative while in others a pesticide that is used to control the "Stop-Scald" in pear after harvesting. In Europe is considered as an additive (E324) as well as in the United States. Instead, in Italy is listed since 1972 among agrochemical products. Since 2012, the Health Minister has authorized the disposal of all products containing Ethoxyquin. The decision taken by the European Commission to not authorise any more the use of Ethoxyquin, is having significant negative impact on the commercialization of pear. In particular, on the Abate Fétel, which more than others, during the conservation stage requires the use of this chemical in order to preserve a high quality level of the fruit texture. The same problem is not so relevant for all the other pear variety such as Williams or Conference.

Very often, the access to new markets outside Europe is hampered by phytosanitary barriers, which actually hide true protectionist measures to defend local production. In particular, the export of pears from Italy to the United States is legally admitted but in practice, it becomes not feasible, because of several inspections to pass through both for economic and commercial reasons. In fact, Italian companies, in order to face lower costs of controls must be co-ordinated with each other to carry their export during the same periods and so companies are forced to ship within defined periods. The result is that American customers are seen to get the entire product together, with the difficulty of placing them in the market and, hence, a reduction of sales.

Export to China is also difficult. Chinese agri-food sector is subject to particularly restrictive sanitary standards. The authorities direct their attention to agent phytopathogens and to avoid their introduction, in some case, there is a total ban of imports agricultural and food products, as they do not trust that the exporting country offers sufficient guarantees. On this point, some experts have highlighted an institution responsibility and the lack of a stronger coordination within POs in facing export barriers. Some European countries, such as Belgium, have successfully negotiated with Chinese institution in overcome phytosanitary barriers and they can actually export their product to China.

Furthermore, on August 7, 2014, Russia (Decree n. 778) bans the importation from the United States of America, Canada, the EU. Italy suffered a contraction already before the establishment of the embargo; in Period 2011/14 this destination accounted for 3 % of the total.

Market conditions

Italian market has been characterized by a decreasing of pear market. Since 2004, an overall reduction has been registered for pear consumption in EU countries, in particular in Italy (FAO, 2016). On the basis of the GFK-Eurisko data on Italian household retail purchases, we note a reduction in consumption of pears, one of the fruit most affected by the consumer crisis. Pear consumption in Italy currently ranks seventh as consumer habits and purchased by consumers "over 55".

Furthermore, so far, not enough has been done to develop consistent pear exports and the creation of demand in foreign countries in a coherent and strategic way. As evidence of this, Italy exports only 20% of the pears produced (for apples instead Italian production exported is close to 50%) and the pear Abate Fetel, which is a variety grown practically only in Italy and for which Italy would therefore has world exclusivity is consumed also in Germany and France, but in modest quantities.

Pear producers can access to market by selling their product to independent trader or associating in Producer Organization.

One of the main issues affecting the pear market highlighted by experts is the extreme fragmentation of the sector that determines a lack of power from the producer side within political and market context.

The control of quality delivered along the supply chain from the farmer to the consumer represents another aspect that needs to be addressed. In many cases, besides effort from farmer side in delivering a high quality product, the outcome sold to the consumers is a mix of different levels of fruit quality.

The conservation, selection and packaging of Italian pears takes place today in hundreds of centres that often have medium and small dimensions. A rationalization of the use of these facilities would allow the increase in the utilization coefficient of the plants, in order to optimize the costs associated with the management of the product in the warehouse

Strategies

Pear consumption in Italy currently ranks seventh as consumer habits and purchased by consumers "over 55". However, the percentage of people in this age group is increasing year after year, as it is normal in countries with higher per capital income. This implies that the potential number of pear consumers is increasing. From a survey by Futurpera (the first exhibition aimed to enhance the pear supply chain) it has emerged that this consumer chooses the pear mainly based on the variety (in the absence even of established brand) and the taste. This group of consumers is rarely taken seriously into consideration by advertising campaigns carried out to support the sale of pear products. In short, it is a large audience, potentially very interested in the offer of pears, with which so far nobody has ever communicated.

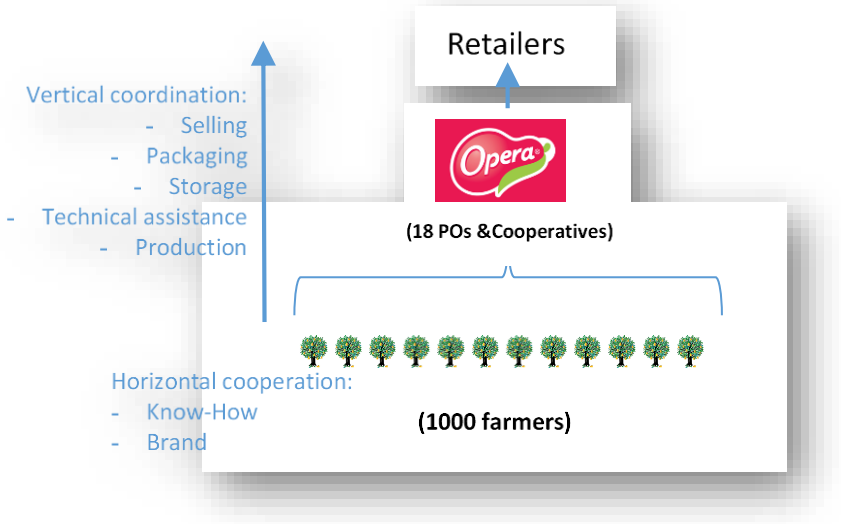
The solutions to the problem of the pear market are therefore to be found within the sector itself. Based on the data from the Pear Observatory, the relaunch of the sector certainly passes through a supply chain capable of doing research, innovating and implementing important communication strategies to consolidate the pool of consumers who already choose the pear, increasing the frequency of consumption, and to expand it, focusing on young people with innovative proposals (for example, to make the pear an aperitif fruit). (FuturPera, 2015). This can be done by improving levels of aggregation and concentration of the supply through organized facilities, in order to promote structural quality and economic development, of agricultural firm. Best levels of production organization can indeed help foster the market orientation of farms, raising quality level of production and the environmental performance of farmers. Through the consortium aggregation of subjects belonging to the entire pear production chain it is possible to create vertical integration, which is the vehicle of numerous advantages: economies of scale and scope, cost reduction, greater competitiveness and better control over 'whole value chain. Secondly, the union of producers through common rules and objectives leads to a wider integration at a horizontal level. With it, the advantages of the aggregation also widen: greater market share, greater bargaining power, complementarity. (Galbraith J.K., 1988). “Opera”

experience's expresses the application of these strategies. Opera represents and example of integration between vertical and horizontal coordination.

Case Study: Opera

The "Opera" Agricultural Consortium aims to relaunch the pear cultivation in the Ferrara and Emilia-Romagna area, following the experience of "Melinda©" for apple producers in Trentino. Opera is the only Italian fruit grower's organization specialized exclusively in cultivation of pears. It aims to become the largest organization exclusively specialized in pear production in the world on the management of the "from field to fork" pear, i.e, in the supply chain that goes from agricultural production to consumption.

Figure 2. Opera istitutional arragement



It is comprehensive of 18 cooperatives among the leading Italian companies in the sector, Experts and pear producers and more than 1,000 experienced fruit growers, with the support of more than 100 agronomists and over 50 sales managers. (Figure 2) (Opera, 2016; FreshPlaza, 2015).

At the base of the organization there is the unequivocal choice to put on the market exclusively "Top Quality" products, (Opera, 2016; FreshPlaza, 2015) .The quality of the variety, associated with the vocation of the lands of Ferrara and the know-how of the producers. The brand name itself evokes quality, "Opera" (Atrwork), communicated also through an appealing packaging.

Morevoer, the "out-sourcing" (literally: outsourcing), with which it aims to prevent the generation of additional costs through the use of resources (human, structural, infrastructures, etc.) that will be made available by those who will participate in the project e which will be remunerated at standard costs. (Frutticoltura, 2015).

Besides that there is the important advertising campaign aimed to involve people, rationally informing about the unique characteristics of pear (following Melinda's

experience). OPERA, annually sells about 200 thousand tons of pears, covering the 27% of Italian production and 8-10% of European production. Such amount allows the consortium to control and prevent internal competition (which would lead to a demolition of the price), and organize a better destocking of the product. It also has enough size to start communicating on the mass media, so as to reach a greater number of consumers and become a brand known to the public. The annual turnover of Opera exceeds € 200m, with an export destined to over 25 countries (+ 25% from 2014 to 2015). The source of this initial successful experience is the cohesion of the group, which, thanks to greater bargaining power, can pick higher prices (stronger brand) and bear lower costs (thanks to economies of scale in product processing, marketing and distribution).

Data collection

For the several purposes of the SUFISA project (tasks related to Asymmetric information analysis, Delphi, Desk Based Analysis, Focus Group, Participatory Workshop and survey), Unibo has established a very early coordination with local networks related to pear and fruit in general and had several preparatory meetings, including agreement about them providing farmers contact and support to focus group organisation.

Unibo has also arranged several preparatory meetings, including agreement about providing farmer contacts and supporting the focus group organisation. Between them, one of the main Cooperatives is ApoConerpo

Furthermore, Unibo distributed questionnaires at an important local exhibition that took place on the 11th of May in Rimini (Macfrut). Questionnaires covered mainly topics expected for wp2 Focus Groups. The results of questionnaires were presented in a workshop, which provided input for a further discussion. The workshop has been conducted, thanks to the collaboration with the CCPB (Inspection and Certification Body for agrifood and “no food” products). More in detail, the workshop objective was to present key findings from pear case study . The group attending the Workshop was heterogeneous including farmers, members of CCPB and institutional actors such as Regional Minister for Agriculture and a representative of Nomisma’s Observatory.

The need of a more efficient supply chain has been stressed confirming the opinions expressed by interviewers. It is essential to prompt coordination and aggregation among producers and supply chain actors. This can be pursued by means of an organization able to create value for the whole chain, guaranteeing the right price to the producer and the right quality to the consumer. Among important activities that should be carried out, there is the communication which should be adequately coherent to promote the final product and its characteristics/attributes. In addition, the development of new form of contractualization such as the multiple chain contract (which still remain unexplored in practice) that allows the integration between vertical and horizontal

food chain should be explored. These are prominent aspects for farmers in order to reduce farmer risks and provide more stability in their income.

Other points of discussion deal with the poor competitiveness of Italian fruit compared to foreign countries in horticulture. In particular, due to lower price of foreign product compare to domestic one a strong competition exists in particular, for organic products. In addition, new market requirements for a high quality and healthy products obtained with environmental sustainable input of chemical are very challenging for producers also in consideration of incoming climate changes. In fact, due to climate change, maturation of several varieties occurred in parallel with Italian product, and this has created a partial overcapacity on the markets. In addition, always due to climate change, there is an increasing in irrigation costs and some time fruit sizes have not reached the qualitative standard in order to satisfy the market. Finally, the increasing restrictions in pest management in many cases does not allow facing new incoming pest disease.

As a final data collection step within SUFISA project the producers' survey have been carried out. Unibo has collected data from 105 face to face interviews. The target population comprises farmers within Bologna and Ferrara Province producing pears. Interviews took place from November '17 until the February '18.

The questionnaire was composed in order to cover the following aspects:

A. Farm business characteristics
B. Production and sales channels
C. Characteristics of the sale agreement and sustainability
D. Strategies and drivers of farming
E. Farmer characteristics

Results from the survey

Farm business characteristics

On the average, the total area of farms in the group is around 23 hectares, with a maximum of 94 ha and minimum of 3.8 ha. In term of area invested in pear production we have an average value of 6 ha with a minimum value of 0.50 and a maximum area of 20 ha. The age class ranged between 51-64 represents the most consistent in term of frequency in the group.

The age structure is quite diversified and the most consistent category is represented by the class age 51-65 (41%). The second largest class is 41-50 (38%) followed by people under 40 (18%) and then above 65 years old (3%).

Sixty-nine percent of farms are run by farmers who claim the status of owner & manager. From this latter the majority are in the age range of 51-64 and has the highest level of education (Table 1). The percentage of younger farmer is just 18% and does not have a university level of education.

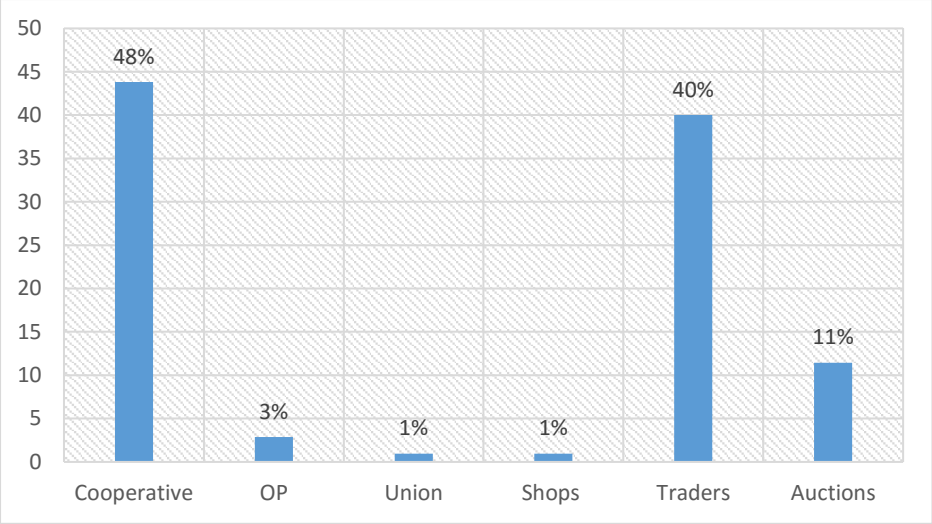
Table 1. Status of farmer, age and level of education

Status	less than 40	41-50	51-64	more than 65	Total
Owner	**11%**	**0%**	**7%**	**0%**	**5%**
Middle school	50%		67%		60%
High school	50%		33%		40%
Manager	**0%**	**8%**	**0%**	**33%**	**4%**
Elementary school		0%		100%	25%
High school		100%		0%	75%
Owner & Manager	**63%**	**63%**	**77%**	**67%**	**69%**
Elementary school	0%	0%	3%	0%	1%
Middle school	8%	44%	33%	100%	35%
High school	92%	56%	58%	0%	61%
University	0%	0%	6%	0%	3%
Renter	**26%**	**30%**	**16%**	**0%**	**23%**
Middle school	20%	25%	71%		38%
High school	80%	75%	29%		63%
Total	**100%**	**100%**	**100%**	**100%**	**100%**

Production and Characteristics of sales channels

The sale channels can be divided almost equally: 50 collective and 55 individual. Among individual sales channels, the sale to trader is the most popular channel (76%) followed by auctions (22%) and shops (2%). In the same way, the cooperative represents almost the exclusive form of collective organization (92%) adopted. Considering all sales channels as a whole the main form of sales channels is cooperative, which represents 48% of the total respondents followed by traders (44%) then auction (13%) and only few farmers sell to OP (3%), Union (15) and Shops (1%) (Figure 3). In term of production (2016-2017), an amount of 8960 t has been sold to individual channels. The amount sold to collective organization is 6820 t which has been conveyed by 50 farmers mainly to cooperative.

Figure 3. Sales channels



It can be observed (Table 2), that almost the whole of farmers who belong to collective organization subscribe to the Cooperative rules. These rules consist of a long term written contract with membership, delivering and sale conditions. On the contrary, the engagement in contract on individual sale, especially for auctions, consists of contract agreement at the before or at time of sale.

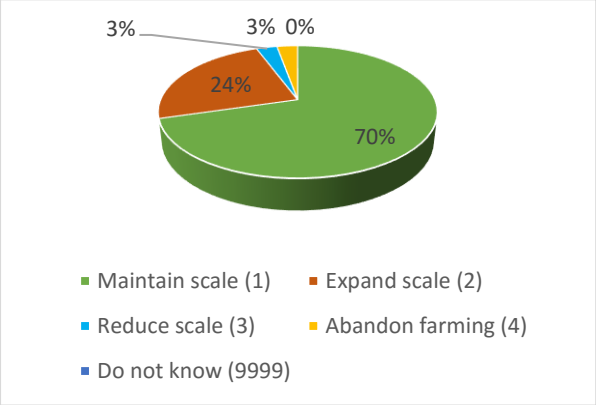
Table 2. Type of sale agreements

Type of contract	Count (N°)
Collective	**50**
A legal contract or oral agreement before or during the production phase	1
A legal contract or oral agreement at the time of sale, just prior to delivery	1
Membership rules/conditions of the collective organization	49
Individual	**55**
A legal contract or oral agreement before or during the production phase	29
A legal contract or oral agreement at the time of sale, just prior to delivery	25

Strategies and drivers of farming

Concerning Strategies and drivers of farming: there is not a general commitment toward new expansions, but to maintain the existent scale (Figure 4)

Figure 4. Strategies for the development of pear farming within the context of your farm business in the coming 5 years



Both, those who intend to maintain the existing operational scale and those who plan to expand their production tend to invest more in production facilities and Insurances (

Table 3)

Table 3. Expected changes to be implemented in the coming 5 years. Production related changes (Count)

Expected changes to be implemented in the coming 5 years					
	Maintain the existing scale of operations (N°74; 70%)				
	Plan to invest more in production facilities	**Plan to externalize particular aspects of my operations**	**Plan to specialize my production**	**Plan to insure against crop/livestock losses**	**No plans**
No	10	65	43	13	67
Yes	64	9	30	59	
Do not know			1	2	
	Expand the existing scale of operations (N°25; 24%)				
	Plan to invest more in production facilities	**Plan to externalize particular aspects of my operations**	**Plan to specialize my production**	**Plan to insure against crop/livestock losses**	**No plans**
No		15	11	10	21
Yes	25	9	14	15	
Do not know		1			

Concerning market related changes, interviewees show to be more interested in the diversification of products/crops followed by the development of new sale channels, partnerships and the addition of value such as the conversion to organic.

Conclusion

The Pear sector is facing some challenges mainly related to the reduction of internal consumption, high fragmentation of the supply chain, difficulties in the export due to phytosanitary barriers and Russian's embargo.

In particular, some POs within Emilia Romagna recently have grouped forming a new Organization named "OPERA" which is also represent the brand associated to the pear product. The experience of Opera reveals that the purpose is to involve people, rationally informing about the unique characteristics of pear fruit. The Opera ambitious goal is to make the brand preferred by consumers and the best distributors in many countries of the world, as well as the reference point for the entire pear supply chain. This objective can be achieved by focusing several aspects: i) cost optimization; ii) product and process innovation. iii) development of exports; iv) launch and support over time a strong brand policy; v) food safety and the guarantee of the product quality so to improve the eating experience. In respect of this latter one, besides mandatory safety requirements, which are related to phitosanitary residuals, the pear sector is characterised by market segmentation with different quality requirements (organic, PGI, high quality). In many cases, these quality standards are not yet observable or detectable at the time of purchasing which is the case of "credence good". The fulfilment of these quality standard in agriculture implies the application of specific agricultural practices that cannot be always fully observed by the buyer, (in many case represented by the cooperative). The nature of the problem is ascribable to a Principal Agent problem that imply the existence of asymmetric information in which the principal (buyer or cooperative) cannot have a complete information on the action/practices adopted by the agent (farmer).

Survey results show that even if the main sale channels is cooperatives there is a large amount of farmers that sell to traders and also the use of auctions is increasing.

Farmers who belong to cooperative, have a formal written contract that consists in the membership rules. Overall, farmers who sell to cooperative want to maintain their sale agreement, despite the lower remuneration compare to market direct selling. The farmer's choice is due to the fact that this sale agreement guarantees greater stability of income, reducing the risks linked to the price volatility.

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References

FAO (2016), Faostat, <http://www.fao.org/faostat/en/#data/QC>, [23 Febbraio 2017

FuturPera (2015), Futurpera: un osservatorio sulle tendenze di consumo della pera, <http://www.ferraraitalia.it/futurpera-un-osservatorio-sulle-tendenze-di-consumo-della-pera70117.html>, [10 Aprile 2017]

Frutticoltura (2015), La produzione di pere: più problemi o più opportunità?, < http://www.rivistafrutticoltura.it/la-produzione-di-pere-piu-problemi-o-piu-opportunita/>, [17 Febbraio 2017]

Granata, L. (2016) "Il ruolo e l'attività dell'Organizzazione Interprofessionale della Pera". Agriregionieuropa anno 12 n°46, Set 2016.

Galbraith J.K. (1988), Storia dell'economia, Rizzoli.

Palmieri A., Pirazzoli C., (2014), La competitività delle pere italiane: analisi dei costi di produzione, CSO.

Palmieri A., Castellini A., Pirazzoli C. (2010), Costi, prezzi e competitività nella filiera del pero: un'analisi sui principali sistemi produttivi europei, CSO.

ISTAT (2016), Data Warehouse, <http://dati.istat.it/>, [25 Febbraio 2017]

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