SUFISA

WP 2

Deliverable 2.4 - Producer Survey Report

Mauro Vigani, Damian Maye, James Kirwan and Hannah Chiswell

Countryside and Community Research Institute, University of Gloucestershire, UK

October 2018

This report is the result of research conducted as part of the EC-funded SUFISA project (Sustainable finance for sustainable agriculture and fisheries), H2020 Grant Agreement 635577. Responsibility for the information and views set out in this report lies entirely with the authors.

Table of Contents

List of Tables

List of Figures

Abbreviations used

APO: Association of producers' organisations

CAP: Common Agricultural Policy

CS: Case study

EU: European Union

GMO: Genetically Modified Organism

MS: Member State

PO: Producers organisation

SCA: Supply chain arrangements

UK: United Kingdom

UTP: Unfair trading practices

WP: Work package

Executive Summary

The Producer Survey (Task 2.6) is the last in a series of integrated tasks in WP2 of the SUFISA project. A total of 2299 farmers from 11 EU Member States and eight different commodities were interviewed using a common questionnaire. The objective of the producer survey was to collect primary data on supply chain arrangements (SCAs) in order to:

- Map the existing SCAs across regions and commodities;
- Identify the attributes characterising SCAs;
- Assess the sustainability of given SCAs;
- Identify future drivers of SCAs.

The survey explored a wide variety of possible commercial outlets for farmers' products. Such outlets have been broadly categorised into two main types: collective sales and individual sales. The former refers to sales to collective organisations that are bodies which can strengthen the negotiating power of primary producers by upscaling the supply capacity or reducing production costs by sharing resources among peers. The latter refers to private businesses of the agri-food industry which create individual relationships with single producers. Among the farmers surveyed, individual sales were more frequent than collective sales, suggesting that, despite the policy efforts to improve cooperation between farmers, one-to-one relationships between producers and buyers were still the most frequent.

SCAs can be different in type and duration. The most prevalent type of agreement among the farmers participating in the survey was a formal agreement (e.g. a contract that can be legally enforced) that is signed before the delivery of a product and that is limited in duration to a single delivery. While this was the most prevalent type of SCA in the arable crops case study, each commodity group displayed significant differences:

- In the case of milk and poultry, the formal agreement has a longer duration, between 1 and 5 years.
- In the fruits, beef and olive commodity groups SCAs were mainly in the form of rules of membership to a collective organisation.
- Informal agreements (of short duration) were frequent in the feta cheese and wine commodity groups.

Informal agreements are more at risk of unfair trading practices (UTPs) than formal ones, as they might not be legally enforceable.

Each agreement can also contain specific attributes or rules, which indicate more or less vertical coordination in the supply chain:

- The provision of logistical services by the buyer was a common attribute across all commodity groups, concerning about 63% of the sales recorded in the survey, and particularly notable in the milk, feta cheese and poultry cases. Other services, such as managerial or credit assistance, were less prevalent and occurred in specific sectors, such as milk, arable crops and poultry.
- The second most frequent attribute in SCAs was providing producers with a price premium for higher quality products. Such price premiums were particularly frequent in the arable, milk, poultry and olive sectors.
- Exclusivity of sales, meaning that the producer sells 100% of their production to the buyer and cannot sell to other buyers, was particularly frequent in the milk, fruits, feta, poultry and olive sectors. Such requirements can create a stronger relationship

between producers and buyers, but it can also be a disadvantage for producers because they are restricted from searching for better conditions with other buyers.

- SCA clauses that favour producers, such as safeguards against buyers' failures or interests for delayed payments, were not well developed and were more prevalent in the arable crops and milk commodities.
- Automatic extension of agreements (e.g. evergreen contracts) were only reported in the poultry and milk cases.

How prices are calculated in the SCA is a critical element of the agreements, directly affecting the profitability of primary producers. Among the surveyed farmers, variable prices were the most frequent, depending on the quality delivered (69%) and on the market price at the moment of delivery (62%). Noticeable exceptions were feta cheese, with 64% of producers reporting that the price was fixed by the agreement before the delivery and that it does not change, even if the quality and/or market prices are higher than expected; and wine producers in Tuscany where in most cases (82%) the price depends on the quantity delivered.

Surveyed producers were frequently paid after the delivery of products rather than before. This means that the majority of producers sustain all production and investment costs in advance. However, milk and feta cheese payments were on a regular basis, indicating a continuous type of relationship and reflecting the nature of the industry (continuous supply of the product). In the wine study, 38% of producers in Tuscany received payments before delivery, although it is likely that the wine was produced some years in advance and sold on the spot market.

SCAs can also entail costs for producers, especially related to logistical services, quality testing and fees to be a member of a collective organisation. It is worth noting that marketing and commission costs are quite frequent for some of the commodity groups, in particular in the fruits, beef, wine and olive sectors. These costs are likely to be prohibited if the EU regulation on UTPs is approved, or they will need to be justified following specific rules e.g. the buyer should specify the duration and frequency of the promotion in advance and the quantity of food products to be ordered (EC, 2018).

Production standards are often part of the agreements as they are necessary to target certain international markets or some niche markets, as well as transferring information about the production process between the producer and the buyer. The most prevalent standards were related to quality and safety, as in many markets they are pre-requisites for market access. Animal welfare standards are compulsory in the poultry sector, as 100% of producers have to comply, but in general they are important and used in all sectors related to livestock products.

During the survey, farmers were asked to express how satisfied they were with their current sales agreement. On average, farmers were "somewhat satisfied" by the SCA. Although none of the commodity groups indicated that farmers were unsatisfied by their SCA, feta cheese and poultry farmers were neither unsatisfied nor satisfied, suggesting that their level of appreciation of the arrangements was among the lowest. On the contrary, wine and olive farmers were more oriented towards being somewhat satisfied, but no commodity group was completely satisfied with their agreement.

Moreover, farmers were asked to evaluate how much, in their opinion, the current SCA was sustainable. According to producers, the most sustainable arrangements can be found in the beef and olive oil commodity groups (reflecting the extensive nature of beef and some olive oil growers in the sample). On the contrary, feta cheese was perceived as unsustainable in terms

of SCA by producers in that sector. Different degrees of sustainability were perceived by farmers in each commodity group when asked to distinguish between environmental, social and economic sustainability.

Primary producers in the EU are facing a series of challenging factors affecting their business and their capacity to generate sufficient income now and in the future. For surveyed farmers, the most challenging factor was a severe drop in market prices, with prices and their volatility one of the main concerns for EU farmers across the commodity sectors. On the other hand, access to credit for investments or consumable inputs was the least worrying challenge, suggesting that, despite the financial crises of the last ten years, there were more detrimental factors threatening farms' survival.

It is important to understand how drivers are linked to future strategies. The main production strategy of farms planning to expand their business was to increase the level of investments in production facilities, although specialising production, insuring crops or livestock were also important. In terms of market strategies, farmers planning to expand in the next five years were also planning to diversify more in terms of products, partnerships and sales channels; these were perceived as viable strategies also for farmers planning to maintain their current scale of operation.

The survey data on SCAs and their attributes and characteristics have been analysed by means of a cluster analysis to identify clusters of SCAs with common features across all case studies. Five distinctive clusters have been identified, as follows:

- **Group 1 - Uniform individual arrangements:** these SCAs are characterised by formal agreements established before the delivery of the product, where the buyer is an individual business, but the number of sales channels is limited to either agri-food industrial companies or cooperatives. These agreements usually take the form of contracts that establish conditions for very short term relationships, i.e. a single delivery. As such, they do not require exclusivity and the products comply with basic safety and quality standards, hence the term "uniform" to characterise the fact that the traded products are usually un-differentiated. The level of vertical coordination is quite low. For these un-differentiated products, the agreement does not provide price premiums or stability; however, the cost associated to the agreements are low.
- **Group 2 - Segmented individual arrangements:** these SCAs are characterised by formal agreements established before the delivery of the products, where the buyer is an individual business, as in the previous SCA group, but the number of possible sales channels is much higher and diversified, including local individual businesses. These agreements take the form of contracts that establish conditions for short term relationships up to one year of delivery. The producer-buyer relationship is much more coordinated and strong, as it requires exclusivity and higher standards in exchange of services, stable prices and regular payments. The type of product standards required goes beyond the basic standards required for quality and safety, and includes standards for highly differentiated products and niche markets.
- **Group 3 – Pure market arrangements:** these SCAs are characterised by informal agreements that are not legally enforceable, typically in the form of verbal informal agreements and often at the moment of the sale and delivery; in other words, they involve very short-term relationships, such as a single transaction. The sales channels for this type of agreement are limited, in terms of uniform individual agreements, and they consist of agri-food industrial companies or cooperatives. These agreements do

not provide services or assistance of any kind and they require only basic safety and quality standards as minimum standards for undifferentiated products. Prices are lower and more unpredictable compared to other SCAs and payments are on the spot.

- **Group 4 - Segmented collective arrangements:** these SCAs mirror the segmented individual arrangements described above, in that the relationship between producers and buyers is quite strong and coordinated, requiring exclusivity from producers and many production standards for product differentiation. That said, these arrangements also provide a number of services and technical assistance to producers, as well as higher and stable prices, with regular payments. The difference with group 2 consists in the fact that the buyer is a collective organisation, most likely a cooperative, and the agreement rules are part of the rules of being a member of the cooperative. Moreover, these agreements establish mid-term relationships, lasting up to two years. These arrangements mostly involve livestock products and require animal welfare standards.
- **Group 5 - Uniform collective arrangements:** these SCAs mirror the uniform individual arrangements, with the main difference being that the buyer is a collective organisation, such as a cooperative, and the agreement rules are part of the rules of being a member of the cooperative. Moreover, these are long-term agreements establishing trade relationships lasting more than five years. As per the uniform individual arrangements, the level of commitment between the two parties is "intermediate", as they do not require exclusivity but provide some services with the exclusion of technical assistance. Prices can be lower and less stable than in other SCAs, and costs can include quality testing.

In terms of farmer satisfaction with the SCAs in the different clusters, the most satisfied farmers were the ones in the 'segmented collective' cluster, reflecting higher services and assistance received along with medium-term price stability. However, farms in the 'uniform collective' cluster were also broadly satisfied with their SCA. The clusters were also evaluated by producers in terms of perceived sustainability. The arrangements where producers trade with collective organisations (groups 4 and 5) were perceived as the most sustainable, while 'pure market' arrangements were perceived as the least sustainable. Indeed, this type of SCA does not require particular standards for natural resources conservation and the short-term nature of the arrangements means that producer-buyer relationships are more difficult to create, which may in turn limit options for longer-term sustainability objectives.

The data collected during the SUFISA producer survey are rich and innovative in that there are few publicly available data concerning SCAs at an EU level. This report provides an important overview and analysis of the survey data and presents preliminary findings to inform a wider discussion on SCAs and food supply chains.

Introduction

The Producer Survey (Task 2.6) is the last in a series of integrated tasks that make up WP2 of the SUFISA project. More specifically, WP2 involved desk research, stakeholder interviews, focus groups, participatory workshops and a producer survey to examine the regulatory and market conditions that primary producers face in their everyday activities. This report summarises the key findings from the producer survey.

According to the DoA, task 2.6 takes the qualitative/case specific outputs and issues from the previous tasks in WP2 (and from WP1), to construct a cross-regional quantitative analysis through a farm-level survey in each case study region.

A key milestone in the workflow of WP2 was Deliverable 2.1 "Draft National Report", which was based on three different pieces of research (media analysis, desk research and stakeholder interviews) that allowed for the identification of key regulatory and market issues across case studies and commodity groups that were studied within the producer survey. A comparison of the key issues from D2.1 is summarized in Table 1.

Table 1 – Comparison of key issues that emerged from D2.1

	Belgium		Italy					UK		France		Latvia		Portugal		Denmark		Greece		Germany		Poland		Serbia		
	Apple	*Sugarbeet*	*Wine*	*Pear*	*Aquaculture*	*Fisheries*	*Mussels*	*Fisheries*	*Dairy*	*Cereals*	*Dairy*	*Dairy*	*Wheat*	*Beef*	*Olive*	*Dairy*	*Poultry*	*Fisheries*	*Dairy*	*Aquaculture*	*Rapeseed*	*Wheat*	*Apple*	*Wheat*	*Raspberries*	*Total*
Market issues																										
Demand			x	x				x				x	x	x	x		x	x		x	x		x	x		13
Market access		x	x	x		x	x	x		x		x	x	x	x				x	x	x		x			15
Price levels/volatility	x	x				x		x	x	x	x	x	x			x	x		x	x	x			x	x	16
Financial issues	x		x			x		x	x	x		x	x	x	x	x	x	x		x	x	x	x	x		18
Quality standards and certification		x	x		x	x		x	x			x	x	x		x	x	x	x	x	x			x	x	17
Market differentiation	x	x					x	x				x			x	x	x		x	x	x				x	12
Supply chain/Production contracts		x	x	x		x		x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	21
Producers Organizations/Cooperatives	x	x	x	x			x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	22
Land price and land availability		x	x		x					x		x	x			x			x		x	x	x		x	12
Labour issues		x	x			x	x		x			x	x				x	x		x			x		x	12
Storage		x											x								x			x		4
Production and marketing costs		x	x			x		x			x					x		x	x	x	x	x	x			12
Diversification	x	x	x	x		x		x		x		x								x	x			x		11
Market risks	x	x	x	x	x	x		x	x	x		x	x	x				x		x	x	x	x			17
Regulatory and policy issues																										
Institutional competence/quality					x							x		x	x			x	x	x		x	x	x	x	11
CAP		x	x						x	x	x	x		x	x	x			x		x	x	x			13
Production regulation		x	x			x		x				x								x			x	x		8
Environmental regulations		x	x	x	x			x	x			x	x			x		x		x	x					12
Animal health									x											x						2
Trade barriers				x				x				x									x	x		x		6
CFP								x												x						2
Other socio-economic issues																										
Recruitment and succession			x			x		x	x	x	x	x		x	x	x			x	x						12
Climate change/Environmental		x	x			x		x		x	x	x	x	x	x		x	x		x	x	x		x		16
Technology/innovation		x				x		x		x		x	x		x		x		x	x	x	x	x		x	14
Education						x	x		x			x	x						x	x		x	x	x	x	11

The commodity-level comparison of market and regulatory conditions allowed for the identification of the most frequent issues affecting the majority of case studies examined. As is evident in Table 1, market issues dominate over regulatory and other socio-economic issues, and within the market issues those issues related to arrangements within the supply chain (i.e., 'quality standards and certifications'; 'supply chain/production contracts'; and 'producer organizations/cooperatives') were the most frequent, concerning all the CS.

This result was the first step towards the choice of **supply chain arrangements** (SCA) as a common issue to be studied in the producer survey, but it is not the only justification. Further analysis of the literature, as well as close observation of the current agricultural policy debate

at the EU level, highlighted the increasing importance of supply chain arrangements as a strategic priority for primary producers.

Background literature on supply chain arrangements

Recent literature highlights that a series of changes are currently shaping supply chains in the EU agri-food sector (Menard and Valceschini, 2005). On the one hand, the progressive reduction of CAP intervention is making the sector more and more market-oriented and less reliant on the management of markets (Markets Task Force Report, 2016). The abolition of milk and sugar quotas is a good example of this. Lower producer prices and higher price volatility are partly a consequence of the increased market orientation and reduced market intervention of the EU's policies (Markets Task Force Report, 2016). Within the supply chain, primary producers, who are generally fragmented as a group, are the most exposed to such market risks. In order to absorb these potential shocks, the 2013 CAP reforms introduced measures to enhance producer cooperation, thereby increasing their market power and ability to negotiate contracts and SCA.

On the other hand, both upstream (e.g. fertilisers, plant protection, seeds) and downstream (processing, retail) sectors are under a progressive process of concentration, both at a local and global level, putting them in a dominant position over the smaller and less organised primary producers, as well as imposing quality constraints (Sexton, 2012). By increasing their scale and reducing competition, both up and downstream sectors are able to achieve greater negotiating power over primary producers. Moreover, they usually have a clearer view of markets thanks to a greater capacity to acquire and analyse market data, especially data on prices. This can result in information asymmetries in relation to price transmission and the distribution of value added along the supply chain (Salas, 2016). Unbalanced power can encourage the development of unfair trading practices (UTPs) in the supply chain, most frequently at the expense of less-organised primary producers, such as unilateral or retroactive changes to contracts, anticipated termination of trade and late payments (Fałkowski et al, 2017).

These two aspects, lower policy intervention and unbalanced market power, are leading to an increased competitive pressure on primary producers, and are shaping an emerging role for SCAs. Innovative SCAs are creating new types of relationships between producers and buyers, which have the potential to regulate markets in place of public policies.

These relationships mainly take the form of vertical and/or horizontal coordination of the supply chain. Vertical coordination may help reduce the transaction costs along the supply chain, improving its competitiveness and reducing price risks. However, production and handling costs can remain high as these are related to scale economies. In turn, scale economies can be realised by increased horizontal cooperation between primary producers.

The main type of vertical arrangement in the supply chain are contractual relationships that can be formal or informal. **Contractualisation** can help reduce the diffusion of UTPs, but in some cases can also transfer risks to primary producers, especially when contracts are informal (e.g. oral contracts or verbal agreements that cannot be legally enforced), or when primary producers are not collectively organised (Derville and Allaire, 2014).

Typically, primary producers act collectively through cooperatives or producer organisations (PO), which are forms of horizontal cooperation. POs and cooperatives may be able to

increase producers' bargaining power, allowing for a higher share of a product's added value, better access to agricultural inputs and higher price stability, but they can also help producers to acquire the knowledge needed to deal with complex contracts (Markets Task Force Report, 2016). Currently, the CAP promotes farmers' collective actions through POs and associations of POs (APOs), providing also derogations from competition law.

POs and APOs can also negotiate 'framework contracts', which are collective contracts negotiated with trade partners on behalf of individual producers. Collective contracts can vary considerably in their elements and parameters, but their main purpose is to counterbalance the power of trade partners in the supply chain (Markets Task Force Report, 2016).

It is important to note that in the supply chain bargaining power is not only about achieving higher prices or more stable prices to producers; price negotiation in itself is also a useful process of price discovery and price formation (Hueth and Marcoul, 2003).

Across the complex net of transactions and arrangements that exist in the agri-food supply chain, **quality and technical standards** play a key role. Standards codify information about a product's quality and production process, simplifying the interactions with buyers by reducing quality variation and by unifying production specifications (Gereffi et al., 2005). Typically, public and/or private institutions define grades and requirements of standards and provide certification. For example, voluntary standards can help ensure the sustainability of specific production systems, which are transmitted to consumers through certification, enabling the choice between differentiated products (Derville and Allaire, 2014).

Therefore, primary producers' competitiveness and survival is not only about producing at lower costs, but also about being able to adjust to quality standards and contractual requirements (Derville and Allaire, 2014). In other words, although vertical coordination can have efficiency advantages, it can also induce primary producers to take transaction-specific investments to comply with contractual requirements or quality levels and therefore incur adjustment costs (Gereffi et al., 2005).

These aspects have potential implications for the economic freedom of primary producers. Standards and vertical control can create lock-in situations or "hold-up problems" in which primary producers do not have any other choice but to make specialised investments (e.g. acquiring specific assets) to comply with the requirements of particular buyers. Primary producers can become more vulnerable in any contract renegotiation and may receive less favourable terms and be less independent, as it would be difficult or expensive to switch to alternative supply chains (Gereffi et al., 2005; Sexton, 2012).

Policies also play a major role in shaping the vertical and horizontal relationships in the supply chain. In April 2018, the European Commission's Directorate General for Agriculture and Rural Development issued a proposal for a Directive on 'unfair trading practices in business-to-business relationships in the food supply chain' (European Commission, 2018).The proposal covers all traded food products and specifically targets small and medium primary producers of the food supply chain, as they are the most vulnerable with lower bargaining power.

The proposal aims to introduce a shortlist of prohibited practices to set a minimum common standard of protection against UTPs across the EU. More specifically, the draft Directive proposes to prohibit the following commercial practices (European Commission, 2018):

- a buyer paying a supplier later than 30 calendar days after the date of delivery or the receipt of the invoice for perishable food products;
- a buyer cancelling orders of perishable goods at such short notice that the supplier cannot be expected to find alternative commercial outlets;
- a buyer changing unilaterally and retroactively the terms of the agreement, concerning the frequency, timing, volume, quality standards and/or the price of the food products; and
- a supplier paying for the wastage of food products incurred on the buyer's premises and not caused by the negligence of the supplier.

The following practices are also prohibited if not clearly stated in the supply agreement:

- a buyer returning unsold food products to a supplier;
- a buyer charging a payment to secure or maintain a supply agreement on food products; and
- a supplier paying for the promotion of food products sold by the buyer.

This proposal has been welcomed by stakeholders and members of the EU Parliament and, if it approved and enforced, it will have major impacts on the EU supply chain.

Despite the efforts of creating EU-wide minimum standards for SCAs, the differences in the supply chain arrangements of different commodity sectors, combined with diverse farming systems structures across the EU, means that similar arrangements may not be a viable solution for all EU situations.

The variability in primary producers' conditions across commodities and regions in the EU makes it challenging to identify a set of characteristics common to all SCAs. Moreover, it is difficult to understand the role of specific arrangements and related attributes in shaping the relationship between producers and buyers (e.g. balance of power, lock-in situations, share of value added) and in terms of price formation (e.g. information asymmetries).

SUFISA, and more specifically the producer survey findings reported here, contributes to this current knowledge gap, examining SCAs across a diversity of case studies in terms of commodity coverage and geography. This diversity, combined with representativeness of producers through commodity-level sampling (see below), enables the comparison of different arrangements and attributes valued by different EU producers. More specifically, we analyse SCAs role as strategies to cope with diverse conditions (e.g. changing market and policy contexts) and their implications *vis-à-vis* the sustainability of EU food and farming systems.

Survey objectives and research questions

The producer survey represents a key and innovative task that provides important value added to WP2 and the SUFISA project as a whole. The innovation resides not only in the fact that it collects **primary data at a microeconomic level** (primary producers) on SCAs, but also that data are comparable across a large geographical area (nine EU Member States) and across eight commodity groups.

The data collected allows for a deep and global understanding of disaggregated phenomena, micro-level business decisions, and production systems. Special attention is given to specific mechanisms otherwise not observable through secondary data (public data on SCAs are seldom available). Ultimately, the producer survey enables a cross-regional analysis with mixed policy implications at both the regional level and the European level.

The specific **objectives of the survey** are to:

A. **Map existing SCAs across regions and commodities**, by describing different typologies of SCAs and their prevalence.

B. **Identify the attributes characterising SCAs across commodities**. This includes analysing how different parameters of a given arrangement (e.g. quality level, length of contracts, services) shapes the terms of the relationship between producers and buyers (e.g. price formation, costs of arrangements). Moreover, it includes an assessment of farmers' satisfaction and their perception of bargaining asymmetry with buyers.

C. **Assess the sustainability of a given SCA**. This includes examining the sustainability of SCAs across EU regions and commodities. Sustainability of SCAs is assessed both directly and indirectly. For the former, this is captured through analysis of producers' opinions and perceptions of sustainability of SCAs and associated attributes. For the latter, this is captured by collecting information on the adoption of good environmental practices and sustainability standards required by SCAs e.g. standards on natural resource conservation, animal welfare, and fair social conditions.

D. **Identify future drivers of SCAs.** This involves understanding the factors driving primary producers' decisions about farming strategies. More specifically, producers are asked about their future development strategies in response to potential emerging issues such as adverse climatic conditions and pests, market changes and price volatility, policy and regulatory reforms.

These four objectives are reflected in the structure of the questionnaire used for the data collection (see Annex 2 for details).

Methodology and sample description

The **sampling unit** for the survey is the primary producer (farm). The **target population** is defined at case study level, and it is comprised of farmers in a selected region producing the target commodity.

Case studies on fisheries and aquaculture have been excluded from the survey for the following reasons: i. a small and diverse target population (the SUFISA case studies examined only inshore fisheries); ii. projected difficulties in getting inshore fishers to complete surveys (online or by phone) based on feedback and consultation with fisheries stakeholders engaged in the project; and iii. comparability issues with farmers, given the large differences between the farming and fisheries sectors and associated policies. Although it was not possible to capture fisheries and aquaculture cases in the survey for the reasons above, steps were taken within WP2 to ensure high quality information on fisheries was capture via additional qualitative work in Tasks 2.1 to 2.5. Consequently, in addition to the fisheries CS in the UK,

Greece and Germany, two smaller “satellite” case studies in Italy (one examining mussels in Emilia-Romagna and one examining inshore fisheries in Tuscany) were examined.

For the producer survey, the WP2 leaders provided project partners with a common methodology to derive a representative sample for the case studies and a common questionnaire for the data collection. Detailed instructions for the common methodology and the common questionnaire are provided in Annexes 1 and 2 of this report. The EU regions and commodities included in the producer survey are detailed in Figure 1. As Annex 1 explains, each partner was responsible to derive a **sample** (i.e. the group of farmers which provide the data to be collected) of primary producers in the region under study which was **representative** of the target population; to identify the best strategy for data collection (e.g. face-to-face, telephone and/or online survey) based on the target population characteristics; and to ensure sufficient quality data for comparative purposes. Therefore, the sample across the case studies varies, depending on the dimension of the regional target population and on the data collection strategy. Table 2 details the method of data collection per project partner, as well as the type of enumerators who collected the survey data.

Figure 1– Distribution of the surveyed regions and commodities

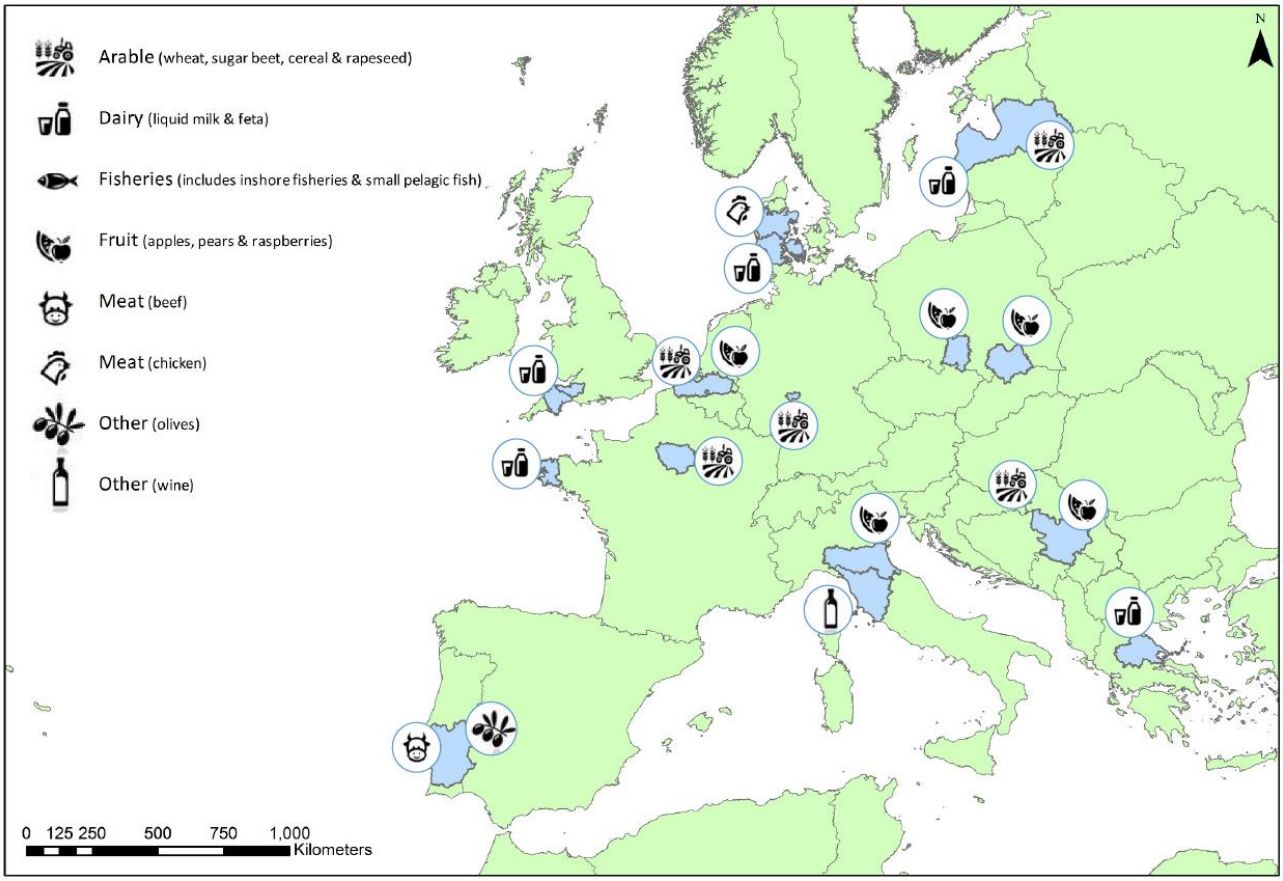


Table 2– SUFISA partners' data collection strategies

Partner	Country	Telephone	Face-to-Face	Online	Students/ Other hired	Marketing Company	Extension Services
AU	*Denmark*	X			X		
AUA	*Greece*		X		X		
BEL	*Serbia*	X			X		X
BSC	*Latvia*	X	X				
HNEE	*Germany*	X	X		X		
IDDRI	*France*	X				X	
KUL	*Belgium*		X	X	X		
Uhasselt	*Belgium*			X	X		
UJ	*Poland*		X				X
UNIBO	*Italy*		X		X		
UNIPI	*Italy*	X				X	
UoE	*Portugal*		X		X		
UOG	*UK*	X				X	

The sample dimensions by MS, region and commodity are reported in Table 3. The total number of farms surveyed across all the project partners' Member States is 2299. In summary, 14% and 17% of the sample is constituted by Belgian and Polish farmers respectively. The UK, Italian, French, Serbian and Latvian farmers represent 9-12% of the sample respectively. The German, Portuguese, Danish and Greek farmers are each below 6% of the sample. The most observations have been collected from the wheat, milk and top fruits commodity groups.

In terms of sample representativeness and data quality, Table 4 reports some key figures. Data on the total numbers of target farms in the surveyed regions are taken from the EUROSTAT database for NUTS 2 regions in the year 2013, which is the latest available dataset. Exceptions are:

- The number of sugar beet farms in Flanders and Wallonia were collected from the Belgian sugar beet union (CBB) statistics for 2016;
- The number of top fruit farms in Flanders were collected from national statistics for 2016;
- The number of wheat farms in Ile De France were collected from Agreste for 2010;
- The number of milk farms in Finistère were collected from Agreste for 2015;
- The number of wheat farms in Vojvodina and raspberry farms in Sumadij and West Serbia were collected from the 2012 national census.

An indicative margin of error[1] for each sample is calculated in the last column of Table 4, using the equation reported in Annex 1. The indicative margin of error is lower than 10% for a significance level of 95%, which is the commonly accepted limit of error for socio-economic research. The only exception in the sample concerns the poultry case study in Central and Southern Denmark.

[1] This margin of error is indicative as, strictly speaking, one can calculate a margin of error only if the sample is a real random sample.

The quantity of missing values/unanswered questions in each region varies greatly. Typically, online surveys have higher rates of missing values, as the probability that the interviewees abandon the survey before completion or skip the most difficult questions is higher. The average percentage of missing values varies across case studies. Some had some very high percentages of missing values, up to 22.5% on average, as per the wine case in Tuscany, Italy, while others had just about 1% of missing values, such as the milk case in England. This means that in some of the statistics presented in this report the observations with missing values have been removed, and this might affect some case studies more than others.

Farmers' characteristics are also different across the case studies (Table 5). On average, the overall proportion of young farmers (i.e. farmers below 40 years of age) was about 23% of the sample. However, more than half of the feta cheese producers in Greece were below 40 years of age, while this percentage drops below 10% in the rapeseed case study in Germany and the milk cases in Devon (UK) and Latvia respectively.

Only about 13% of farmers in charge of the farms surveyed were female. Indeed, gender imbalance in the agricultural sector is quite common in the EU. Nevertheless, in some case studies, such as poultry in Central Denmark, wine in Tuscany, and the two Latvian case studies, the percentage of female farmers was much higher than the sample average.

Only about one fifth of the surveyed farmers have a university degree, with some noticeable exceptions. For example, about 50% and 60% of beef producers in Central Alentejo and wine producers in Tuscany respectively have a university degree. However, it is worth noting that about 60% of all surveyed farmers have a specific agricultural education, and producers in Denmark, Portugal and Latvia are above 75%.

The issue of succession and generational renewal is a long standing issue in the EU, linked to an elderly rural population. The farms surveyed in the project are no exception, with about 60% of surveyed farms reporting that they do not have particular expectations regarding future succession of their farm business. However, in some case studies (Italy, Portugal, the UK), the majority of interviewees expected that a family member would take over the farm business in the future.

Farm characteristics are reported in Table 6. The most common legal status across the case studies was sole trader/individual farm business (63.2%), although in some case studies the prevalent legal status was family farm (wine in Tuscany, olives in Central Alentejo and milk in England). For beef producers in Portugal private company was the most common legal status.

In terms of management, the majority of the farms in the sample were managed by the owner, who were typically also the farm manager; the exception was wheat in France, where about 36% of the farms were managed by tenants.

Finally, farm size varies across the case studies. The largest farms were Portuguese beef producers. This is not surprising given that beef production in Central Alentejo is extensive. At the opposite end of the spectrum, fruit farms in Poland and Serbia are small.

Table 3 – Number of surveyed farms by MS, region and commodity

EU MS	EU Region	Wheat	Sugar beet	Rapeseed	Milk	Feta	Top Fruits	Raspberry	Beef	Poultry	Wine	Olive	**Total by Region**	**Total by EU MS**
Belgium	Flanders		92				137						229	319
	Wallonia		90										90	
Denmark	Southern Denmark				82					20			102	122
	Central Denmark									20			20	
France	Ile De France	139											139	239
	Finistère				100								100	
Germany	Wetterau			43									43	43
Greece	Thessaly					148							148	148
Italy	Tuscany										110		110	208
	Emilia Romagna						98						98	
Poland	Opolskie	198											198	398
	Malopolska						200						200	
Portugal	Central Alentejo								36			27	63	75
	Southern Alentejo											12	12	
Serbia	Vojvodina	140											140	271
	Sumadij and West Serbia							131					131	
England	Somerset				88								88	200
	Devon				112								112	
Latvia	Latvia	134			142								276	276
Total by commodity		611	182	43	524	148	435	131	36	40	110	39	**2,299**	

Note: The Portuguese and Finistère CS interviewed more farmers than those included in this table and the wider report. The additional interviews consisted of farmers with multiple sales, none of which predominant, meaning it was not possible to identify a main sales channel. Having multiple almost equivalent sales is an attribute of these cases. They are not included here because they are not comparable.

Table 4 – Sample representativeness

EU MS	EU Region	Sample size (N. of farms)	Total N. of farms	Avg. % of missing values	min	MAX	Indicative *ME*
Belgium	Flanders - Sugar beet	92	3148	16.3%	12.0%	33.1%	3.4%
	Flanders - Top Fruit	137	950	15.4%	10.3%	46.3%	5.9%
	Wallonia - Sugar beet	90	4265	17.4%	11.4%	28.6%	3.0%
Denmark	Southern Denmark - Milk	82	1410	11.3%	8.0%	21.7%	5.1%
	Southern Denmark - Poultry	20	90	12.8%	10.3%	14.9%	18.2%
	Central Denmark - Poultry	20	80	13.7%	9.7%	18.9%	19.0%
France	Ile De France -Wheat	139	5075	5.5%	2.9%	11.4%	2.7%
	Finistère - Milk	100	7000	3.7%	1.1%	17.7%	2.3%
Germany	Wetterau - Rapeseed	43	905	5.6%	3.4%	22.9%	6.4%
Greece	Thessaly - Feta	148	5010	5.1%	2.3%	16.0%	2.7%
Italy	Tuscany - Wine	110	18040	22.5%	4.0%	64.0%	1.5%
	Emilia Romagna - Top fruit	98	6791	4.1%	3.4%	10.9%	2.4%
Poland	Opolskie - Wheat	198	16220	4.9%	1.7%	23.4%	1.5%
	Malopolska - Top fruit	200	18420	5.2%	1.1%	67.4%	1.4%
Portugal	Central Alentejo - Beef	36	37730	8.2%	1.1%	26.3%	1.0%
	Central Alentejo - Olive	27	23110	12.7%	2.3%	46.3%	1.3%
	Southern Alentejo - Olive	12	23110	10.6%	6.9%	17.1%	1.3%
Serbia	Vojvodina - Wheat	140	55790	2.9%	1.7%	11.4%	0.8%
	Sumadij and West Serbia - Raspberry	131	10635	4.9%	1.7%	18.9%	1.9%
England	Somerset - Milk	88	1310	2.1%	0.6%	17.7%	5.2%
	Devon - Milk	112	1390	1.0%	0.0%	5.1%	5.0%
Latvia	Latvia - Milk	142	23640	4.7%	0.0%	17.7%	1.3%
	Latvia - Wheat	134	13620	11.9%	1.7%	49.7%	1.7%
Total N. of farms		**2,299**					

Table 5 – Surveyed farmer characteristics in the case study regions

EU MS	EU Region	% Young farmers	% Female farmers	% with university degree	% with agricultural education	Succession	
Belgium	Flanders - Sugar beet	15.2%	3.5%	38.0%	65.2%	No expectations	50.6%
	Flanders - Top Fruit	19.0%	5.1%	11.0%	59.1%	No expectations	37.8%
	Wallonia - Sugar beet	26.7%	7.2%	34.4%	77.8%	No expectations	51.9%
Denmark	Southern Denmark - Milk	20.7%	0.0%	2.4%	93.9%	No expectations	41.0%
	Southern Denmark - Poultry	10.0%	5.0%	15.0%	80.0%	No expectations	40.0%
	Central Denmark - Poultry	30.0%	20.0%	5.0%	85.0%	No expectations	52.6%
France	Ile De France -Wheat	21.6%	10.1%	44.2%	64.0%	No expectations	62.0%
	Finistère - Milk	15.0%	13.0%	32.0%	62.0%	No expectations	63.2%
Germany	Wetterau - Rapeseed	7.1%	2.3%	24.4%	86.1%	-	-
Greece	Thessaly - Feta	54.1%	12.8%	0.0%	10.8%	No expectations	91.3%
Italy	Tuscany - Wine	32.4%	31.0%	58.5%	47.3%	Family member	59.2%
	Emilia Romagna - Top fruit	19.4%	1.0%	2.0%	43.9%	Family member	86.0%
Poland	Opolskie - Wheat	35.9%	9.7%	17.2%	68.2%	No expectations	70.16
	Malopolska - Top fruit	22.7%	16.0%	14.2%	68.0%	No expectations	54.6%
Portugal	Central Alentejo - Beef	19.4%	5.7%	50.0%	75.0%	Family member	76.5%
	Central Alentejo - Olive	22.2%	11.1%	37.0%	77.8%	Family member	42.9%
	Southern Alentejo - Olive	16.7%	8.3%	41.7%	75.0%	Family member	83.3%
Serbia	Vojvodina - Wheat	35.0%	7.1%	15.0%	17.9%	Family member	54.9%
	Sumadij and West Serbia - Raspberry	18.3%	17.6%	9.2%	6.1%	No expectations	81.7%
England	Somerset - Milk	18.2%	8.0%	12.5%	63.6%	Family member	48.2%
	Devon - Milk	8.0%	13.4%	17.9%	51.8%	Family member	58.9%
Latvia	Latvia - Milk	9.9%	34.5%	36.6%	86.6%	No expectations	58.8%
	Latvia - Wheat	11.9%	24.6%	29.9%	82.1%	No expectations	55.7%
All farms		**23.1%**	**12.9%**	**21.9%**	**57.8%**	**No expectations**	**57.2%**

Table 6 – Surveyed farm characteristics in the case study regions

EU MS	EU Region	Legal status		Management		Farm Size (Ha)		Herd Size (N.)	
						Avg.	S.D.	Avg.	S.D.
Belgium	Flanders - Sugar beet	Sole trader	68.5%	Owner/Manager	55.8%	155.6	743.1	n/a	n/a
	Flanders - Top Fruit	Sole trader	50.4%	Owner/Manager	96.2%	32.8	36.4	n/a	n/a
	Wallonia - Sugar beet	Sole trader	70.2%	Owner/Manager	61.2%	132.2	183.0	n/a	n/a
Denmark	Southern Denmark - Milk	Sole trader	80.5%	Owner	97.5%	203.7	129.7	259.9	214.4
	Southern Denmark - Poultry	Sole trader	85.0%	Owner	95.0%	183.2	150.2	82850.0	48998.7
	Central Denmark - Poultry	Sole trader	57.9%	Owner	100.0%	302.1	260.2	143200.0	133915.8
France	Ile De France -Wheat	Sole trader	71.9%	Tenant	35.7%	153.4	72.7	n/a	n/a
	Finistère - Milk	Sole trader	51.0%	Owner/Manager	49.5%	98.5	67.8	70.9	31.6
Germany	Wetterau - Rapeseed	Sole trader	76.9%	Owner/Manager	93.0%	125.4	76.3	n/a	n/a
Greece	Thessaly - Feta	Sole trader	91.9%	Owner	99.3%	16.4	10.1	185.0	97.6
Italy	Tuscany - Wine	Family farm	46.1%	Owner	43.2%	96.7	165.7	n/a	n/a
	Emilia Romagna - Top fruit	Sole trader	83.7%	Owner/Manager	67.4%	23.4	17.1	n/a	n/a
Poland	Opolskie - Wheat	Sole trader	90.7%	Owner	73.2%	87.5	627.6	n/a	n/a
	Malopolska - Top fruit	Sole trader	69.2%	Owner	69.7%	6.4	6.3	n/a	n/a
Portugal	Central Alentejo - Beef	Private company	45.5%	Owner/Manager	62.9%	558.5	508.7	359.4	347.5
	Central Alentejo - Olive	Family farm	38.5%	Owner/Manager	66.7%	380.1	537.4	n/a	n/a
	Southern Alentejo - Olive	Sole trader	50.0%	Owner/Manager	72.7%	395.1	590.2	n/a	n/a
Serbia	Vojvodina - Wheat	Sole trader	84.3%	Owner	68.6%	103.8	214.2	n/a	n/a
	Sumadij and West Serbia - Raspberry	Sole trader	64.9%	Owner	73.1%	2.3	2.5	n/a	n/a
England	Somerset - Milk	Family farm	80.7%	Owner	46.6%	180.2	175.8	227.1	224.2
	Devon - Milk	Family farm	81.3%	Owner	56.3%	186.5	154.5	245.8	199.0
Latvia	Latvia - Milk	Sole trader	53.5%	Owner	52.5%	303.2	377.8	103.6	146.0
	Latvia - Wheat	Sole trader	67.2%	Owner	70.9%	223.8	221.8	n/a	n/a
All farms		**Sole trader**	**63.2%**	**Owner**	**52.6%**	**124.7**	**312.0**	**6,186.4**	**34,714.5**

Survey results

In this section the results of the primary producers' survey are presented. The results are presented in three main sub-sections, as follows: sales channels and agreement characteristics; the sustainability of sales agreements; and future strategies.

Tables and statistics are organised and presented by commodity group, meaning that case studies sharing the same commodity have been aggregated together to provide an overview of the SCAs at the sectoral level. Moreover, figures refer to the main sale of each producer, as the single main sales channel was recorded during the survey, with additional minor transactions not recorded (see Annexes 1 and 2 for further details).

Sales channels and characteristics of the agreements

The survey explored a variety of possible commercial outlets for farmers' products. Such outlets have been categorised into two main types: sales to collective organisations (collective sales) and to buyers which are private individual organisations (individual sales). Collective sales are to organisations which can potentially strengthen the negotiating power of primary producers by upscaling the supply capacity or reduce production costs by sharing resources among peers; individual sales are to organisations that represent private agri-food businesses which create individual relationships with a producer.

Table 7 shows the variety and proportion of sales channels used by surveyed farmers. First of all, it is important to note that the level of farms' self-consumption was quite low, suggesting that the farms surveyed were mostly market oriented. However, in some commodities the level of self-consumption was quite substantial. For example, 31% of the wine produced in Tuscany was retained by the producers and does not enter the market; similarly, 25% of beef produced in Alentejo, Portugal was reported as self-consumed.

Overall, individual sales were more frequent than collective sales. This suggests that, despite the policy efforts to improve cooperation between farmers, one-to-one relationships between producers and buyers were still the most frequent. However, this was not the case in all sectors. In the milk and olives sectors, for example, collective sales, and in particular to cooperatives, were the most frequent arrangement.

Although not included in table 7, the main and exclusive sale channel for sugar beet producers in Belgium were farmers' unions. This was due to the quota system for sugar production, which has since expired (in 2017), but was in place at the time of the survey. At this time, sugar beet producers could only sell their production to farmers' unions under a single type of arrangement.

Apart from milk and olives, all the other commodity groups mostly have individual sales. The variety and diversification towards different buyers strongly depends on the commodity and the level of vertical coordination in the supply chain. On the one hand, we have the example of poultry in Denmark, where vertical coordination between farmers and processors/industry was very strong. All poultry farmers sell to the same buyer, producing at very similar quality standards, and thereby benefiting from market access but with almost no alternative buyers, suggesting that 'lock-in' situations can occur in this sector. Very high sales concentrations also concerned feta cheese. On the other hand, wine in Tuscany displays much more diversified

sales channels, from local markets and restaurants, to traders and exporters. Such diversification of market outlets was also found in beef in Alentejo. The difference in SCA between products such as poultry and wine can be due to the fact that, while the former is a commodity largely undifferentiated, the latter is a quality, highly differentiated branded product, and strongly reliant on regional territoriality for commercial success.

Table 7 – Collective and individual sales channels per commodity

	Arable	Milk	Fruits	Feta	Beef	Poultry	Wine	Olive	All Groups
% of products retained by the farm for self-consumption	14.1%	3.4%	3.5%	3.3%	25.0%	1.0%	31.0%	2.6%	**8.9%**
% collective sales	**35.7%**	**60.1%**	**47.1%**	**16.2%**	**36.1%**	**0.0%**	**19.5%**	**76.9%**	**42.9%**
Cooperative	26.9%	52.9%	35.6%	16.2%	0.0%	0.0%	0.9%	69.2%	**33.5%**
Producer organization (PO)	6.1%	4.0%	9.9%	0.0%	8.3%	0.0%	3.3%	2.6%	**6.0%**
Inter-branch organization (IBOs)	1.3%	2.5%	0.3%	0.0%	0.0%	0.0%	0.0%	2.6%	**1.2%**
Farmers' union and association	1.5%	0.0%	0.5%	0.0%	25.0%	0.0%	0.5%	0.0%	**1.1%**
Other collective	0.4%	1.0%	0.8%	0.0%	5.6%	0.0%	7.9%	2.6%	**1.1%**
% individual sales	**61.0%**	**47.0%**	**52.4%**	**83.8%**	**63.9%**	**100.0%**	**77.1%**	**21.8%**	**58.1%**
Local markets or final consumers	7.0%	0.7%	8.4%	0.0%	13.9%	0.0%	19.6%	2.5%	**6.2%**
Independent small shops or restaurants	0.9%	0.0%	2.3%	1.4%	0.0%	0.0%	26.6%	2.6%	**2.3%**
Processors/agri-food industry	27.0%	41.2%	4.6%	77.0%	2.8%	100.0%	3.3%	2.6%	**26.8%**
Supermarkets/retailers chains	13.2%	0.9%	2.3%	0.0%	13.9%	0.0%	3.0%	0.0%	**6.2%**
Traders/Wholesalers	9.5%	2.3%	29.2%	5.4%	5.6%	0.0%	18.5%	0.0%	**13.1%**
Exporters	2.9%	0.9%	2.8%	0.0%	11.1%	0.0%	21.7%	5.1%	**3.4%**
Other individual	0.6%	0.9%	2.4%	0.0%	11.1%	0.0%	0.3%	5.3%	**1.3%**
The main sale was:									
Collectively organised	36.8%	59.4%	51.4%	16.9%	41.7%	2.5%	6.9%	79.0%	**43.1%**
Individually organised	63.2%	40.7%	48.6%	83.1%	58.3%	97.5%	93.1%	21.1%	**56.9%**

Collective organisations, such as cooperatives, POs and unions, were not always only buyers of surveyed farmers' products; on the contrary, they also offer their members a series of services related to the farm business. Surveyed farmers were asked to specify the services received by these organisations, if they were members (see Table 8). Producers of feta cheese were almost never members of POs or unions, while Danish poultry producers were members of many types of organisation but received few services from them. The main role of cooperatives was to purchase agricultural products, especially for the arable, milk and fruits sectors (Table 8). However, cooperatives also supported arable, milk, fruits, feta and olives producers in negotiating prices with external buyers. POs have a very diversified role in many sectors, but their services were highly specialised in the poultry sector in Denmark, where their role was mainly to support the design of contracts. In the wine sector in Tuscany they were mainly intermediaries and facilitators of market access. Regarding farmers' unions, their main role was to support farmers in the design of contracts with third parties, especially for arable farms, and beef and olive producers in Alentejo. This is not surprising given that the main services provided by unions are often administrative.

Table 8 – The role and services of collective organisations

	Arable	Milk	Fruits	Feta	Beef	Poultry	Wine	Olive	All groups
% of members of a coop	**37.6%**	**56.7%**	**39.5%**	**18.2%**	**22.2%**	**100.0%**	**1.9%**	**79.5%**	**39.4%**
Purchaser of production	31.2%	51.8%	31.0%	16.2%	0.0%	0.0%	3.5%	6.5%	**33.7%**
Intermediary with a buyer	3.8%	19.1%	26.2%	3.4%	12.5%	0.0%	9.1%	45.2%	**13.8%**
Negotiates the price with a buyer	15.9%	32.9%	25.7%	10.8%	0.0%	0.0%	0.0%	51.6%	**22.2%**
Supports the design of terms of contract	12.5%	26.6%	25.0%	4.7%	0.0%	0.0%	5.3%	56.7%	**18.9%**
% of members of a PO	**9.2%**	**14.1%**	**25.5%**	**0.0%**	**36.1%**	**87.5%**	**56.3%**	**23.1%**	**71.9%**
Purchaser of production	5.6%	5.4%	14.5%	0.0%	30.8%	0.0%	1.9%	25.0%	**7.1%**
Intermediary with a buyer	3.1%	3.8%	8.2%	0.0%	30.8%	0.0%	51.8%	37.5%	**5.8%**
Negotiates the price with a buyer	2.5%	7.7%	9.4%	0.0%	30.8%	0.0%	0.0%	42.9%	**5.2%**
Supports the design of terms of contract	2.8%	7.0%	6.1%	0.0%	23.1%	80.0%	6.7%	42.9%	**6.2%**
% of members of a union	**39.4%**	**51.7%**	**37.2%**	**2.0%**	**91.7%**	**75.0%**	**0.9%**	**18.0%**	**38.5%**
Purchaser of production	2.2%	1.2%	0.2%	0.0%	21.9%	0.0%	0.0%	0.0%	**1.6%**
Intermediary with a buyer	4.0%	1.2%	1.2%	0.0%	51.6%	0.0%	0.0%	0.0%	**3.0%**
Negotiates the price with a buyer	2.8%	1.5%	1.4%	0.0%	39.4%	0.0%	0.0%	0.0%	**2.5%**
Supports the design of terms of contract	26.7%	3.7%	0.0%	0.0%	28.1%	0.0%	0.0%	16.7%	**12.5%**

SCAs can be different in type and duration. These elements are shown in Table 9 for each commodity group. The most prevalent type of agreement was a formal agreement (e.g. a contract that can be legally enforced) that was signed before the delivery of a product and was limited in duration to a single delivery. This was also the most prevalent type of SCA in the arable crops CS. However, each commodity group displays significant differences from this type of SCA, a part from arable crops. For example, in the case of milk and poultry, the formal agreement has a duration of more than 5 years or 12-24 months, respectively. The most prevalent SCA in the fruits, beef and olive groups were in the form of rules of membership to a collective organisation, while informal agreements of short duration were frequent in the feta cheese and wine commodity groups. Informal agreements were more at risk of UTPs than formal ones, as they might not be legally enforceable.

Each agreement can also contain specific attributes or rules, which indicate more or less vertical coordination in the supply chain (Table 10). The provision of logistical services by the buyer was a common attribute across all commodity groups, concerning about 63% of the sales recorded in the survey, and particularly notable in the milk, feta cheese and poultry cases. Other services such as managerial or credit assistance were less diffused and occurred in specific sectors, such as milk, arable and poultry.

The second most frequent attribute in SCAs is providing producers with a price premium for higher quality products. Such price premiums were particularly frequent in the arable, milk, poultry and olive sectors. Exclusivity of sales, meaning that the producer sells 100% of their production to the buyer and cannot sell to other buyers, was particularly frequent in the milk, fruits, feta, poultry and olive sectors. Such requirements can create a stronger relationship between producers and buyers, but the can also be a disadvantage for producers because they are restricted from searching for better conditions with other buyers.

Table 9 – SCA types and duration by commodity group

	Arable	Milk	Fruits	Feta	Beef	Poultry	Wine	Olive	All Groups
Type of agreement:									
Formal agreement before the sale	39.5%	55.0%	22.1%	42.5%	5.9%	100.0%	4.2%	17.7%	37.9%
Formal agreement at the point of sale	16.4%	4.1%	9.6%	0.7%	17.7%	0.0%	10.4%	5.9%	10.1%
Informal agreement before the sale	8.5%	6.2%	19.7%	49.3%	17.7%	0.0%	29.2%	5.9%	14.2%
Informal agreement at the point of sale	18.5%	1.9%	12.9%	7.5%	23.5%	0.0%	56.3%	8.8%	13.7%
Membership rules	7.9%	32.8%	35.7%	0.0%	35.3%	0.0%	0.0%	61.8%	20.8%
Two contracts	9.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.3%
Duration of the agreement:									
Only for this sale	50.4%	4.0%	32.0%	0.0%	61.8%	0.0%	50.5%	34.3%	29.9%
Less than 3 months	4.0%	1.4%	1.1%	1.4%	0.0%	0.0%	7.4%	2.9%	2.4%
3 to 6 months	11.4%	3.6%	3.7%	2.7%	11.8%	10.3%	1.1%	0.0%	6.2%
7 to 12 months	27.4%	19.3%	11.4%	71.6%	11.8%	7.7%	23.2%	11.4%	23.4%
13 to 24 months	3.5%	18.5%	4.6%	5.4%	0.0%	79.5%	5.3%	2.9%	9.0%
25 to 60 months	1.7%	9.4%	3.5%	0.7%	0.0%	0.0%	7.4%	2.9%	4.2%
More than 5 years	1.6%	43.8%	43.7%	18.2%	14.7%	2.6%	5.3%	45.7%	25.0%

Table 10 – SCA attributes by commodity group

	Arable	Milk	Fruits	Feta	Beef	Poultry	Wine	Olive	All Groups
Exclusivity of sales	19.1%	65.2%	52.5%	53.7%	21.2%	100.0%	21.9%	57.6%	**44.6%**
Penalties on the farmer	26.8%	19.8%	21.5%	4.3%	9.7%	5.0%	7.3%	3.0%	**20.0%**
Safeguards against buyer failure	33.2%	43.0%	18.2%	3.7%	9.7%	0.0%	19.2%	25.8%	**27.7%**
Price premiums for higher quality	59.4%	82.4%	30.8%	20.3%	28.1%	92.5%	16.0%	51.5%	**53.0%**
Interests for delayed payments from the buyer	23.0%	6.1%	5.4%	2.1%	3.1%	0.0%	7.5%	9.1%	**10.9%**
Services (collection, storage, transport, handling, etc.)	56.5%	89.5%	47.3%	79.1%	45.5%	92.5%	24.1%	24.2%	**63.0%**
Managerial and technical assistance	28.8%	53.7%	20.8%	10.8%	42.4%	51.3%	7.7%	36.4%	**31.8%**
Credit assistance	18.4%	11.1%	10.2%	6.2%	12.1%	2.5%	11.7%	10.0%	**12.7%**
Special assets, technology and/or machinery	9.4%	6.3%	12.3%	30.6%	9.4%	0.0%	3.9%	15.2%	**10.7%**
Automatic extension of the agreement	8.0%	61.3%	15.8%	25.0%	12.5%	97.4%	11.0%	35.7%	**27.4%**

Table 11 – Prevalent price basis and costs of SCAs

	Arable	Milk	Fruits	Feta	Beef	Poultry	Wine	Olive	All Groups
Price basis:									
Variable price based on production costs	7.0%	15.2%	5.5%	0.0%	11.8%	2.5%	61.9%	9.1%	**10.7%**
Variable price based on delivered quantity	40.9%	57.0%	10.7%	8.8%	0.0%	2.5%	81.6%	11.4%	**36.2%**
Variable price based on delivered quality	72.1%	86.4%	59.3%	19.7%	64.7%	97.5%	62.5%	71.4%	**68.6%**
Variable price linked to the market price at the time of delivery	60.2%	70.6%	65.8%	22.3%	73.5%	100.0%	46.1%	88.6%	**62.1%**
Variable price based on share of organization's profit	29.4%	36.3%	5.0%	1.4%	12.5%	0.0%	19.7%	17.1%	**22.3%**
The price is fixed at the beginning of the agreement and does not change	18.7%	9.9%	19.6%	64.2%	14.7%	2.5%	43.3%	5.7%	**20.4%**
Moment of payment:	After delivery 52.1%	On a regular basis 68.9%	After delivery 56.9%	On a regular basis 89.9%	After delivery 64.7%	After delivery 97.5%	Before delivery 38.2%	After delivery 50.0%	**After delivery 51.0%**
Costs of the agreement:									
Membership fee	39.0%	40.9%	46.6%	2.7%	69.7%	5.0%	11.4%	55.9%	**38.1%**
Logistics	60.5%	61.2%	55.0%	9.5%	68.8%	5.0%	31.7%	61.1%	**54.0%**
Marketing	2.7%	9.6%	38.3%	0.0%	9.4%	0.0%	51.9%	8.6%	**12.5%**
Commissions	8.8%	5.1%	33.5%	0.0%	40.6%	0.0%	31.2%	14.3%	**14.8%**
Quality tests	41.1%	42.6%	21.2%	1.4%	15.6%	82.5%	23.3%	30.6%	**33.3%**

SCAs clauses that favour producers, such as safeguards against buyers' failures or interests for delayed payments, were not well developed and were more prevalent in the arable crops and milk sectors. The automatic extension of agreements (e.g. evergreen contracts) were only reported in the poultry and milk sectors.

How prices are calculated in the SCA is a critical element of the agreements, directly affecting the profitability of primary producers. Table 11 shows that the most prevalent price basis in SCAs were variable prices, depending on the quality delivered (about 69%) and on the market price at the moment of delivery (about 62%). Noticeable exceptions concern feta cheese, with 64% of producers reporting that the price was fixed by the agreement before the delivery and this does not change, even if the quality and/or market prices were higher than expected, and wine producers in Tuscany, where the price depended on the quantity delivered (in 82% of cases).

Overall, producers are paid after delivery. This means that for the majority of producers they have to sustain all production and investment costs in advance. However, for the two dairy commodities (milk and feta cheese) payments were on a regular basis, indicating a continuous type of relationship and reflecting the nature of the sector and product (continuous supply of product all year around). In the wine case study 38% of producers in Tuscany received payments before delivery, although the wine was typically produced some years in advance and sold on the spot market.

SCAs can also entail costs for the producers (Table 11), especially related to the logistical services that they received, quality testing and fees to be a member of a collective organisation. Marketing and commission costs are quite frequent for some of the commodity group, in particular in the fruits, beef, wine and olive sectors. These costs are likely to be prohibited if the EU regulation on UTPs is approved, or they will need to be justified following specific rules e.g. prior to a promotion the buyer should specify the duration and frequency of the promotion and the quantity of food products to be ordered (EC, 2018).

Standards are often part of agreements as they are necessary to target certain international markets or some niche markets, as well as transferring information about the production process between the producer and the buyer. The most prevalent standards were related to quality and safety (Table 12), as in many markets they are pre-requisites for market access. Animal welfare standards are compulsory in the poultry sector, as 100% of producers have to comply, but in general they were used in all sectors related to livestock products.

It is worth noting that GM-free standards were quite diffused (Table 12). They were very frequent in arable crops and feta cheese and to a lesser extent in the beef, fruits and milk sectors. The large diffusion of GM-free standards is not surprising, given that public perceptions towards genetically modified organisms and agricultural biotechnologies in the EU is rather negative, and given the number of anti-GMO campaigns across the EU.

Some of the standards in Table 12 also provide an indirect indication of the environmental sustainability of certain SCAs. SCAs requiring standards on natural resource conservation and mitigation of climate change are assumed to encourage farmers to adopt more sustainable and less intensive production practices. While standards on mitigation and adaptation to climate change are not much diffused, with milk as the exception, standards on natural resource conservation are relatively frequent, especially in the milk, fruits and olive sectors.

Table 12 – The role of production standards in SCAs

Standard type	Arable	Milk	Fruits	Feta	Beef	Poultry	Wine	Olive	All Groups
Standards on the quality of the final product	74.8%	92.5%	97.0%	57.1%	50.0%	92.3%	47.1%	72.2%	**82.5%**
Standards on food safety and hygiene	73.1%	93.5%	89.7%	85.7%	74.3%	100.0%	39.7%	78.4%	**82.4%**
Standards on natural resources and nature conservation	22.5%	35.7%	55.5%	12.3%	20.0%	5.0%	2.5%	27.8%	**32.4%**
Standards on animal welfare	n/a	83.7%	n/a	51.0%	68.6%	100.0%	n/a	n/a	**40.9%**
Standards on mitigation and adaption to climate change	9.7%	31.3%	10.7%	0.0%	5.7%	10.3%	0.0%	11.4%	**13.9%**
Genetically Modified free	56.9%	21.0%	18.4%	46.6%	25.0%	5.0%	0.0%	11.1%	**34.6%**

Farmers' satisfaction towards sales agreements

During the survey, farmers were asked to express how satisfied they were with their current sales agreement. Views were captured by asking them to indicate how much they believe a series of statements concerning the sales agreement were true. Farmers could choose between: 1 Completely unsatisfied; 2 Somewhat unsatisfied; 3 Neither unsatisfied nor satisfied; 4 Somewhat satisfied; or 5 Completely satisfied. Farmers were satisfied by the SCA if the score is >3. The results on farmers' satisfaction are plotted in Figure 2 and reported on the first row of Table 12.

Figure 2 - Sale agreement satisfaction: average score assigned by farmers

The average level of satisfaction across all commodity groups was 3.63 (Table 13), suggesting that, on average, farmers were somewhat satisfied by the SCA. However, there was a diversity of views regarding satisfaction between the commodity groups (Figure 2). Although none of the commodity groups indicated clearly that farmers were unsatisfied by the SCAs, feta cheese and poultry farmers were neither unsatisfied nor satisfied, suggesting that their level of appreciation of the arrangements was among the lowest. On the contrary, wine and olive farmers were more oriented towards being somewhat satisfied, but no commodity groups were completely satisfied with their agreement.

To better understand levels of satisfaction, it is useful to look at the answers given by the farmers to the questions in Table 13. On a Likert scale, farmers could: 1 Strongly disagree; 2 Disagree; 3 Neutral; 4 Agree; 5 Strongly agree with the statements.

Table 13 – Farmers' satisfaction and perception of sales agreements

	Arable	Milk	Fruits	Feta	Beef	Poultry	Wine	Olive	All Groups
Overall satisfaction main sale agreement	3.61	3.63	3.75	3.11	3.64	3.35	3.90	4.11	**3.63**
There are no alternatives to it	2.97	2.94	2.80	2.59	2.41	2.83	3.61	2.45	**2.90**
It provides higher prices than alternatives	3.20	3.10	3.15	3.30	3.18	2.83	3.03	3.43	**3.16**
It provides more stable prices	3.10	3.35	3.12	3.43	3.53	3.13	3.43	3.81	**3.22**
It provides more possibilities for negotiating prices	2.77	2.14	2.78	2.35	2.91	1.15	2.88	2.66	**2.57**
There are delays in the payments	2.08	1.52	2.51	1.72	1.94	1.60	3.00	1.97	**2.05**
The costs associated with it are too high	2.46	2.01	2.81	1.41	2.30	1.79	2.53	2.00	**2.36**
The production/quality standards required are too restrictive	2.57	2.19	2.94	1.44	2.24	2.33	2.74	2.11	**2.48**

Overall, it seems that farmers do not have much alternative to their current SCAs, with the exception of wine producers. This suggests that the choice between different buyers is quite limited. However, it seems that the prices received by producers through their current SCA were relatively fair and stable, although the low scores (3.16 and 3.22 respectively) indicate that there is a large margin for improvement regarding providing farmers with higher price levels and stability.

Farmers tended to disagree regarding the fact that the current SCA gives them opportunities for negotiating prices, suggesting that producers' bargaining power was quite limited and confirming the price-taker position of farmers within the supply chain. This affects in particular the milk and poultry sectors. Despite the lack of price negotiation, farmers do not think that payments are delayed or that the costs of SCAs and standards are too high. This suggests that, although the current SCAs are not optimal with respect to prices and negotiation possibilities, some positive elements are evident that allow farmers to make a profit.

Farmers' perception of SCA sustainability

During the survey farmers were asked to evaluate how much, in their opinion, the current SCA was sustainable. Sustainability was evaluated by considering three dimensions: environmental, social and economic sustainability. Four components were identified for each dimension of sustainability. For each component the farmer was asked to assign a score from 1 (strongly disagree) to 5 (strongly agree) regarding the potential impact of sustainability to the sales agreement/membership rules (if part of a collective organisation) (see Table 14).

Table 14 – Environmental, social and economic sustainability of SCAs

	Arable	Milk	Fruits	Feta	Beef	Poultry	Wine	Olive	All Groups
Environmental sustainability									
Maintain biodiversity	3.02	2.68	2.62	1.83	3.94	2.67	3.86	3.82	**2.82**
Support animal welfare	2.27	3.71	2.22	2.44	4.38	3.90	n/a	3.70	**3.25**
Maintain water quality	3.01	3.46	2.66	1.55	4.13	1.89	3.44	3.94	**2.98**
Maintain soil organic matter	3.42	3.20	2.72	1.92	4.09	2.65	3.89	3.92	**3.13**
Social sustainability									
Create a good connection with buyers and input providers	3.51	3.28	3.18	1.94	3.94	3.49	3.94	3.97	**3.30**
Connect with other farmers	3.51	3.43	3.34	1.91	3.72	3.55	2.67	3.97	**3.33**
Achieve societal recognition of your farming activities	3.24	3.18	3.13	1.86	3.59	2.34	3.10	3.86	**3.10**
Secure a successor	3.05	2.66	2.88	1.68	3.77	2.27	3.77	3.82	**2.86**
Economic sustainability									
Maintain profitability	3.63	3.31	3.16	3.88	4.49	3.41	3.52	4.13	**3.48**
Invest in the farm business	3.43	3.01	3.06	2.93	4.00	3.18	4.03	3.82	**3.24**
Sell the products in periods of greater difficulty where prices were low	3.02	3.15	2.91	2.10	3.36	2.90	3.41	3.53	**2.99**
Cope with changing market conditions	3.28	3.34	3.14	2.07	3.78	3.42	3.38	3.81	**3.20**
Overall Sustainability (Avg.)	**3.29**	**3.21**	**2.99**	**2.21**	**3.93**	**3.12**	**3.54**	**3.85**	**3.15**

The average perceived sustainability of SCAs for each commodity group is plotted in Figure 3. The figure shows that, according to producers, the most sustainable arrangements can be found in the beef and olives commodity groups. This reflects the extensive nature of these productions. On the contrary, feta cheese is perceived by producers as the less sustainable agreements (based on producers own self-evaluation).

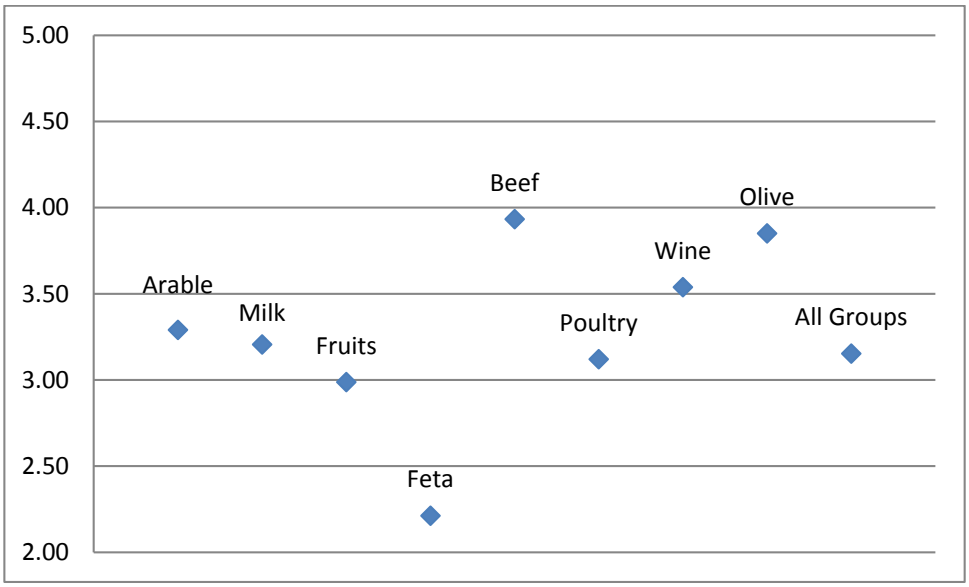
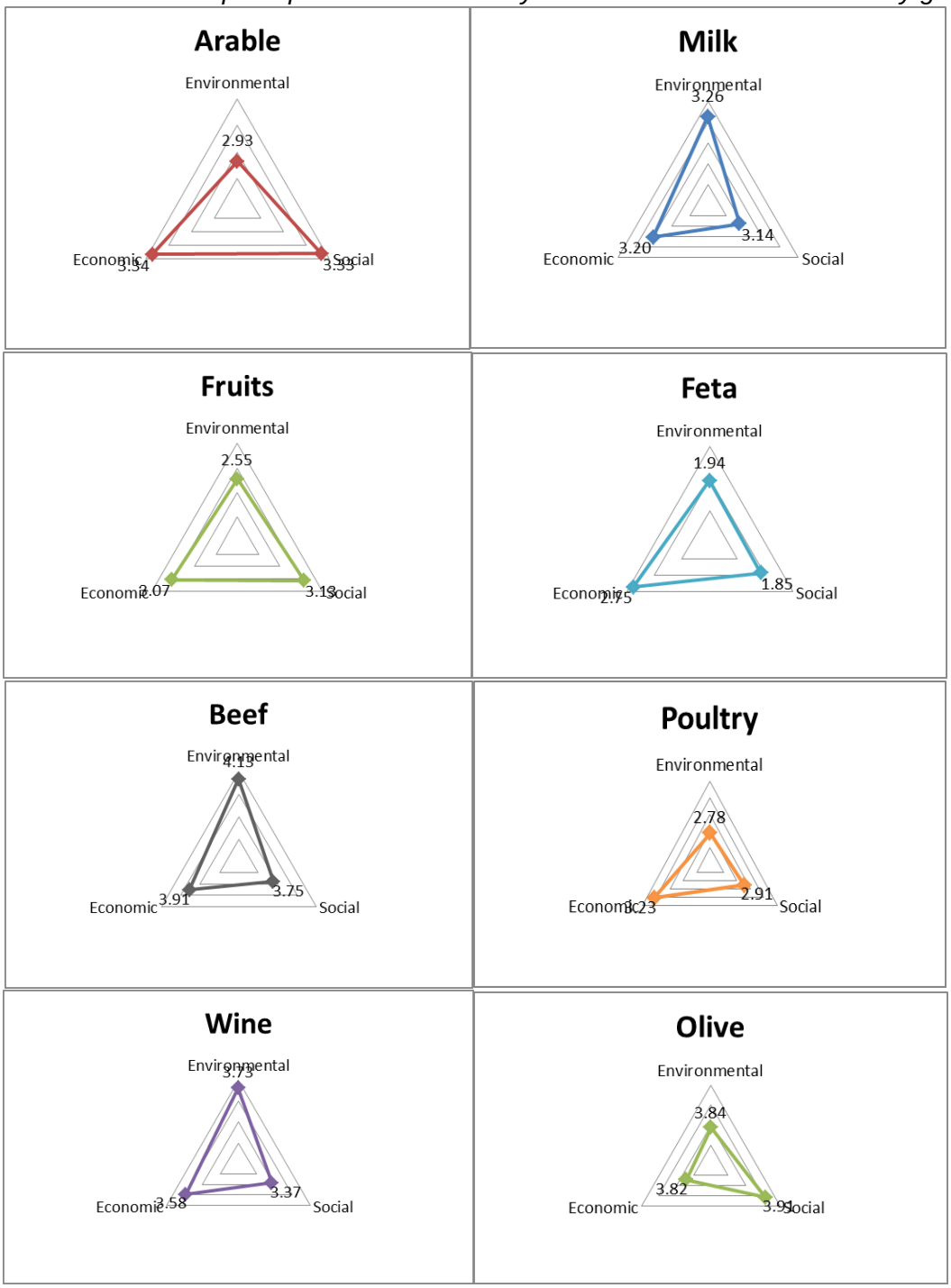


Figure 3 - Sales agreement sustainability

Within each commodity group, the SCAs were perceived by the farmer to have a differentiated impact on the different sustainability dimensions, i.e. – environmental, social and economic sustainability. As Figure 4 shows, arable crop SCAs were perceived by farmers as having lower environmental sustainability, while milk SCAs were viewed as relatively environmentally sustainable but less socially sustainable. The perception of sustainability of SCAs in the fruits sector was quite homogeneous, although environmental sustainability was slightly lower compared to social and economic dimensions. Feta SCAs, which were considered the least sustainable by surveyed farmers, have a relatively higher economic sustainability score than environmental and social dimensions; while beef SCAs in Alentejo, which were considered among the most sustainable (along with olives) by producers in this sector, were perceived as particularly sustainable from an environmental perspective. Finally, the higher dimension of sustainability in the poultry is economic sustainability, while in wine is environmental sustainability and in olive is social sustainability.

Figure 4 – Producers' perception of sustainability dimensions for each commodity group



Drivers of change and future farm business strategies

Primary producers in the EU are facing a series of challenging factors affecting their business and their capacity to generate sufficient income now and in the future. Such factors can be categorised as 'risks' that can be due to the natural environment, such as weather and diseases, the market, such as price volatility, and/or policies, such as policy reforms or changes to regulations.

In the majority of cases, these risk factors have two main consequences; i) farms cannot withstand the perturbation, therefore the business collapses and the farm is forced to exit the sector; or ii) the perturbation forces the farm to adapt and take actions to adjust to the new conditions in order to survive, meaning that the farmer adopts some sort of change to the business, its management or production practice. The capacity of a farm to be robust to risks, or to adapt and transform, depends on the farms' resilience and the farmers' resourcefulness and entrepreneurship (Meuwissen at al., 2018).

During the survey, farmers were asked to identify and rate the most challenging risk factors that might influence their production and farming strategies in the future, as well as to explain what type of changes or strategies they are planning to apply to their production and business in the coming five years.

For surveyed farmers, the most challenging factor was a severe drop in market prices (3.96), with prices and their volatility one of the main concerns for EU farmers across a variety of sectors (Table 15). On the other hand, access to credit for investments or consumable inputs was the least worrying challenge, suggesting that, despite the financial crises of the last 10 years or so, there were more detrimental factors threatening farms' survival than credit access and availability. As one might expect, adverse climatic and pest conditions were also ranked highly across the commodity groups. Climatic and pest risks were particularly important in the arable crops, fruits, beef, wine and olive sectors.

Table 15 – Drivers that influence farming strategies

	Arable	Milk	Fruits	Feta	Beef	Poultry	Wine	Olive	All Groups
Adverse climatic conditions or pests	3.73	3.36	3.88	3.11	4.69	2.40	3.98	4.10	3.65
Input price volatility	3.65	3.66	3.45	3.64	3.83	3.15	3.04	3.54	3.58
Severe drop in market prices	4.02	4.06	4.03	3.93	3.33	3.73	3.08	2.95	3.96
Changes in consumer behavior and/or preferences	2.83	3.35	3.27	3.47	2.94	3.78	3.56	3.21	3.16
Access to loans for capital investments	2.58	3.13	2.77	2.86	2.55	2.82	2.86	2.14	2.78
Access to credit for consumable inputs	2.69	2.85	2.44	3.18	2.27	1.00	2.78	1.43	2.67
Change of farming regulations	3.29	3.55	2.97	3.16	3.03	3.78	2.91	2.95	3.25
Changes in the CAP	3.37	3.56	2.78	3.51	4.29	2.23	2.77	3.62	3.25

Along with the drop in market prices, the volatility of input prices was also important for the arable crops, milk and feta cheese producers. Changes in input prices can directly affect farms' profitability and therefore their capacity to generate sufficient income, especially if uncertainty on input prices is combined with uncertainties on product prices.

Beef producers in Portugal indicated potential changes in the CAP as one of the main drivers of their farming strategies, suggesting that the dependence of these producers on public

support is quite critical, and that any changes to it might provoke uncertainty and unforeseen consequences for the sector.

Interestingly, Danish poultry producers indicated different external factors than the rest of the commodity groups. In particular, poultry producers indicated changes in consumer behaviour/preferences and changes in regulation as important factors that determined their production and farming strategies. This may be due to the vertically integrated nature of the Danish poultry supply chain and a more direct transmission of consumer preferences to farmers.

In terms of future production and farming strategies, Table 16 shows that the majority of surveyed farmers do not expect any significant changes to their current production and farming business in the next five years, despite the fact that they identified different risk factors. However, this was not the case for the wine and olive sectors, where the majority of producers foresaw an expansion of their business, suggesting that despite the global challenges to agriculture, these sectors are growing.

When talking about future production strategies, a large proportion of farms indicated that they will invest more in production facilities (Table 16), suggesting that increased production efficiency or increased production scale are viable strategies for the future. Indeed, production specialisation, which was often associated with efficiencies and economies of scale, was frequently mentioned as a potential future production strategy. Interestingly, crop and livestock insurances were also frequently mentioned as possible production strategies, indicating that adopting insurances as a means of risk management is more common. Finally, the externalisation of some of the farming operations was considered a viable production strategy among beef and olive producers in Alentejo.

Regarding future marketing strategies (Table 16), it was more difficult to identify the most prevalent ones, as farmers indicated a diversity of approaches and preferences to market strategies. In the arable crops group, the most frequent market strategies were linked to products and business/sale channels diversification; in the milk sector adding value was the most frequent strategy e.g. organic certifications and quality-based food diversification. Income insurance was the least common market strategy for fruits and feta cheese producers, while it was quite prevalent in the beef and poultry sectors; beef and olive producers did not exclude any potential marketing strategies for the future.

Table 16 – Future production and market strategies

	Arable		Milk		Fruits		Feta		Beef		Poultry		Wine		Olive		All Groups	
Strategies for the next 5 years	No changes	67.1%	No changes	54.2%	No changes	50.8%	No changes	60.5%	No changes	52.8%	No changes	75.0%	Expand	67.6%	Expand	60.5%	**No changes**	**57.8%**
Production strategies:																		
Invest more in production facilities	42.6%		45.4%		56.3%		65.3%		57.1%		33.3%		83.1%		70.3%		**50.3%**	
Externalize some operations	13.9%		13.5%		14.2%		7.8%		47.1%		7.9%		5.4%		58.8%		**14.3%**	
Specialize my production	15.1%		25.7%		39.1%		25.4%		56.3%		40.5%		25.0%		64.9%		**26.7%**	
Insure against crop / livestock losses	39.3%		29.0%		52.1%		8.5%		67.7%		64.1%		4.1%		60.6%		**38.0%**	
No plans	34.3%		18.9%		17.0%		6.8%		3.3%		2.7%		0.0%		94.0%		**22.1%**	
Market strategies:																		
Diversify into new crops / products	42.2%		15.1%		34.2%		29.9%		52.9%		60.5%		35.7%		67.6%		**33.6%**	
Insure income	19.5%		16.5%		18.7%		7.1%		66.7%		68.2%		0.0%		51.4%		**18.9%**	
Develop new business partnerships	39.4%		17.6%		34.8%		24.1%		68.6%		36.1%		19.1%		41.2%		**31.6%**	
Develop new sale channels	31.3%		11.4%		36.1%		23.1%		66.7%		40.0%		56.3%		61.1%		**29.5%**	
Add value	17.5%		23.0%		36.1%		33.6%		54.8%		84.6%		13.4%		44.4%		**26.6%**	
No plans	17.5%		23.0%		36.1%		33.6%		54.8%		84.6%		13.4%		44.4%		**26.6%**	

It is important to understand how drivers are linked to future strategies. Figure 5 shows the most prevalent strategies associated to each driver. Among the farmers that were planning to expand their business in the next five years, the most important driver was access to loans and credit. However, it is worth noting that farmers planning to expand their business assigned a score of <3 to these challenges, suggesting that these drivers were not critical for their future plans. Among the farmers intending to downscale their business, the most frequent driving factors were adverse climatic and pests conditions, input prices volatility and a drop in market prices. Finally, among the farmers planning to abandon their farming activity, the main driving factors were regulatory or policy changes.

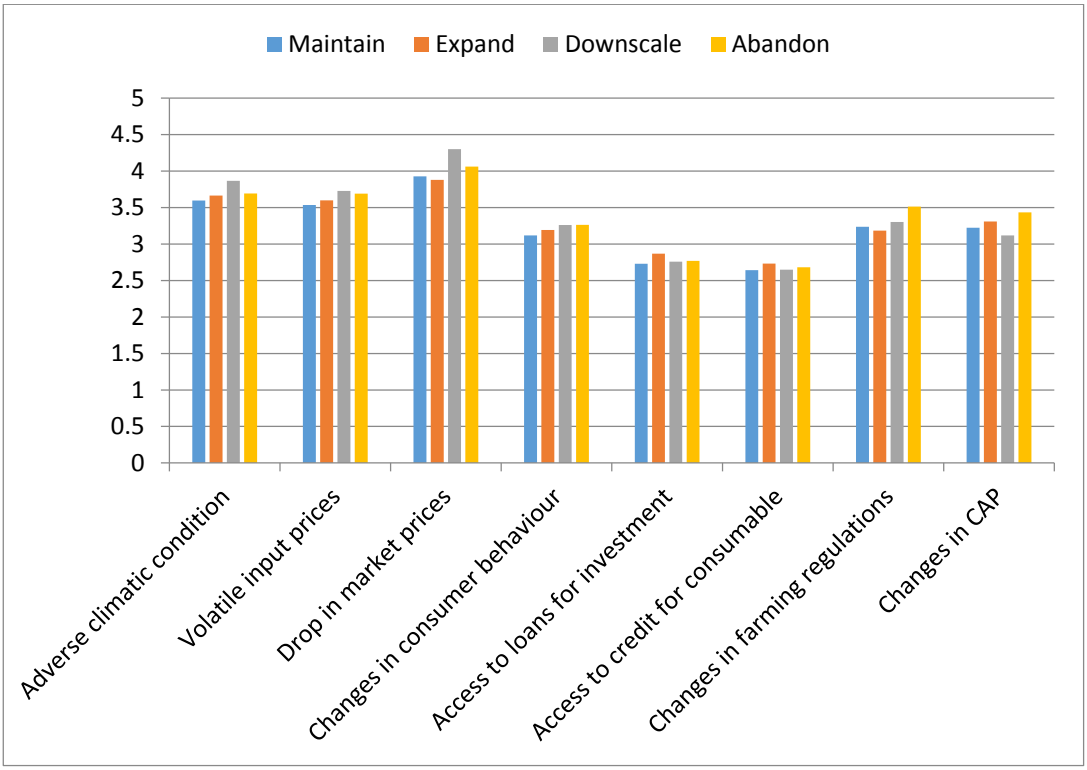


Figure 5 - Drivers of farm-based future strategies

Production and market strategies have also been analysed by future plans for the farming business and the results are displayed in figures 6 and 7 respectively. The main production strategy of farms planning to expand their business was to increase the level of investments in production facilities, although specialising and insuring crops and/or livestock were also important. Investing more in production facilities was also indicated by farmers planning to maintain the current scale of their business, suggesting that continuous investments were a key factor or a pre-requisite for many farmers to maintain 'business as usual'.

In terms of market strategies (Figure 7), farmers planning to expand in the next five years were also planning to diversify more in terms of products, partnerships and sales channels, which were viable strategies also for farmers planning to maintain the current scale of operations.

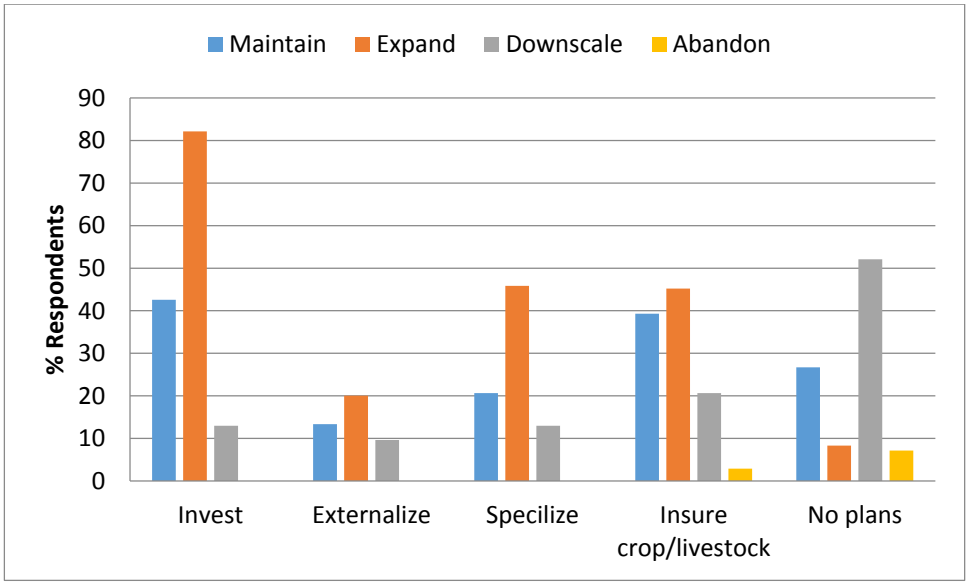


Figure 6 - Production strategies

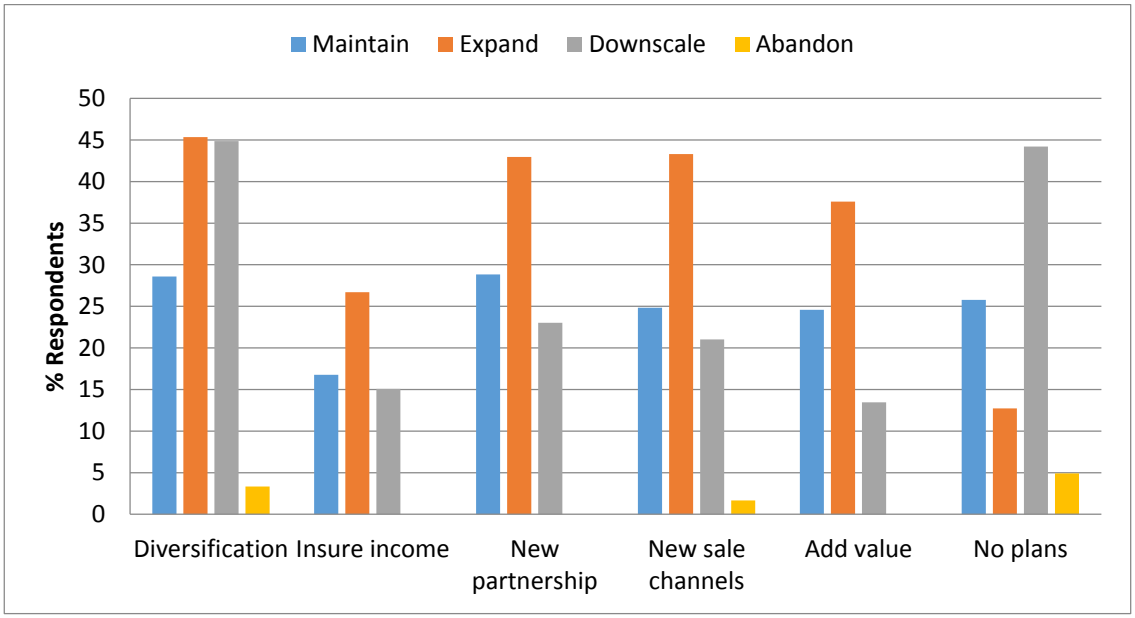


Figure 7 - Market strategies

Cluster analysis of SCAs

The survey data on SCAs and their attributes and characteristics have been analysed by means of a cluster analysis to identify clusters of SCAs with common features across all case studies.

In this report cluster analysis is used as an exploratory data-analysis technique for generating homogeneous and distinct groups of SCAs that share similar attributes. This is instructive to generate hypothesis on the most prevalent types of SCAs across the case studies.

A variety of clustering methods exists. The most appropriate choice of clustering method depends on the type of data at hand and on preliminary hypothesis on the data distribution. In the context of an exploratory approach to identify potential clusters of SCAs, and given that the survey data collected are a mix of censored and continuous data, the most appropriate clustering method is the k-means methodology, with the Gower (1971) dissimilarity coefficient used to measure differences across variables and their assignment to a certain group.

The k-means methodology identifies a certain number of potential clusters, to calculate a centroid for each cluster, and to assign observations to each cluster based on its distance to the centroid. Observations are assigned to clusters through a reiterative process by using a measure of distance between each observation and the centroid representing a given cluster. For our mixed dataset (censored and continuous), we use the Gower (1971) dissimilarity coefficient, designed to deal with mixed data. Using this method, we have identified five clusters. This number of clusters allows for heterogeneity in terms of SCAs groups, whilst keeping the largest number of observations possible.

The difference between the initial number of farms surveyed and the number of farms used for the cluster analysis (Table 17) is due to missing values in some of the variables used for the cluster analysis. The cluster analysis drops the entire observation (farm) if a single variable value is missing, hence the large difference in some case studies.

Results of the cluster analysis are shown in Table 18. In the first column the variables used for the clustering are reported. These variables are related to the market outlet, the SCA attributes and requirements previously described in tables 7, 9, 10, 11 and 12. The five clusters identified are therefore based on similarities among these variables and identify five distinctive types of SCAs across the seventeen case studies.

Table 17 – Sample used for the cluster analysis and the distribution of CS among the groups

EU MS	EU Region	Group 1	Group 2	Group 3	Group 4	Group 5	N. of farms used for cluster analysis	Initial Sample size (N. of farms)	% farms used for cluster analysis
Belgium	Flanders - Sugar beet	-	-	-	-	-	**Dropped**	92	0.0%
	Flanders - Top Fruit	0	0	0	0	5	**5**	137	3.6%
	Wallonia - Sugar beet	-	-	-	-	-	**Dropped**	90	0.0%
Denmark	Southern Denmark - Milk	0	1	0	80	0	**81**	82	98.8%
	Southern Denmark - Poultry	14	4	0	0	0	**18**	20	90.0%
	Central Denmark - Poultry	14	2	1	1	0	**18**	20	90.0%
France	Ile De France -Wheat	36	43	20	10	10	**119**	139	85.6%
	Finistere - Milk	13	27	5	14	13	**72**	100	72.0%
Germany	Wetterau - Rapeseed	-	-	-	-	-	**Dropped**	43	0.0%
Greece	Thessaly - Feta	11	59	65	1	0	**136**	148	91.9%
Italy	Tuscany - Wine	26	0	25	10	5	**66**	110	60.0%
	Emilia Romagna - Top fruit	0	8	17	1	70	**96**	98	98.0%
Poland	Opolskie - Wheat	75	9	56	6	3	**149**	198	75.3%
	Malopolska - Top fruit	33	9	61	26	45	**174**	200	87.0%
Portugal	Central Alentejo - Beef	7	3	6	2	11	**29**	36	80.6%
	Central Alentejo - Olive	4	1	9	3	5	**22**	27	81.5%
	Southern Alentejo - Olive	2	0	5	1	1	**9**	12	75.0%
Serbia	Vojvodina - Wheat	29	5	68	22	16	**140**	140	100.0%
	Sumadij and West Serbia - Raspberry	8	50	55	4	6	**123**	131	93.9%
England	Somerset - Milk	27	23	1	33	4	**88**	88	100.0%
	Devon - Milk	33	27	0	42	10	**112**	112	100.0%
Latvia	Latvia - Milk	33	23	18	22	25	**121**	142	85.2%
	Latvia - Wheat	5	3	40	28	18	**94**	134	70.1%
Total N. of farms for cluster group		**370**	**297**	**452**	**306**	**247**	**1,672**	**2,299**	**72.7%**

The five clusters are quite distinctive from each other, allowing a robust categorisation and interpretation:

Group 1 - Uniform individual arrangements: these SCAs are characterised by formal agreements established before the delivery of the product, where the buyer is an individual business, but the number of sales channels is limited to either agri-food industrial companies or cooperatives. These agreements usually take the form of contracts establishing conditions for very short term relationships, i.e. a single delivery. As such, they do not require exclusivity and the products comply with a few basic safety and quality standards, hence the use of the term "uniform" to characterise the fact that the traded products are usually un-differentiated. The level of vertical coordination is quite low. For these un-differentiated products, the agreement does not provide price premiums or stability; however, the cost associated to the agreements are low.

Group 2 - Segmented individual arrangements: these SCAs are characterised by formal agreements established before the delivery of the products, where the buyer is an individual business, as in the previous SCA group, but the number of possible sale channels is much higher and diversified, including also local individual businesses. These agreements take the form of contracts that establish conditions for short term relationships up to one year of delivery. The producer-buyer relationship is much more coordinated and strong, as it requires exclusivity and higher standards in exchange of services, stable prices and regular payments. The type of product standards required goes beyond the basic standards required for quality and safety, and includes standards for highly differentiated products and niche markets.

Group 3 – Pure market arrangements: these SCAs are characterised by informal agreements that are not legally enforceable. They are typically in the form of verbal informal agreements and often at the moment of the sale and delivery; in other words, they involve very short-term relationships, such as a single transaction. The sales channels for this type of agreements are limited, in terms of uniform individual agreements, and they consist of agri-food industrial companies or cooperatives. These agreements do not provide services or assistance of any kind and they require only basic safety and quality standards as minimum standards for undifferentiated products. Prices are lower and more unpredictable compared to the other type of SCAs and payments are mainly on the spot.

Group 4 - Segmented collective arrangements: these SCAs mirror the segmented individual arrangements in that the relationship between producers and buyers is quite strong and coordinated, requiring exclusivity from producers and many production standards for product differentiation. That said, these arrangements also provide a number of services and technical assistance to producers, as well as higher and stable prices, with regular payments. The difference with group 2 consists in the fact that the buyer is a collective organisation, most likely a cooperative, and the agreement rules are part of the rules of being a member of the cooperative. Moreover, these agreements establish mid-term relationships, lasting up to two years. They often require animal welfare standards and thus mostly involve livestock products.

Group 5 - Uniform collective arrangements: these SCAs mirror the uniform individual arrangements, with the main difference being that the buyer is a collective organisation, such as a cooperative, and the agreement rules are part of the rules of being a member of the cooperative. Moreover, these are long-term agreements establishing trade relationships lasting more than five years. As in the uniform individual arrangements, the level of commitment between the two parties is "intermediate", as they do not require exclusivity but

provide some services with the exclusion of technical assistance. Prices can be lower and less stable than in other SCAs, and costs can include quality testing.

Table 18 – Cluster analysis of SCAs

Variable	Group 1 Uniform individual	Group 2 Segmented individual	Group 3 Pure market	Group 4 Segmented collective	Group 5 Uniform collective
Main sale	Individual	Individual	Individual	Collective	Collective
Sale channels	Industry Cooperative	Cooperative Industry Wholesalers Local	Industry Cooperative	Cooperative	Cooperative
Type of agreement	Formal Before	Formal Before	Informal Before At sale	Membership rules Formal before	Membership rules Formal before
Duration	Only this sale	7 to 12 months	Only this sale	13 to 24 months	More than 5 years
Exclusivity	No	Yes	No	Yes	No
Price premium	Yes	Yes	No	Yes	Yes
Services	Yes	Yes	No	Yes	Yes
Technical assistance	No	No	No	Yes	No
N. of standards	2	4	2	3	3
Main standards	Quality Safety	Quality Safety Conservation GM free	Quality Safety	Quality Safety Animal welafre	Quality Safety Conservation
N. of ways the price is determined	2	1	1	4	2
Higher prices	No	No	No	Yes	No
Stable prices	No	Yes	No	Yes	No
Time of payment	After delivery	After delivery On a regular basis	After delivery	On a regular basis	After delivery
N. of costs due to the agreement	1	1	1	2	3
Main costs of the agreement	Logistic	Logistic	Logistic	Membership fee Logistic	Membership fee Logistic Quality testing

The most prevalent clusters of SCAs by commodity group is reported in table 19. Arable crop farms were prominent in terms of ‘uniform individual’ and ‘pure market’ arrangements, while ‘segmented collective’ arrangements were most prominent in dairy supply chains. The most prevalent SCAs among fruit farms were ‘pure market’ or ‘uniform collective’ arrangements, while feta cheese producers were ‘segmented individual’ or ‘pure market’ arrangements, suggesting that feta was either entering high quality markets for PDOs product or more undifferentiated spot markets (usually for local consumption). Beef producers in Alentejo were mainly engaged in longer-term relationships in the form of ‘uniform collective’ agreements, while Danish poultry producers were almost exclusively engaged in ‘uniform individual’ arrangements. The majority of wine and olive producers were engaged in ‘uniform individual/pure market’ and ‘pure market’ arrangements, respectively.

Table 19 – Distribution of farms by commodity group and cluster of SCA

	Uniform individual Group 1	Segmented individual Group 2	Pure market Group 3	Segmented collective Group 4	Uniform collective Group 5	N. of farms used for cluster analysis	% farms used for cluster analysis
Arable	145	60	184	66	47	**502**	60.0%
Milk	106	101	24	191	52	**474**	90.5%
Fruit	41	67	133	31	126	**398**	70.3%
Feta	11	59	65	1	0	**136**	91.9%
Beef	7	3	6	2	11	**29**	80.6%
Poultry	28	6	1	1	0	**36**	90.0%
Wine	26	0	25	10	5	**66**	60.0%
Olive	6	1	14	4	6	**31**	79.5%
Total N. of farms	**370**	**297**	**452**	**306**	**247**	**1672**	**72.7%**

In terms of farm characteristics, Table 20 reports detailed statistics for each commodity group and cluster. On average, family farms were more likely to be part of the 'uniform individual' and 'segmented collective' clusters. Younger farms were mainly in the 'uniform individual' cluster, while less educated farmers were in the 'pure market' arrangements. Regarding farm size, the largest farms in terms of hectares were in the 'segmented collective' cluster, while farms with more livestock heads were in the 'segmented individual' cluster. However, the types of farm and farmer distributed across the five SCA clusters varied depending on the case study, as evident from Table 20.

In terms of farmer satisfaction with the SCAs in the different clusters, Figure 8 shows that the most satisfied farmers were in the 'segmented collective' cluster, an indication of higher services and assistance received along with medium-term price stability. However, farms in the 'uniform collective' cluster were also broadly satisfied with their SCA. On the contrary, farmers in the 'segmented individual' cluster were the least satisfied. This may be due to excessive burdens due to the strong requirements of such contracts, which are not sufficiently counterbalanced by the advantages they provide in terms of prices and services.

Finally, clusters were evaluated in terms of their perceived sustainability (see Figure 9). As one can observe, arrangements where producers trade with collective organisations were perceived as the most sustainable, i.e. groups 4 and 5. Unsurprisingly, 'pure market' arrangements were perceived as the least sustainable. Indeed, this type of SCA does not require particular standards for natural resources conservation and the short-term nature of the arrangements means that producer-buyer relationships are more difficult to create, which may limit options for longer-term sustainability objectives.

Table 20 – Farms characteristics by cluster and commodity group

	Uniform individual		Segmented individual		Pure market		Segmented collective		Uniform collective	
ARABLE										
Legal status	Sole trader	80%	Sole trader	80%	Sole trader	79%	Sole trader	85%	Sole trader	68%
Age (years)	Less than 50	59%	51-65	50%	51-65 Less than 65	69%	41-50	44%	51-65	47%
Education	Higher secondary	49%	Higher secondary University	83%	Lower secondary Higher secondary	68%	Higher secondary	44%	Higher secondary	45%
Succession	No expectations	67%	No expectations Family member	88%	No expectations	58%	No expectations Family member	98%	Family member	64%
Farm size (Ha)	89.7		133.3		105.6		241.6		127.8	
Herd size (N. heads)	n/a		n/a		n/a		n/a		n/a	
N. farms	145		60		184		66		47	
MILK										
Legal status	Family farm	51%	Family farm	51%	Sole trader	75%	Sole trader Family farm	88%	Sole trader Family farm	71%
Age (years)	51-65	51%	51-65	49%	51-65	50%	51-65	47%	51-65	56%
Education	Higher secondary	54%	Higher secondary	47%	Higher secondary University	96%	Higher secondary	70%	Higher secondary	56%
Succession	Family member No expectations	92%	Family member No expectations	91%	No expectations	73%	No expectations Family member	88%	No expectations	60%
Farm size (Ha)	203.7		174.5		221.1		230.5		201.5	
Herd size (N. heads)	172.9		167.2		95.3		230.3		108.0	
N. farms	106		101		24		191		52	
FRUITS										
Legal status	Sole trader	80%	Sole trader	90%	Sole trader Family farm	97%	Sole trader Family farm	97%	Sole trader	79%
Age (years)	51-65 Less than 40	77%	Less than 65	90%	51-65	44%	51-65	39%	41-65	76%
Education	Lower secondary	46%	Lower secondary	43%	Lower secondary	58%	Higher secondary Lower secondary	65%	Higher secondary	56%
Succession	No expectations	56%	No expectations	64%	No expectations	77%	No expectations	67%	No expectations	70%
Farm size (Ha)	5.7		5.1		6.4		11.7		15.6	
Herd size (N. heads)	n/a		n/a		n/a		n/a		n/a	
N. farms	41		67		133		31		126	
FETA										
Legal status	Sole trader	82%	Sole trader	93%	Sole trader	92%	Sole trader	100%	0%	
Age (years)	51-65	45%	Less than 40	59%	Less than 40	52%	Less than 40	100%	0%	
Education	Primary	55%	Lower secondary	53%	Lower secondary	60%	Lower secondary	100%	0%	
Succession	No expectations	91%	No expectations	94%	No expectations	89%	No expectations	100%	0%	
Farm size (Ha)	15.9		17.2		16.5		10.1		0	
Herd size (N. heads)	163.2		194.0		177.7		170.0		0	
N. farms	11		59		65		1		0	
BEEF										
Legal status	Private company	43%	Private company	67%	Private company	75%	Family farm	100%	Private company	50%
Age (years)	51-65 Less than 40	86%	More than 65	67%	51-65	83%	41-65	100%	41-50	36%
Education	Primary Higher secondary	86%	Primary University	100%	Lower secondary	67%	Primary Higher secondary	100%	University	64%
Succession	Family member	67%	Family member	100%	No expectations Family member	100%	Family member	100%	Family member	100%
Farm size (Ha)	755.7		563.3		466.2		654.5		565.9	
Herd size (N. heads)	360.1		419.7		296.2		1250.0		345.5	
N. farms	7		3		6		2		11	
POULTRY										
Legal status	Sole trader	67%	Sole trader	67%	Sole trader	100%	Sole trader	100%	0%	
Age (years)	51-65	46%	51-65	50%	51-65	100%	Less than 40	100%	0%	
Education	Higher secondary	89%	Higher secondary	67%	University	100%	Higher secondary	100%	0%	
Succession	No expectations	46%	Sell property Family member	80%	No expectations	100%	No expectations	100%	0%	
Farm size (Ha)	206.8		233.3		250.0		405.0		0	
Herd size (N. heads)	90857.1		145333.3		140000.0		600000.0		0	
N. farms	28		6		1		1		0	
WINE										
Legal status	Family farm	72%	0%		Sole trader	50%	Family farm	70%	Family farm	60%
Age (years)	Less than 50	81%	0%		Less than 50	60%	Less than 40	50%	41-50 More than 65	80%
Education	University	52%	0%		University	72%	Higher secondary	70%	Higher secondary Lower secondary	100%
Succession	No expectations Family member	100%	0%		Family member	72%	No expectations	70%	Family member Sell property	80%
Farm size (Ha)	82.9		0.0		97.4		73.6		98.8	
Herd size (N. heads)	n/a		n/a		n/a		n/a		n/a	
N. farms	26		0		25		10		5	

(Continue) …

Table 20– (continued) Farms characteristics by cluster and commodity group

	Uniform individual		Segmented individual		Pure market		Segmented collective		Uniform collective	
OLIVE										
Legal status	Private company	50%	Private company	100%	Sole trader	64%	Family farm	75%	Family farm	67%
Age (years)	51-65	50%	Less than 40	100%	41-65	86%	51-65	100%	41-50	50%
Education	Higher secondary University	67%	University	100%	Higher secondary	50%	Higher secondary	50%	University	83%
Succession	Family member	100%	No expectations	100%	Family member	50%	0%		Family member Sell property	100%
Farm size (Ha)	243.7		500.0		200.1		617.8		810.3	
Herd size (N. heads)	n/a		n/a		n/a		n/a		n/a	
N. farms	6		1		14		4		6	
ALL FARMS										
Legal status	Sole trader Family farm	67%	Sole reader	67%	Sole trader	72%	Sole trader Family farm	90%	Sole trader	62%
Age (years)	Less than 50	52%	51-65	37%	51-65	37%	51-65	42%	51-65	41%
Education	Higher secondary	49%	Higher secondary Lower secondary	65%	Lower secondary	40%	Higher secondary	60%	Higher secondary	50%
Succession	No expectations	57%	No expectations	59%	No expectations	67%	No expectations Family member	92%	No expectations Family member	94%
Farm size (Ha)	135.4		102.9		76.0		211.6		121.6	
Herd size (N. heads)	16.9		5334.9		1574.8		3316.2		150.0	
Total N. of farms	**370**		**297**		**452**		**306**		**247**	

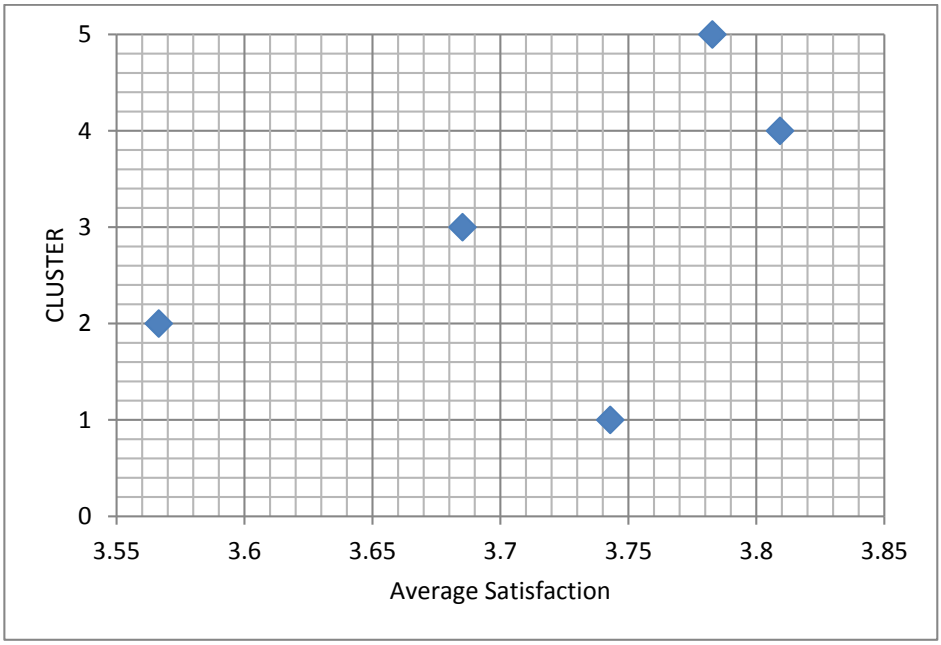


Figure 8 - Clusters by satisfaction score

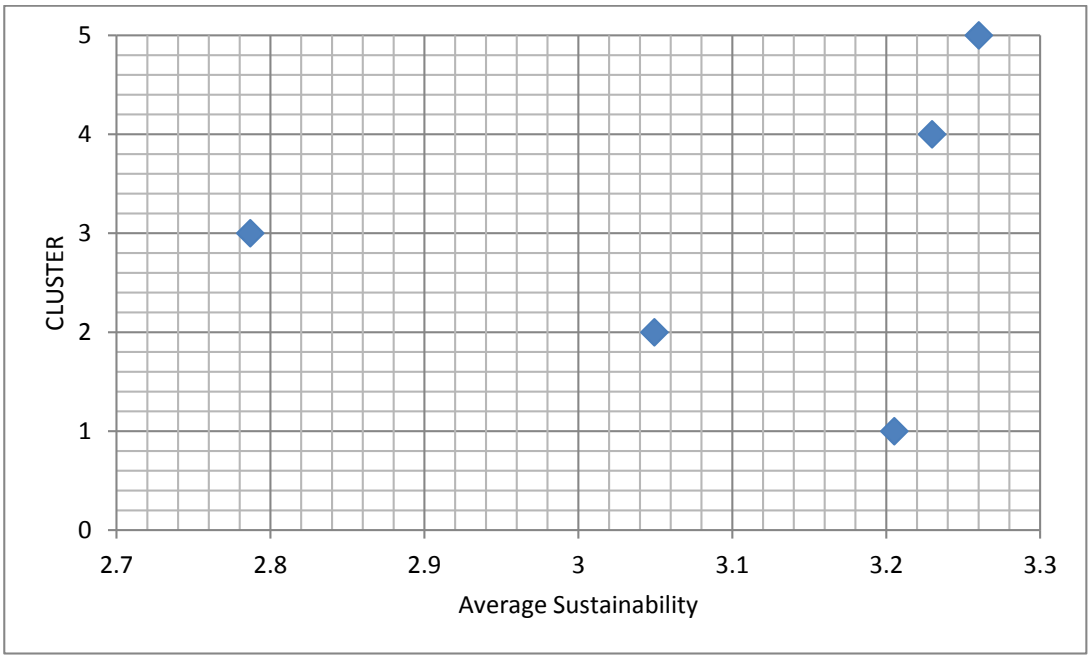


Figure 9 - Clusters by sustainability score

Conclusions

The business relationships in the food supply chain between primary producers and buyers of agricultural products are evolving rapidly and can affect the way farmers produce at the local level, as well as how agricultural goods are exchanged globally. From a farmer perspective, having a fair and transparent agreement for commercialising their product is of outmost importance. Having access to the market and generating sufficient income to make a living and to maintain farming activity depends on such agreements.

However, individual farmers find themselves in a price taker and information asymmetry position because of the smaller size of the farm business relative to larger, multinational, well-organized buyers and retailers. In order to reduce the vulnerable position of primary producers in the food supply chain, a series of initiatives are taking place at different levels. On the one hand, some private initiatives such as the “The Supply Chain Initiative” are trying to reduce the disparities among food supply chain actors by setting voluntary rules for fair trading practices. On the other hand, policymakers are increasingly aware that market failures do not protect enough primary producers from unfair trading practices.

These issues have been raised by farmers during the different research activities of the SUFISA project, highlighting the central role of SCAs as both a market condition and strategic objective in terms of how farms in different commodity sectors operate. This is a reminder that farms, ultimately, are businesses, which need profit continuity in order to survive and to remain on the market, and to keep delivering public goods and ecosystem services.

The SUFISA project has examined in detail the variety of SCAs among seventeen case studies across eleven EU Member States, including their role in terms of farming strategies and their future sustainability. In this report this has been done via a survey of 2299 farmers working in eight different commodity sectors.

The survey results show that there is a wide variety of sales channels. Some commodity groups are export oriented whilst others are selling products to local markets. Overall, the business-to-business relationship between single producers and individual companies are more frequent than the ones between farmers and producer organisations.

The analysis of the survey data in this report provides some key preliminary messages that can be useful for farming and food chain stakeholders and for policymakers:

- The most prevalent types of agreement across the eight commodity groups (arable crops, milk, fruits, feta cheese, extensive beef and olive production in Portugal, poultry in Denmark, and wine in Tuscany) were formal agreements that were signed before the delivery of the products and valid for a single delivery (e.g. contracts that can be legally enforced).
- SCAs can be different in type and duration, and agreements can contain different characteristics or rules. In the majority of SCAs logistical services (e.g. transport, storage, and handling) and managerial and technical assistance were provided to producers, which can obtain price premiums for delivering higher quality products, although exclusivity and automatic extension of the agreements can be required.
- SCA clauses favouring producers, such as safeguards against buyers’ failures or interests for delayed payments, were not well developed and were more prevalent in the arable crops and milk sectors.

- Farmers were somewhat satisfied by the SCAs they have in place, but measures for improving the stability of prices were lacking, as prices were often determined based on the quality and on the market price at the point of delivery.
- Sustainability of SCAs depended on the farming system characteristics. For example, producers in the beef and olive case studies in Portugal, which were characterised by extensive farming systems, had the most positive perception of their arrangement in terms of sustainability. On the contrary, feta cheese was perceived by producers in this sector as the least sustainable SCA, especially from a social point of view, where producers viewed farm succession as a significant sustainability issue.
- Regarding drivers for the future farming, the most challenging factors were input products and price volatility, which were not sufficiently dealt with by SCAs. On the other hand, access to credit for inputs and loans for investments were not considered a constraining factor for future production strategies. Products, partnerships and sales channel diversification were considered viable future marketing strategies.

All these elements are useful to identify categories of SCAs that apply to each case study. The most prevalent SCAs are grouped into five clusters and are characterised as follows.

1. *Uniform individual arrangements*: formal agreements between producers and individual businesses with an intermediate level of vertical coordination for a single delivery, providing low levels of service and requiring minimum standards for undifferentiated markets.
2. *Segmented individual arrangements*: formal agreements between producers and individual businesses with high levels of vertical coordination for a maximum of one year, providing services and assistance to farmers, but requiring more stringent production standards for differentiated markets.
3. *Pure market arrangements*: informal agreements that are not legally enforceable and determined “on the spot” between producers and individual businesses; these SCAs do not provide any services and require minimum safety and quality standards for undifferentiated products.
4. *Segmented collective arrangements*: formal agreements between producers and producer organizations with high levels of vertical coordination for usually a maximum of two years. These SCA provide services and assistance to farmers and require more stringent production standards for differentiated markets.
5. *Uniform collective arrangements*: formal agreements between producers and producer organisations with an intermediate level of vertical coordination for a longer-period (more than five years). These SCAs provide low levels of services and require minimum standards for undifferentiated markets.

Farmers engaging in segmented collective arrangements are the most satisfied, and uniform collective arrangements are considered the most sustainable SCAs.

The data collected during the SUFISA producer survey are rich and innovative in that there are few publicly available data concerning SCAs at an EU level. This report provides an important overview and analysis of the survey data and the key preliminary findings to inform a wider discussion on SCAs and food supply chains. More advanced analysis of the survey data is currently in progress, focusing on specific research questions concerning SCAs, the outputs of which will be published as scientific articles by the SUFISA partners.

References

Derville, M. and Allaire, G. (2014). Change of competition regime and regional innovative capacities: Evidence from dairy restructuring in France. *Food Policy*, 49: 347–360

European Commission (2018). Proposal for a Directive of the European Parliament and of the Council on unfair trading practices in business-to-business relationships in the food supply chain. COM(2018)173

Fałkowski, J., C. Ménard, R.J. Sexton, J. Swinnen and S. Vandevelde (Authors), Marcantonio, F. Di and P. Ciaian (Editors) (2017), Unfair trading practices in the food supply chain: A literature review on methodologies, impacts and regulatory aspects, European Commission, Joint Research Centre.

Gereffi, G., Humphrey, J. and Sturgeon, T. (2005). The governance of global value chains. *Review of International Political Economy*, 12(1): 2005: 78–104

Gower, J. C. (1971). A general coefficient of similarity and some of its properties. *Biometrics* 27: 857–871.

Hueth, B. and Marcoul, P. (2003). An Essay on Cooperative Bargaining in U.S. Agricultural Markets. *Journal of Agricultural & Food Industrial Organization*, 1(1): Article 10.

Markets Task Force Report (2016). Improving Market Outcomes – Enhancing the position of farmers in the supply chain. Report of the Agricultural Markets Task Force, Brussels, November 2016.

Menard, C. and Valceschini, E. (2005). New institutions for governing the agri-food industry. *European Review of Agricultural Economics*, 32 (3): 421–440

Meuwissen, M.P.M., Spiegel, A., Paas, W., Slijper, T., Dresvyannikova, V., Coopmans, I., Ciechomska, A., Lievens, E., Deckers, J., Vroege, W., Mathijs, E., Kopainsky, B., Herrera, H., Nitzko, S., Finger, R., De Mey, Y., Poortvliet, M., Nicholas-Davies, P., Midmore, P., Vigani, M., Maye, D., Urquhart, J., Balmann, A., Appel, A., Termeer, K., Feindt, P., Candel, J., Tichit, M., Accatino, F., Severini, S., Senni, S., Wauters, E., Bardají, I., Soriano, B., Zawalińska, K., Lagerkvist, C.J., Manevska-Tasevska, G., Hansson, H., Peneva, M., Gavrilescu, C., Reidsma, P., 2018. A framework to analyse the resilience of EU farming systems. Paper presented at ICAE, Vancouver, 28th July-3rd August 2018.

Salas, P.C. (2016). Relational Contracts and Product Quality: The Effect of Bargaining Power on Efficiency and Distribution. *Journal of Agricultural and Resource Economics*, 41(3):406–424

Sexton, R.J. (2012). Market power, misconceptions, and modern agricultural markets. *American Journal of Agricultural Economics*, 95(2): 209–219

Annex 1: COMMON SURVEY METHODOLOGY

Sampling strategy

The **sampling unit** of the survey is the primary producer, meaning farms. The **target population** is defined at the regional level, and it is comprised of farmers in a selected region producing the target commodity. Examples from the SUFISA case studies are:

- Farmers producing apples and pears in Flanders, Belgium
- Farmers producing beef in Montado, Portugal
- Farmers producing wine in Tuscany, Italy
- Dairy farmers in Somerset (and Devon), UK
- Dairy farmers in Latvia
- Arable farmers producing cereals in Île de France, France
- Etc.

Each partner will need to derive a **sample** (i.e. the group of farmers/fishers which provide the data to be collected) of primary producers in the region under study which is **representative** of the target population.

Obtaining a sample size

According to the DoW, the **sample dimension** should be between 150-300 primary producers in each case study. This number of primary producers should be enough to guarantee a **margin of error** lower than 10% for a significance level of 95% (commonly accepted limit of error for socio-economic research) in each case study.

The margin of error does not provide information about the potential bias of a sample, but it measures the reliability of the sample with respect to the population through a confidence interval. In other words, the margin of error measures how many percentage points the results of the survey differs from the value of the real population.

There are different ways for calculating the margin of error. For the purposes of this survey we suggest calculating the margin of error for a proportion. This can be done through the following formula:

$$ME = 1.96\sqrt{\frac{p(1-p)}{n}}$$

Where 1.96 is the *z*-score for 95% confidence, *p* is the sample proportion with respect to the population (*p*=*n*/*N*) and *n* is the sample dimension.
For example, the total number of dairy holdings in Somerset for 2013 is 493. Considering a sample size of 150 dairy holdings, the margin of error is calculated:

n = 150

N = 493

P = (*n*/*N*) = 150/493 =~0.3

$$ME = 1.96\sqrt{\frac{0.3(1-0.3)}{150}} = 0.073 = 7.3\%$$

The result means that the statistics resulting from surveying 150 dairy farmers in Somerset will be within a confidence interval of ± 7.3% of the real population value 95% of the time. In other words, the difference between the sample percent and the true population percent will be within the margin of error, at least 95% of the time.

For example, let's say that UK dairy farmers have to state their preference between arrangements A and B. From the survey results, 80% of dairy farmers prefer arrangement A. According to the margin of error calculated above, there is a 95% probability that between 72.7% and 87.3% (80% ± 7.3%) of the target population prefers arrangement A.

If the sample size were to increase from 150 to 300 dairy households the margin of error would be lower, 5.2%. Given that both sample sizes ensure an acceptable margin of error below 10%, the trade-off between the two should be judged against the extra resources and efforts that a larger sample would require.

This exercise should be done by each partner for each case study in order to obtain a minimum sample size which allows for a margin of error below 10% for a significance level of 95%.

Ensuring representativeness

After the sample size is determined, partners have to consider the **representativeness** of the sample, which depends on the sampling strategy and can be based on different characteristics of the target population.

Sample representativeness can be assured geographically (i.e. the sample can be stratified to reflect the number of farms distributed across provinces, villages) to account for potential heterogeneity in different agro-ecological zones, but also to avoid collecting data only in some districts where producers/buyers are concentrated. In such districts producers are likely to adopt the same SCA, therefore the risk is to miss important variability across the region.

Representativeness can be based also on farm size (i.e. the sample can be stratified to reflect the frequencies of different farm sizes in the regional population). The reason is that farm size can potentially affect participation in SCAs. For example, large corporate farms are more likely to have the knowledge and managerial skills to enroll into complex contractualization (Gereffi et al., 2005; Derville and Allaire, 2014).

The first step to design a representative sample is to obtain an (as much as possible) unbiased **sampling frame**, i.e. - the list of primary producers that will be (randomly) contacted for inclusion in the survey. A sampling frame can be obtained through:

- Census data;
- Local authorities;
- Primary producer organizations, associations, unions, cooperatives;
- Marketing companies;

- Data on subsidies.

The quality and the content of the sampling frame can affect the possibility of doing certain stratification. If the sampling frame does not provide information regarding farm location and/or size, stratifying for these parameters is not possible.

Moreover, bias can occur when the sampling frame excludes major portions of the population. For example, a list of farmers obtained through a farmer union excludes all the farmers who are not members of the union. Therefore, in order to appropriately represent the desired population, the sampling frame should be as close as possible to the entire population.

The second step is to stratify the sample according to the relevant parameters. For the stratification of the sample, farm census data at regional level are necessary. Sources of census data can be obtained from national statistical institutes or from Eurostat Regio (http://ec.europa.eu/eurostat/web/regions/data/database).

Table 2 provides an example of stratification by farm size for the dairy case study in Somerset based on the latest available agricultural census data from DEFRA (2013). The target population of dairy farms is composed by 493 holdings, distributed across five groups of farm sizes as shown in column two. Column three provides the proportion (percentage) of Somerset's dairy farms in each group of farm size, which is used to calculate the actual number of farms that need to be surveyed for each group.

Tab.2 – Sample stratification by farm size of dairy farms in Somerset

Holding dimension	Number of holdings in Somerset by farm size	Proportion of holdings by farm size (weight of strata)	Sample of holdings by farm size
Less than 4.99 Ha	58	0.12	18
5 to 19.9 Ha	144	0.29	44
20 to 49.9 Ha	97	0.20	30
50 to 99.9 Ha	84	0.17	26
More than 100 Ha	109	0.22	33
Total	493	1	150

Source: UoG calculation on DEFRA data

For example, 144 dairy farms in Somerset have an area of between 5 Ha to 19.9 Ha. This stratum contains 29% of Somerset's dairy farms (144/493). This proportion should be represented also in the sample of 150 dairy farms, by surveying about 44 farms (0.29*144).

The same type of calculation can be done for the stratification of other parameters of the target population, such as by the farmers' age or by the number of farms per province/village.

In order to obtain a **stratified sample with a random selection of the sample units**, the primary producers to be surveyed need to be randomly selected from the sample frame (the list of farms' contacts).
During the survey the representativeness of each stratum should be controlled and potential biases can be reduced through a system of quotas – i.e. to survey additional producers of underrepresented strata.

Ensuring representativeness and unbiasedness through **quotas** depends on the sampling frame:

- For census data or other exhaustive lists of producers (e.g. from local authorities or data on subsidies) using random selection, missing observations should be replaced by similar ones;
- In cases where partners sample through local institutions (PO, unions, etc), the sample should be completed by recurrent checks for representativeness during data collection, contacting additional producers of underrepresented strata.

Finally, in the case of an online survey (see next section), sample representativeness can be ensured through the following steps:

1. Sending the invitation to complete the survey to the entire population;
2. Correcting the un-representativeness by contacting additional farmers to re-balance the sample.

Data collection

The selection of the most appropriate method for data collection should be evaluated balancing the availability of resources, the primary producers' preferences and the quality of data collected.

It is **recommended** to collect data through telephone interviews, which allow a good balance between the resources needed to complete the survey, the rate of producers' response and the quality of the data collected.

Partners can decide for alternative data collection methods, such as face-to-face interviews or internet survey. It should be noted that costs for face-to-face interviews can be significantly higher than for telephone interviews, and that online surveys can have a low response rate due to primary producers unfamiliarity with the use of the internet, as well as lower representativeness due to the low control that the researcher has on the sampling of the respondents with respect to telephone or face-to-face interviews (see previous section). It is possible also for partners to combine survey methods (e.g. internet survey and telephone survey) if that is deemed the best strategy to achieve a good, representative response.

For example, in the UK dairy farmers are unlikely to respond to an internet survey. Therefore, the best method in the UK is telephone interviews that would allow a good response rate and at the same time requires less financial resources than face-to-face interviews.

Tab. 3 – Timing of the producer survey for the SUFISA project

Task		Timing	Comment
1	**Survey design guidelines and questionnaire**	March (Month 23) till Sept 2017 (Month 29);	
2	**Pilot producer survey**	Sept 2017 (Month 29)	
3	**Preparation for final survey**	Early Oct 2017 (M30)	Final check from partners and feedback from pilot survey. Preparation of the survey at the CS level: translation of the questionnaire and preparation of the data entry software (CSPro, Excel, etc)

4	**Run producer survey**	Nov 2017 (Month 31) till Jan 2018 (Month 33)	
5	**Merge individual survey databases**	End Jan 2018 (Month 33)	Individual partner survey databases returned to UoG.
6	**Producers' survey report (D 2.4)**	Nov 2018 (Month 36)	Cross-comparative analysis of CSP across 22 regions.

Data will be collected from the representative sample of primary producers using a common questionnaire of 20-35 minutes. The collection of the data will follow three consecutive steps (see Table 3 for the timing of each step):

1) Pre-piloting (Q-Test) – As a step prior to the data collection and questionnaire translation by partners, the UoG and UJ teams will test the common questionnaire to ensure that primary producers understand what is required.
2) Pilot survey – Each partner will pilot the questionnaire interviewing up to 10% of the primary producers in the sample. For example, for a final sample of 150 producers, the pilot can be run on about 15 producers. The aim of the pilot is to identify key issues emerging during the interviews, such as length of the questionnaire, whether the style of the questions is appropriate, verify potential sources of misunderstanding from both interviewer and interviewee in order to reduce errors in data collection, whether the answers actually respond to the objectives of the survey and whether the methodology of data collection (telephone, internet, face-to-face,…) is the most appropriate one. The pilot survey will be included in the final sample; however, if the questionnaire significantly changes after this phase, the primary producers of the pilot will be re-contacted and the modified/additional questions will be asked again in order to ensure homogeneity with the final survey. Partners are asked to provide UoG and KUL with feedback from the pilot, so that all relevant amendments to the common questionnaire will be included before the final survey.
3) Final survey – After a final check of the common questionnaire and the resolution of any other pending issues, each partner will conduct the survey on the whole sample. After completion of the survey, each partner will deliver the result of the survey with the common questionnaire to the WP leader in a dataset format common across the consortium (see below).

Partners can decide to use a survey processing system. The preference for a specific survey system can be motivated by different reasons: some partner may already be familiar with a certain survey tool; some universities already have their own survey processing systems; some partners may hire a marketing company which uses its own survey tool. For example, the University of Gloucestershire provides the *BOS online survey tool* which is fully compliant with all UK data protection laws.

Definitions

Collective organization: an organization involving horizontal cooperation among farmers, such as a cooperative or a producers' organization.

Commission on sales: is an additional compensation, an extra-fee, that buyers might get from producers for selling them the commodity.

Cooperative: cooperatives are enterprises that serve the needs of their members who contribute to their capital. They achieve their objectives through a jointly-owned and democratically-controlled enterprise. Cooperatives have defining characteristics: i) an open and voluntary association; ii) a democratic structure with each member having one vote; iii) an equitable and fair distribution of economic results.

Direct sales: transactions are negotiated at the time of sale, just prior to delivery.

Exporter: is a company or an individual whose business is buying goods and resells them to another country's market

Farm income: is composed by the profits generated by the farm (commodity + other products/activities of the farm), plus the subsidies to the farming activity, but excluding the expenses.

Framework contract: collective contracts negotiated by producer organisations or associations of producer organisations at a regional or national level, used by two parties (seller and buyer) to establish the terms of a transaction before or during the production of the commodity. It has a legal status.

Individual contract: a contract designed and agreed between two parties (seller and buyer) before or during the production of the commodity, which has a legal status.

Informal agreement: written or oral agreements before or during the production of the commodity, which cannot be legally enforced.

Interbranch organisations: are vertically integrated organisations which comprise producers and at least one member of the processing or trading part of the supply chain. Interbranch organisations provide a means of allowing dialogue between actors in the supply chain, and of promoting best practices and market transparency.

Natural person: in legal meaning is a person who has its own legal personality, as opposed to a legal person, which may be a private organization (i.e. private company) or public organization (i.e. government).

Producer organization: a legally-constituted group of farmers and growers, recognized by national authorities as meeting a number of requirements such as: i) being voluntary; ii) contributing to the general aims of the organization; iii) proving its utility by the scope and efficiency of the services to members. A recognised PO may set up an operational fund to finance its programme, financed by the contributions of its members and EU financial assistance. Producer organisations assist in the distribution and marketing of products and encourage members to adopt quality and environmental standards. Producer organisations can group themselves into associations of producer organisations and into inter-branch organisations.

Public-private partnership: is a mixed type of ownership consisting of an agreement for cooperation between one or more public companies and one or more private companies.

Supermarket: a supermarket is a large selling shop that can be part of a global network (e.g. Tesco, Carrefour, Spar) or national network (e.g. Żabka, Delhaize, Corte Igles).

Trader: is a company or an individual whose business is buying goods and resells them to other businesses (similar to wholesaler).

Wholesaler: is a company whose business is buying large quantities of goods from various producers, store them and resells them to other businesses in smaller amounts, for example to shops, restaurants/catering, public sector institutions (e.g. hospitals, schools) or supermarkets/retailers (similar to trader).

Annex 2: COMMON QUESTIONNAIRE

FOR THE INTERVIEWER:

For this survey, the interviewee should be the person in charge of running the farm, therefore the farm owner or manager.

All information should refer to the business's latest completed financial year, which can be the calendar year 2016, or the accounting year 2016-2017, or the last 12 months, depending on the Case Study.

During the interview and throughout the questionnaire, the word [*Commodity*] must be replaced with your case study product: Wheat; Cereals; Sugar beet; Oilseed rape; Milk; Feta; Top fruits (apple, pears, peaches, etc.); Raspberries; Beef; Poultry; Wine; Olive; Fish.

For the option "Other, please specify" which is coded 7777, you have additional columns in the excel dataset where you can enter a few explanatory words next to the code (see guidelines for more details).

SECTION A. *Farm Characteristics*

FOR THE INTERVIEWER:
This section asks general questions about the farm business.

QA.1 is a filter question, it is useful to reach the target population.

In QA.2 "Natural person/Individual farm/Sole trader" are under the same code as they are different terminology to indicate similar legal status across the Case Studies. Therefore, please use the most appropriate terminology for your Case Study.

READ OUT TO THE FARMER:
Thank you for agreeing to be part of this survey, your answers will be treated confidentially and anonymously. We will start with a few questions about your farm business.

QA.1) First of all, can you confirm that [*Commodity*] made up at least part of your farm business during the latest completed financial year?

Yes	1
No	0

FOR THE INTERVIEWER:
If the answer to QA.1 is "No" (code 0), meaning that the commodity is not part of the producer's business, the interview ends. Therefore, the interviewer can thanks and end the interview.

QA.2) What is the farm's legal status? Please select **one** option.

Natural person/Individual farm/Sole trader	1
Family farm partnership	2
Private company	3
Publicly owned	4
Public-private partnership	5
Cooperative	6
Other, please specify	7777
Do not know	9999

QA.3) What is the total area of land that you farm? Please include both rented and owned land

Total hectares: …….ha

QA.4) How much of the total hectares was cultivated with or for [*Commodity*]? *This would include land used for growing fodder crops in case studies involving livestock, e.g – milk, beef, poultry.*

[*Commodity*] : …….ha

FOR THE INTERVIEWER:
Question QA.5 is not applicable in those case studies not involving livestock production.
If not applicable, enter the code "8888".

QA.5) How many animals do you have for [*Commodity*] (herd size of cows in milk/lactating, or beef cattle over 2 years, or yearly production of chickens)? (*Enter 8888 "Not applicable" if the case study does not involve livestock production*)

Animals:	……. number
Not applicable:	8888

QA.6) Please indicate the percentage of your production of [*Commodity*] that is certified organic:

Certified organic production:……%

SECTION B. *Sales channels*

FOR THE INTERVIEWER:
Here we are going to ask about the way the producer sold the entire production of [*Commodity*] in the business's latest completed financial year (calendar year 2016, or the accounting year 2016-2017, or the last 12 months).

See the guidelines for some definitions of marketing channels in QB3 to QB15.

For the option "Other, please specify", here you can enter a percentage, but you also have additional columns in the Excel dataset where you can enter a few explanatory words (see guidelines for more details).

READ OUT TO THE FARMER:
From now on, I am going to ask you about how you sell your production of [*Commodity*].

QB.1) Please indicate the total production of [*Commodity*] in the latest completed business's financial year

Amount of production in units: ……. (l, t, number, etc.)

QB.2) What percentage of your production of [*Commodity*] have you sold? This excludes products stored or used for self-consumption.

Production sold: …….%

READ OUT TO THE FARMER:
To whom did you sell your production of [*Commodity*] in the business's latest completed financial year? Please breakdown your marketing channels as a percentage of total sales.

COLLECTIVE	QB.3	Cooperative	……..%
	QB.4	Producer organization (PO)	……..%
	QB.5	Inter-branch organization (IBOs)	……..%
	QB.6	Farmers' union and association	……..%
	QB.7	Others, please specify	……..%
	QB.8	**Total collective**	**……..%**
INDIVIDUAL	QB.9	Local markets (including farmers' markets) or final consumers	……..%
	QB.10	Independent small shops or restaurants	……..%
	QB.11	Processors/agri-food industry	……..%
	QB.12	Supermarkets/retailers chains	……..%
	QB.13	Traders/Wholesalers	……..%
	QB.14	Exporters	……..%
	QB.15	Others, please specify	……..%
	QB.16	**Total individual**	**……..%**
TOTAL COLLECTIVE AND INDIVIDUAL SALES			**100%**

FOR THE INTERVIEWER:
In the following questions, QB.17-QB.34, we ask about farmer's membership to collective organizations. Collective organizations provide a series of services to their members (extension services, training, collective facilities, etc…), but for the scope of this survey in these questions we are asking exclusively about services related to sales.

QB.17) Are you a member of a cooperative?

Yes	1
No	0

If YES, what type of services does the cooperative provide to you in term of selling your products?

		YES	NO	Not applicable	Do not know
QB.18	The cooperative buys my production	1	0	8888	9999
QB.19	It puts me in contact with a buyer	1	0	8888	9999
QB.20	It negotiates the price for me with a buyer	1	0	8888	9999
QB.21	It supports the design of the terms of the contract/transaction (e.g. contract duration, price) with a buyer	1	0	8888	9999
QB.22	Other, please specify	1	0	8888	9999

QB.23) Are you a member of a Producers Organization?

Yes	1
No	0

If YES, what type of services does the Producers Organization provide to you in term of selling your products?

		YES	NO	Not applicable	Do not know
QB.24	The Producers Organization buys my production	1	0	8888	9999
QB.25	It puts me in contact with a buyer	1	0	8888	9999
QB.26	It negotiates the price for me with a buyer	1	0	8888	9999
QB.27	It supports the design of the terms of the contract/transaction (e.g. contract duration, price) with a buyer	1	0	8888	9999
QB.28	Other, please specify	1	0	8888	9999

QB.29) Are you a member of a farmers' union/association?

Yes	1
No	0

If YES, what type of services does the farmers' union/association provide to you in term of selling your products?

		YES	NO	Not applicable	Do not know
QB.30	The farmers' union/association buys my production	1	0	8888	9999
QB.31	It puts me in contact with a buyer	1	0	8888	9999
QB.32	It negotiates the price for me with a buyer	1	0	8888	9999
QB.33	It supports the design of the terms of the contract/transaction (e.g. contract duration, price) with a buyer	1	0	8888	9999
QB.34	Other, please specify	1	0	8888	9999

SECTION C. *Characteristics of sale agreements*

FOR THE INTERVIEWER:
In this section we talk about sales agreements. With "sale agreement" we mean the set of conditions that characterise a commercial transaction.
Transactions occur between producers and buyers, where buyers can be collective organizations or individual businesses, as listed in Section B.
In the case of individual sales, the transaction's characteristics can be specified in a contract or in an informal agreement, but in the case of sales to collective organizations the transaction's characteristics can be part of the rules/conditions of being a member of the collective organization,
Therefore, when you fill in QC.2 to QC1.12 for sales to individual businesses, please refer to the contracts/informal arrangements characteristics; on the contrary, when you fill in QC.2 to QC1.12 for sales to collective organizations, please refer to the membership's rules/conditions.

This section focuses on the main sale of [*Commodity*] - i.e. the sale with the largest percentage in questions QB.3-QB.7 or QB.9-QB.15.
In most cases producers sell their entire production of [*Commodity*] to a single buyer through one sale agreement (i.e. a single transaction). If this is the case, fill-out this section focusing on the single sale agreement.
If the producer has a number of different sales to different buyers with different agreements (i.e. multiple transactions), then please fill-out this section only once by focusing on the sale agreement with the largest percentage in terms of total sales in questions QB.3-QB.7 or QB.9-QB.15.
In exceptional circumstances, where there are a number of sales which are approximately equivalent in terms of value/monetary terms (%), then more than one sale agreement may be recorded by filling out this section more than once. See the guidelines for examples.

READ OUT TO THE FARMER:
Now I am going to ask you questions that focus on your main sale for [*Commodity*].

QC.1) With reference with your main sale of [*Commodity*], can you please confirm that:

The main sale was to a COLLECTIVE organisation such as in QB.3-QB.7	1
The main sale was to an INDIVIDUAL business/person such as in QB.9-QB.14	2

QC.2) What is the type of agreement you have for this sale? Please select one of the following

A legal contract or oral agreement before or during the production phase, which can be legally enforced	1
A legal contract or oral agreement at the time of sale, just prior to delivery, which can be legally enforced	2
A written or oral agreement before or during the production phase, which cannot be legally enforced (informal agreement)	3
A written or oral agreement at the time of sale, which cannot be legally enforced (informal agreement)	4
Membership rules/conditions of the collective organization (e.g. cooperative, producer organization, farmers' union or association)	5
Other, please specify	7777
Not applicable	8888
Do not know	9999

QC.3) What is the duration of this sale agreement/membership in a collective organization? Please select one of the following

Only for this particular sale	1
Less than 3 months	2
From 3 to 6 months	3
From 7 months to 1 year	4
From 13 months to 2 years	5
From 25 months to 5 years	6
More than 5 years	7

What are the characteristics of this sale agreement/membership in the collective organization? (i.e. the characteristics of contracts, or membership rules of a collective organization, or informal agreements)

		YES	NO	Not applicable	Do not know
QC.4	It requires exclusivity, i.e. – you have to sell 100% of the [*Commodity*] production to this buyer/collective organization	1	0	8888	9999
QC.5	There are penalties if you fail to deliver the agreed quantities	1	0	8888	9999
QC.6	There are safeguards if the buyer fails to fulfil the agreement	1	0	8888	9999
QC.7	There are price premiums for delivering higher quality products	1	0	8888	9999
QC.8	You receive interest in case of delayed payments from the buyer	1	0	8888	9999
QC.9	You receive services like collection, storage, transport, handling, etc.	1	0	8888	9999
QC.10	You receive managerial support or technical assistance	1	0	8888	9999
QC.11	You receive credit assistance (information on credit products, bank loan guarantee, etc.)	1	0	8888	9999
QC.12	You receive special assets, technology and/or machinery	1	0	8888	9999
QC.13	There is an automatic extension mechanism in the agreement (e.g. evergreen contracts)	1	0	8888	9999
QC.14	Other, please specify	1	0	8888	9999

QC.15) What price did you receive in this sale agreement? Please provide an indicative average price per-unit (e.g. €/t, €/l) for the business's latest completed financial year.

Indicative price:	……. (e.g. €/t, €/l, €/n)
Do not know:	9999

QC.16) What percentage of the above selling price represents the cost of production?

Costs:	……. %
Do not know:	9999

On what basis is the price of [*Commodity*] determined by the agreement?

		YES	NO	Not applicable	Do not know
QC.17	Variable price based on production costs	1	0	8888	9999
QC.18	Variable price based on delivered quantity	1	0	8888	9999
QC.19	Variable price based on delivered quality	1	0	8888	9999
QC.20	Variable price linked to the market price at the time of delivery	1	0	8888	9999
QC.21	Variable price based on share of organization's profit	1	0	8888	9999
QC.22	The price is fixed at the beginning of the agreement and does not change	1	0	8888	9999
QC.23	Other, please specify	1	0	8888	9999

According to the agreement of this sale/membership rules of a collective organization, when do you get paid? Please select one option

		YES	NO	Not applicable	Do not know
QC.24	Entirely before the delivery of products	1	0	8888	9999
QC.25	Entirely at the time of delivery of products	1	0	8888	9999
QC.26	Entirely after the delivery of products	1	0	8888	9999
QC.27	A percentage in the middle of the season and the rest at the time of delivery of products or after	1	0	8888	9999
QC.28	On a regular basis (e.g. daily, weekly or monthly)	1	0	8888	9999
QC.29	Other, please specify	1	0	8888	9999

In this sale agreement, which of the following costs do you incur?

		YES	NO	Not applicable	Do not know
QC.30	Membership fee to the organization	1	0	8888	9999
QC.31	Collection, storage, transport, handling, etc	1	0	8888	9999
QC.32	Promotional and marketing costs	1	0	8888	9999
QC.33	Commission/margin on sales	1	0	8888	9999
QC.34	Costs of quality testing	1	0	8888	9999
QC.35	Other, please specify……	1	0	8888	9999

Does the buyer/collective organization require specific production/quality standards that you have to comply with?

		YES	NO	Not applicable	Do not know
QC.36	Standards on the quality of the final product(s) (taste, colour, shape, nutritional content, chemical composition, etc…)	1	0	8888	9999
QC.37	Standards on food safety and hygiene for human consumption of the final product(s)	1	0	8888	9999
QC.38	Standards on natural resources and nature conservation (organic production, integrated pest management, conservation agriculture, no- or minimum-tillage, biodiversity, etc…)	1	0	8888	9999
QC.39	Standards on animal welfare	1	0	8888	9999
QC.40	Standards on mitigation and adaption to climate change (CO2 footprint, zero km, etc…)	1	0	8888	9999
QC.41	Genetically Modified (GM)-free standards	1	0	8888	9999
QC.42	Other, please specify	1	0	8888	9999

QC.43) On a scale from 1 to 5, how satisfied are you with this sale agreement?

Completely unsatisfied	Somewhat unsatisfied	Neither unsatisfied nor satisfied	Somewhat satisfied	Completely satisfied	Do not know
1	2	3	4	5	9999

On a scale from 1 (**strongly disagree**) to 5 (**strongly agree**) how much do you agree with the following statements regarding your satisfaction with respect this sale agreement?

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Not applicable	Do not know
QC.44	I do not have any alternative options to sell my products	1	2	3	4	5	8888	9999
QC.45	This sale agreement provides higher prices than alternative buyers	1	2	3	4	5	8888	9999
QC.46	This sale agreement provides more stable prices from year to year than alternative buyers	1	2	3	4	5	8888	9999
QC.47	This sale agreement provides more possibilities for negotiating prices	1	2	3	4	5	8888	9999
QC.48	There are delays in the payments	1	2	3	4	5	8888	9999
QC.49	The costs associated with this sale agreement are too high (e.g. storage, marketing and promotion, commission on sales)	1	2	3	4	5	8888	9999
QC.50	The production/quality standards required are too restrictive	1	2	3	4	5	8888	9999
QC.51	Other, please specify	1	2	3	4	5	8888	9999

SUBSECTION C1. *Sustainability*

FOR THE INTERVIEWER:
This section is about the potential impact on sustainability of sales agreement.

QC1.2 is not applicable for Case Studies not involving livestock production(e.g. fruits, sugar beet, cereals, wine)

Please assign a score from 1 (**strongly disagree**) to 5 (**strongly agree**) regarding the potential impact of sustainability of the sale agreement/membership rules to the collective organization.

The production choices you made in relation to your main sale agreement/membership in collective organization helped you to:

			Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Not applicable	Do not know
Environment	QC1.1	Maintain biodiversity	1	2	3	4	5	8888	9999
	QC1.2	Support animal welfare	1	2	3	4	5	8888	9999
	QC1.3	Maintain water quality	1	2	3	4	5	8888	9999
	QC1.4	Maintain soil organic matter	1	2	3	4	5	8888	9999
Society	QC1.5	Create a good connection with buyers and input providers	1	2	3	4	5	8888	9999
	QC1.6	Connect with other farmers	1	2	3	4	5	8888	9999
	QC1.7	Achieve societal recognition of your farming activities	1	2	3	4	5	8888	9999
	QC1.8	Secure a successor	1	2	3	4	5	8888	9999
Economic	QC1.9	Maintain profitability	1	2	3	4	5	8888	9999
	QC1.10	Invest in the farm business	1	2	3	4	5	8888	9999
	QC1.11	Sell the products in periods of greater difficulty where prices were low	1	2	3	4	5	8888	9999
	QC1.12	Cope with changing market conditions	1	2	3	4	5	8888	9999

SECTION D. *Strategies and drivers of farming*

FOR THE INTERVIEWER:
This section is about the wider strategies producers adopt in their farming activities.
Specifically, we are going to ask questions about potential factors that can drive farming decisions, such as adverse climatic conditions, pests, and market volatility.

READ OUT TO THE FARMER:
Now I am going to ask you questions about your wider farming practices and strategies

To what extent might the following factors influence your decisions regarding your production and farming strategies for [*Commodity*]? Please assign a score from 1 (**not at all)** to 5 (**strongly influenced**)

		Not at all	Partly	Somewhat	Considerably	Strongly	Not applicable	Don't Know
QD.1	Adverse climatic conditions or pests (e.g. hail, drought, floods, animal disease)	1	2	3	4	5	8888	9999
QD.2	Fluctuation of input prices from year to year (seeds, fertilizers, pesticides, fuel, energy, feed, etc…)	1	2	3	4	5	8888	9999
QD.3	Severe drop in market prices	1	2	3	4	5	8888	9999
QD.4	Changes in consumers behaviour and/or preferences	1	2	3	4	5	8888	9999
QD.5	Access to loans for capital investments	1	2	3	4	5	8888	9999
QD.6	Access to credit for farms consumable inputs or materials	1	2	3	4	5	8888	9999
QD.7	Change of farming regulations (e.g. nitrate, water and pesticides regulations)	1	2	3	4	5	8888	9999
QD.8	Changes in the CAP (single farm payment and agri-environmental payments)	1	2	3	4	5	8888	9999
QD.9	Other, please specify	1	2	3	4	5	8888	9999

QD.10) What are your strategies for the development of [*Commodity*] farming within the context of your farm business in the coming 5 years? Please select **one** option.

I plan to maintain the existing scale of operations	1	**FOR THE INTERVIEWER:** GO TO QUESTION QD.11 AND CONTINUE FROM THERE, INCLUDING QD.24
I plan to expand the existing scale of operations	2	**FOR THE INTERVIEWER:** GO TO QUESTION QD.11 AND CONTINUE FROM THERE, INCLUDING QD.24
I plan to downscale the existing scale of operations	3	**FOR THE INTERVIEWER:** GO TO QUESTION QD.11.AND CONTINUE FROM THERE, INCLUDING QD.24
I plan to abandon farming	4	**FOR THE INTERVIEWER:** GO TO QUESTION QD.24 AND CONTINUE FROM THERE
I do not know	9999	**FOR THE INTERVIEWER:** GO TO QUESTION QD.24 AND CONTINUE FROM THERE

For the strategies above, what changes to your [*Commodity*] farm business do you expect to implement in the coming 5 years?

Production related changes:

		YES	NO	Not applicable	Do not know
QD.11	I plan to invest more in production facilities	1	0	8888	9999
QD.12	I plan to externalize particular aspects of my operations	1	0	8888	9999
QD.13	I plan to specialize my production	1	0	8888	9999
QD.14	I plan to insure against crop/livestock losses	1	0	8888	9999
QD.15	I do not have specific plans	1	0	8888	9999
QD.16	Other, please specify	1	0	8888	9999

Market related changes:

		YES	NO	Not applicable	Do not know
QD.17	I plan to diversify into new crops/products	1	0	8888	9999
QD.18	I plan to insure against volatile prices and costs to avoid loss of income	1	0	8888	9999
QD.19	I plan to develop new partnerships (for instance with other producers, retailers, processors)	1	0	8888	9999
QD.20	I plan to develop new sale channels for my [*Commodity*] products	1	0	8888	9999
QD.21	I plan to add value to the *commodity* that I produce (e.g. conversion to organic)	1	0	8888	9999
QD.22	I do not have specific plans	1	0	8888	9999
QD.23	Other, please specify	1	0	8888	9999

QD.24) What is your current expectation for the succession of your farm?

I have no expectations at present	1
I expect a family member to take over the farm (e.g. son, daughter, brother)	2
I expect to sell the property	3
I expect to give up the tenancy	4
Other, please specify	7777
Do not know	9999

SECTION E. *Farmer / Interviewee Characteristics*

QE.1) What is your status on the farm?

Farm owner	1
Farm manager	2
Owner and farm manager	3
Farm tenant (does not own the land but rents it and manages the farm)	4
Other, please specify	7777
Do not know	9999

QE.2) In which age group do you belong?

40 or less	1
41-50	2
51-65	3
>65	4
Don't know	9999

QE.3) Gender:

M	1
F	2

QE.4) What is your highest level of education?

Primary	1
Lower secondary	2
Higher secondary/College/Vocational	3
University	4
Do not know	9999

QE.5) Do you have a specific educational qualification in agriculture (e.g. agricultural degree, diploma, etc.)?

Yes	1
No	0

READ OUT TO THE FARMER:
The interview is finished, thank you for participating to the survey and having answered to the questions. I want to remind once again that your answers will remain confidential.

SECTION F. *Administrator Sheet*

FOR THE INTERVIEWER:
This section can be filled in by the interviewer with no need to ask the questions to the producer. Most questions can be filled in before the interview starts, while some others can be filled in at the end of the interview.
Having the name of the interviewer will be useful in order to trace back any possible errors, inconsistencies or queries.

QF.1) **Farm ID** (Please enter a unique identifier for the farm, which starts with the following code for your country, followed by a four digit number, e.g. UK0001)	Belgium: BE Denmark: DK France: FR Germany: DE Greece: GR Italy: IT Latvia: LV Poland: PL Portugal: PT Serbia: RS United Kingdom: UK
QF.2) **Country** (Please select from the list)	1. Belgium 2. Denmark 3. France 4. Germany 5. Greece 6. Italy 7. Latvia 8. Poland 9. Portugal 10. Serbia 11. UK
QF.3) **Region** (Please select from the list)	1. Flanders 2. Wallonia 3. Southern Denmark 4. Central Denmark 5. Île de France 6. Finistère 7. Wetterau 8. Northern Greece 9. Thessaly, Central Greece 10. Tuscany

	11. Emilia-Romagna 12. Latvia 13. Opolskie 14. Malopolska 15. Central Alentejo 16. Southern Alentejo 17. Vojvodina 18. Sumadija and West Serbia 19. Somerset 20. Devon 21. Cornwall
QF.4) **Commodity** (Please select from the list)	1. Wheat 2. Cereals 3. Sugar beet 4. Oilseed rape 5. Milk 6. Feta 7. Top fruits (apple, pears, peaches, etc.) 8. Raspberries 9. Beef 10. Poultry 11. Wine 12. Olive 13. Fish
QF.5) **Interviewer's name** (Please enter the name of the interviewer)	_ _ _ _ _ _ _ _ _ _ _ _ _ _ _
QF.6) **Date of the interview**	|__|__| / |__|__| / |__|__|
QF.7) **Time start**	|__|__| : |__|__|
QF.8) **Time end**	|__|__| : |__|__|
QF.9) **Evaluation of the level of farmer's understanding of answers** (Please select from the scale from 1 to 5)	1 Very bad 2 Bad 3 Normal 4 Good 5 Very good
QF.10) **Explain the score given in QF.9 if necessary** (Please enter an explanation)	_ _ _ _ _ _ _ _ _ _ _ _ _ _ _