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Content

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	French	English
AECM		Agri-Environmental and Climatic Measures
AEM		Agri-Environmental Measures
AESN	Agence de l'eau Seine-Normandie	Water Agency of the Seine Watershed
AGPB	Association Générale des Producteurs de blé	General association of wheat producers (affiliated to the FNSEA)
CAP		Common agricultural policy
CDOA	Comité Départemental d'Orientations Agricoles	District committee for agricultural orientations
CMO		Common Market Organization
CNIEL	Centre nationale interprofessionnel de l'économie laitière	National centre of the inter-branch organisation for the milk economy
CRIEL	Centre régional interprofessionnel de l'économie laitière	Regional centre of the inter-branch organisation for the milk economy
DDT	Direction départementale des territoires	District council for territorial development
DGCRF	Direction générale de la concurrence et de la répression des fraudes	General Directorate for Competition Policy, Consumer Affairs and Fraud Control
DPA	Dotation pour aléas	Hazard allocation
EC		European Commission
EU		European Union
FDSEA	Fédération départementale des syndicats d'exploitants agricoles	District federatioin of agricultural unions
FNCL	Fédération national des coopératives laitières	National federation of dairy cooperatives
FNIL	Fédération nationale des industries laitières	National federation of dairy processors
FNPL	Fédération nationale des producteurs laitiers	National federation of dairy producers (affiliated to the FNSEA)
FNSEA	Fédération Nationale des syndicats d'exploitation agricole	National federation of agricultural unions
HLG		High Level Group
IdF	Île de France	
JA	Jeunes Agriculteurs	Young Farmer Union
LIC		low input crops
MATIF	Marché à termes international de France	French Future Market
MSA	Mutualité sociale agricole	agricultural social mutual
NRP		Natural Regional Park

OPG	Organisation des producteurs de grain	Grain producers organisation
PO		Producer Organisations
SAFER	Société d'aménagement foncier et d'étalissement rural	Society for land management and rural development
SFP		Single Farmer Payments
WFD		European Water Framework Directive

Executive summary A: cereal farming in Île de France

Introduction

The purpose of this report is to investigate the policy requirements and market imperfections, and their implications for the resilience of arable crops production in the Region of Île de France, France, as part of the EU-funded Horizon 2020 project, Sufisa (Sustainable finance for sustainable agriculture and fisheries). This executive summary has been derived from a much larger report, which is available from: http://www.sufisa.eu/publications (project reports). Arable crops production in Île de France is an interesting case study to reflect about a situation which has been defined by different authors as being socio-technically locked-in (Magrini *et al.*, 2016). In such situations, long term evolutions of a given production create strong interdependencies between actors, technologies and values, which eventually prevent stakeholders from adopting alternatives – even though their higher level of sustainability has been acknowledged. Large scale / arable crops production systems of Île de France have experienced a radical transformation over the last 30 years with the progressive disappearance of livestock in all farms and a strong simplification of agronomic rotations. While the economic benefits of such an evolution have long been said to be excellent, the overall resilience of those simplified systems is now threaten by increasing climatic and economic risks, themselves due to climate change and increased price volatility of main commodities (rapeseed, sugar beet and wheat), but also to their unsustainable environmental impacts, especially regarding soil fertility. Crop diversification and the lengthening of rotation has been well identified as a key option to counter those negative trends but farmers have so far failed to turn to such practices, mainly as a result of the socio-technical lock-ins (Meynard *et al.*, 2013).

What are the conditions that create such lock-ins and what are the strategies developed by farmers to cope with this situation? Are there ways to unlock the situation and if yes, which actions are needed, by whom? While this short report do not pretend to give definitive answers to those questions, it will provide the reader with a general overview of the situation and some preliminary findings regarding the available options to increase the sustainability of primary producers.

To do so, data have been collected during three main phases. A first phase of market and regulatory inventory relied on grey / scientific literature analysis and expert / key informant interviews. 18 interviews were carried out between July and October 2016 and a sum of reports of all sorts were collected. This allowed to map market and regulatory conditions which farmer face in their day-to-day business.

In a second phase, carried out in March and April 2017, group interviews were carried out to (i) confirm the preliminary results obtained from the first phase regarding conditions; (ii) uncover the set of strategies farmers deploy to cope with those conditions and to attain their objectives; (iii) analyse how other actors (supply chain actors, bankers, civil society organisations, local governments and state administration) contribute to (or oppose to) the deployment of farmers' strategies. Two focus groups with farmers have been carried out and one participatory workshop, including stakeholders involved at various points in the functioning of the dairy sector in the Finistère district.

The third phase was dedicated to rework the whole analysis in the light of the results obtained in the first two phases. This phase was completed by a phone survey aiming at collecting data

on the sales agreements between the farmers and the actors of their sales channels, the ability of farmers to address different sustainability issues and their future strategies. This survey was led among 139 farmers. The third phase eventually ended up in the present executive summary, whose remainder is organised as follows. A first section will introduce to the case study and then describe the main conditions (regulatory and market ones) that structure the farmer business environment. The second section will shed light on the various strategies that have emerged at the farm level to cope with this environment.

Presentation of the case study

Ile-de-France agriculture occupies just under half of the regional territory and employs 0.2% of the active population. It is dominated by large farms (115 ha on an average) in which cereal crops are cultivated in rotations including also rapeseed and barley (nearly 2/3 of the agricultural area is cereal, 60% of which is wheat; However, potato or sugar beet are also slightly more developed in the north of the region). These farms, which represent more than ¾ of the Utilized Agricultural Land, constitute the main focus of this case study. They have a certain homogeneity in terms of structure and functioning at the regional scale, although agronomic practices may vary locally. This homogenization results from a movement of rotation simplification and the disappearance of livestock over the past 25 years, which has notably led to a drastic reduction of protein crops in rotations.

While the farmers of Île de France are among the wealthiest in the country with an average current income before tax of about 30 to 50 k€ / year and a differential of 10 to 20 k € compared to the average national, they have been severely hit by successive climatic events over the last 3 years which have drastically undermined their overall economic balance, especially 2016. The weather and the variability of raw material prices are directly involved in this situation. However, farms also have to deal with a growing variety of issues: increased pest resistance (especially on rapeseed), increased price of nitrogen inputs, increasing environmental demands to reduce their impact on superficial and underground water bodies, stronger competition from the Black Sea countries, both on the import market and on the traditional export markets (particularly North Africa). In this context, the regulatory frameworks and the market conditions play a key role in the evolution of farms, their impact in terms of sustainability and their ability to adapt / transform.

Main conditions affecting farmers' strategies

Regulatory conditions

In terms of regulation, two aspects seem crucial for the future of Île de France's arable farming systems. The first concerns the significant decrease in direct aid to arable crops following the 2013 CAP reform. The choice to reallocate part of the CAP budget to young farmers and small structures as well as the obligation to converge are likely to lead, by 2019, to a reduction in aid received from 20 to 40 % / ha depending on the farms. If justified in the name of a historic rebalancing of first-pillar aid, the consequences of such measures are far from being neutral for Ile-de-France farmers.

A second aspect concerns the development of agri-environmental and environmental measures. The system of conditionalities introduced by the 2003 reform and the greening initiated of the 2013 reform have up until only marginally impacted large farms. While these measures have not

favoured changes in agronomic practices, they have been criticized for the administrative complication they have made in the handling of farmers' CAP dossiers. Similarly, the implementation of the Agro-Ecological project of the Minister Le Foll and of the Eco-phyto plan are considered by farmers as mostly administrative burden, with nothing to gain. They have so far had little impact. Nevertheless, and given the environmental issues related to both the quality of water in the Seine-Normandy basin and the drastic fall of ordinary biodiversity in Île de France, a crucial question concerns the type of tools that could be used to foster concrete changes in agricultural practices. The new agri-environmental measures called "systems" could be an interesting tool. Nevertheless, the complexity of implementing Pillar II measures, the amount of aid per ha, still considered too low compared to the efforts to be made, as well as the late payments that are associated with these measures in France since 2015, are for the moment serious obstacles to large-scale adoption in the Île de France region.

Market conditions

In terms of markets, four recent dynamics can be highlighted.

A first dynamic concerns the increasing variability of prices of agricultural raw materials, which directly affect farmers' incomes - upwards or downwards. This variability has led to a complete disconnection between selling prices and production costs. If the development of financial instruments (futures market and options) allows farmers and storage agencies to hedge against, or benefit from, this price variability, it is a risk factor that weighs more and more on the farm management. This evolution of the markets can not be dissociated from the progressive transformations of the regulatory framework. The gradual liberalization of European agricultural markets following successive reforms of the CAP is, in the first place, one of the important factors contributing to the increase of this variability. The recent development of insurance instruments, in part inspired by North American experiences, is one of the responses proposed to deal with them. In France, political discussions culminated in just over 10 years in a system of premium subsidy insurance for most field crops. This, however, only concerns crop insurance (and not turnover) and has not, so far, met with real enthusiasm on the part of farmers. Thus, a bit less than 50 % of cereal farmers in the IdF region have opted for crop insurance, a figure that has even decreased between 2014 and 2016, putting the risk of a "vicious circle" in the short or medium term: the less farmers adopt insurances, the higher the premiums, and the less the farmers will tend to insure ... etc.

A second dynamic relates more specifically to the wheat market, about 50% of which is exported and 50% consumed nationally. French wheat is known for their bread-making quality, particularly appreciated in North African countries. However, this quality is increasingly competing at low cost with wheat from the Black Sea countries or even Eastern Europe, with higher protein levels and lower prices. This competition is also at play in the traditional markets of France (North Africa), but also in intra-community and, more recently, in the domestic market (with a 2016 effect not to be neglected). The search for quality thus appears to be an increasingly important issue for producers, and is reflected in different ways. A first one is the protein plan, co-sponsored by the public authority and the inter-branch organization. It aims to increase the protein content of French wheat to improve its position on the export markets and limit the risk of competition in the domestic market, in a context where the demand for high protein wheat is steadily increasing. A second way to better valorise wheat relies on the development of direct

supply contracts between cooperatives and processors with demanding specifications. A final aspect concerns the possible development of organic crops, for which the premium on the market can reach 60 to 70% compared to the standard price. Nevertheless, the agronomic issues that this poses and the risk that this represents for producers still constitute significant obstacles to a greater adoption of organic practices, not to mention the fact that too much growth in organic areas could in the short or medium term challenge the current premium, if it was faster than the sharp rise in consumption.

A third dynamic relates more specifically to the rapeseed sector, which represents 12 to 15% of the UAL in Ile de France. Historically structured by a powerful inter-branch organization organized in the early 1980s to cope with the decline in CAP support, the sector has two main markets: biodiesel and animal feed. The market for both products is essentially domestic. Its development has benefited in part from the 1992 CAP reform, introducing industrial fallows, and from a set of measures aiming to develop the biofuel sector (both at the European and national level). Taken together, these measures made it possible to supply crushing plants with cheap raw materials and thus to structure a dynamic industrial sector. While rapeseed meal for animal feed has long been considered a co-product of crushing with the primary objective of producing oil, the trend could be reversed in the short term. Indeed, the production of biodiesel from rapeseed oil could soon be challenged by the development of alternative industrial processes using palm oil, whose raw material price is now more advantageous. On the other hand, the demand for animal meal remains stable, even increasing, especially in a context where imports of soybeans, particularly from Brazil, for animal feed are increasingly pointed out for their climate change / biodiversity impact.

A fourth and final dynamic concerns the continuous reduction of protein crops in the Ile de France for more than 20 years. The problem is well identified, as well as its consequences in terms of increasing synthetic nitrogen inputs related to the simplification of rotations. The causes are also known: lower yields, lower prices paid to the producer, resulting in a reduction in local storage and processing capacities, which in turn dissuades producers and limits innovations on the seed companies' side, which still contributes a little more stagnant returns. Faced with this situation, the plant protein plan 2014-2020 is expected to revitalize agricultural research and provide farmers with an economic incentive to revive the production of protein crops, hoping to be able to restart a virtuous circle. While it is still early to judge the results, many actors have stressed the timidity of the measures taken and the fact that they are not really at the scale of the real needs of sectors in great difficulty.

Multi-level strategies to cope with contemporary conditions

Farmers – alone or in partnership with other key actors of the sector – have developed (or tried to develop) strategies at two different levels to cope with contemporary conditions: at the farm level and at the collective level (targeting either policy makers or other value chain actors). Most farmers however feel they have almost no margins of manoeuvre given the contemporary regulatory framework. It follows from that that policy makers constitute ultimately one of the main target of very well structured collective strategies.

Farm level strategies

At the farm level, strategies are relatively similar from one farm to another one, at least regarding the main technical orientations of the farming system: the specialisation and enlargement pathway is presented as the "unique" way forward given the national / international context. The well-known environmental impacts of such systems are considered as something than can be managed marginally. However, no alternative strategies are put forth or developed that would fully address environmental issues.

Given this preamble, three main types of strategies – inside of the current system – have been identified. They of course relate to how farmers involved in collective action, especially in a context where the cereal branch of the majoritarian French farmers union has long been a key actor of the French agricultural political system (Pesche, 2008). One can distinguish between risk management strategies; production costs minimisation strategies; and value-added creation / capture strategies through different market arrangements.

Managing risks: risk-hedging instruments and farm management practices.

The question of how to manage risks – climatic risk as well as price risk – is at the centre of farmers' strategies. Regarding price risk, farmers have the choice between different marketing options. One must keep in mind that they *have* to sell their production to state-recognized storage operators, be they cooperative or private merchants. On an average, cooperatives collect 75 % of the whole cereal / oilseed production in the region. While a farmer adhering to a cooperative has the *moral obligation* to sell all his production *through* the cooperative, this is not always the case and many farmers prefer to use different commercialisation channels and sell to both cooperatives and private merchants.

Farmers have two options when it comes to selling their production: they can either delegate selling operations to the coop to be paid an "average price" at the end of the campaign. Or, they can take the responsibility of the sell by selling strictly "at market price" to the cooperative. A vast majority of farmers choose the "average price" for the sake of convenience. Those who have experienced to sell at market price also explained that in most cases, at the end of the day, it does barely allow to better valorise the production.

Regarding climatic risks, farmers have widely discussed the interest of insurance instruments and, to a lesser extent, of the need to re-think their production system. There were long debates about whether or not crop insurances were needed or not, and if yes, how much should it be subsidized. As of now, farmers receive subsidies that can be up to 44 % of the premium for wheat, and 36 % for oilseeds. Some farmers argued that in the current context of climate change, crop insurances were an essential tool and that it should be further developed. They explained they had been using it for several years and that they were quite satisfied, though improvements are needed – taking, in particular, the North American example. Others, on the contrary, were quite sceptical. Some did try to insure their crop but were not convinced by the tool, finding it either too expensive with respect to the risk against which it hedges. Or they considered that they need other tools that rely more on fiscal principles than on insurance ones; fiscal tools which will allow them to save money during good years, and use that money during difficult years.

Still others did not even try to use insurance tools, considering that what is needed is to develop farming systems more resilient to climatic (and price) risks. Several options were mentioned in that respects regarding in particular the choice of seeds (choosing seeds that are not necessarily

the most productive but can produce well in different climatic situations; sowing a mix of varieties rather than having only mono-specific fields) and the rotation of crops (favouring a diversity of crops that will behave differently depending on the weather, rather than focusing on a few productive crops). Relying on greater diversity of crops is also a way to hedge against price risks, as it is hoped that not all prices will go down the same year:

In search of more value-added

As expressed in the quotation above, the question of risk management often relates to that of how to generate and capture more value added at the farm level. Many farmers try to identify and exploit small "niches" that can complement their income and generate more value added. It can take different forms, but it is often through specific contractual arrangements for smaller scale crops (with respect to the overall farm size). Several such niches were mentioned: blé de force for McDo on a couple of hectares; aromatic plants for Darigal on a dozen of hectares; durum wheat or hemp, even though the market for it needs to be further developed.

An other kind of niche is organic agriculture. None of the farmer who took part in our FGs were organic farmers – as organic farming actually represents only 1,1 % of the total area for cereals (Agreste Île de France, 2015). However, some of them explained that they have converted (or they intended to do so) certain plots to organic for strategic / opportunistic reasons (but also because they wanted to see whether or not it could be possible at a larger scale). They mentioned that this can be profitable when subsidies are effectively granted (which is not the case in France on the second pillar since 2016 for administrative reasons), but that they then faced huge fertility problems they did not know how to solve, notably because livestock production has almost disappeared from the area. Hence, organic manure is not easily available and it is costly to bring it from afar.

Controlling production costs (variable and fix): farm size matters!

The last strategic option available to farmers at the farm level is to minimise production costs. Most participants indicated that they have been concentrating their effort on this over the past 5 years, but that they haven't managed to cut costs down as much as they hoped / thought. They pointed out the impact of different norms on their inability to effectively reduce the use of pesticide (less molecules available implies to use them more as their efficiency decreases), or labour costs. Some of them also explained that the enlargement of their farm has led them to massively invest both in machines and in land and that it heavily impacted on their economic equilibrium. Regarding machines in particular, some farmers referred to cooperative for the collective use of agricultural machines (CUMA), which they depicted as credible options to a certain extent only. While CUMA indeed allow to lower fixed costs and investments at farm level, they also reduce farmer's autonomy as he depends on the availability of the machines. Some farmers also mentioned that they partner with their neighbour to collectively buy specific / expansive equipment. They presented it as a more flexible way to reduce investment costs than CUMA but still quite effective.

An agricultural accountant also recalled that many of his clients have over-invested to take advantage of the fiscal regulation. Such over-investments generates high fixed costs which farmers can't compensate only by diminishing variable production costs.

Those discussions led to a debate on farm sizes: are large and specialized farms more competitive than smaller ones? For most farmers around the table, French farms are not competitive (notably vis-à-vis their eastern Europe counterparts) because they are too small:

Another farmer answered that in his area, accountancy data clearly shows that smaller farm (150 to 200 ha) perform better, in economic terms, than larger ones. Hence, some participants came to question what they presented as an "accepted wisdom" which basically considers that competitiveness is essentially a matter of farm size. As such, the broader enlargement / specialisation strategy, widely (if not exclusively) adopted in Île de France over the last 30 years was also questioned by some – not all – participants. They notably argued for the need to re-think such strategic options in the light of their impacts on the capital intensity of farms. To them, decreasing farms size could favour not only their transmission (see paragraph 3.5.2.5), but also and above all, a slight decrease in fixed costs.[1] On the contrary, the tenants of the enlargement strategy pointed out the economies of scale such a strategy allows for. They argued, in turn, that French farmers and themselves in particular were lacking competitiveness compared to eastern Europe precisely because they were not able to make enough economies of scale.

An analysis of the survey data allowed us to complete the information on farm strategies through the analysis of a large sample of farms. In coherence with our field observations, no relationships were found between farms characteristics (in terms of size and level of specialization) and the strategies adopted or planned. In line with those results, the data collected also shows that farmers do not consider that selling to cooperatives or to private merchants makes a big difference in their ability to address a variety of sustainability issues. This analysis also tends to confirm the fact that most farmers tend to consider themselves in a difficult situation, with a difficult future to cope with. The number of farmers that intend to contract a crop insurance is quite high compared to what was discussed during our focus groups and workshops. One explanation to that result could be that despite the fact the insurance tools are not very popular among farmers, they are still considered to be representing one of the most solid solution to difficulties some farmers are going through.

Collective level strategies

Collective action amongst cereal farmers is ancient and well structured. As of today, it takes three main forms that tend to reinforce each other: developing / managing collaborative learning processes to share experiences and learn from each other; developing upstream segmentation tools to retain more value added at the farm level and regain consumer's trust; and lobbying policy makers through a broad variety of channels.

Developing collaborative learning processes

Over the last 20 years, the agricultural chambers of Île de France have promoted collective learning processes through the establishment of "Development agricultural groups". Those groups are coordinated by an agricultural technician of the chamber and gather up to 20 farmers. They meet on a regular basis to discuss specific topics, such as, for example, conservation agriculture / no till practices, pesticide and mineral fertilizer reduction, crop rotations strategies… The technician brings his expertise to the group and help in taking stock of each participants' experience, notably by putting it in perspective with the best available knowledge. The importance of those

[1] The question of specialisation is probably more complex, as in today's farming sector, each crop relies on

groups has been highlighted by many participants as it clearly helps them to identify best practices and how to implement them. This has also been said to be of particular importance in a context where many farmers feel lonely in their day to day business and need support, as reported below:

Segmenting markets upstream to retain more value added at farm level and regain consumer's trust

Through their cooperatives, farmers also invest in upstream market segmentation. As said before, cereal and oilseed are highly commodified crops and it is therefore difficult to capture or generate greater value at the farm level. One way to overcome this has been to work on supply chain organisations in order to increase their level of transparency for consumers, and be able to trace / label the origin of most raw ingredients back to farm gate in simple end-consumption products, such as bread, table oils, pasta, or yoghourt (in other areas)… This has been possible thanks to the vertical integration of many cooperatives that, on the one hand, collect raw products at farm gate and, on the other hand, use it in the make up of end-consumption products through the subsidiary they control. Two processes can be mentioned here, as they have developed over the last 10 years or so: Agriconfiance, which is led by Coop de France and concerns three cooperatives of cereals in the Île de France region; and Agri-éthique, led by two cooperatives. Both initiatives concern today a few thousands of farmers all over France, and probably a bit less than thousand in the Île de France region. While the idea of such initiatives is to increase the "value" of raw products and allow for a better remuneration of farmers, it has been difficult so far to assess their real impact on prices paid at farm gate. While they have been cited as a key option for the future, they seem to be far less effective than "tradition" collective mobilisation targeting policy makers. We now turn to this last type of collective strategy.

Lobbying policy makers to defend collective interests

Over the years, cereal farmers have developed privileged access to policy makers, in particular in Île de France, as they are geographically close to Ministries and administration centres. This is particularly the case of the majority farmers union and its two specialized sections for cereals and oilseed crops, namely the AGPB (Association générale de producteurs de blé / General association of wheat producers) and the FOP (Fédération des producteurs d'oléoprotéagineux / Federation of oilseed and protein crops producers). Both organisations are more than 50 years old and have a well established position in all political negotiations that concern agriculture. They notably defend the need to maintain a strong pillar one in CAP subsidies, and to avoid any environmental regulations that limit farmers' entrepreneurship.

While farmers did not spontaneously address such political aspects, they were keen on recognizing the centrality of the union when they were asked about. This was also the opportunity for the only farmer adhering to the minority union active in the field of cereals and oilseed production (the coordination rurale, through its specialised association OPG / Organisation des producteurs de grain / Grain producer organisation) to have his voice heard and to mark some distance with the positions usually defended by the AGBP and the FOP. In particular, he stresses the fact that the OPG does not believe in the fact that the "vocation" of French agriculture is to export and feed the world, but that they should rather concentrate on the national market and stop produce commodities to generate and capture more value added at the territorial level. He was however quite cornered by other participants who were all adherents to the majoritarian union. Interestingly, the political position of the OPG adherent was quite well reflected in his

technical choices. He was indeed amongst those that clearly emphasizes the need to carefully examine the most common farm development pattern (enlargement / specialisation) in order to shed light on the potential benefits of alternatives (de-specialisation, re-introduction of live-stock through associations between cereal growers and cattle breeders…).

Conclusion

Contrary to the Finistère case study (see below), the situation in Île de France is marked by an apparent homogeneity in farmers' strategies at the farm level. For most farmers, there is no alternatives to the "enlargement / specialisation pathway" that has been adopted over the last 30 years. In this context, existing strategies at both the farm and collective levels are not able to counter the very negative situation in which farmers are. What farmers rely on the most is thus political action: changes in the policy framework would be, for most of them, the most effective way to regain economic margins of manoeuvre in a context where the dominant mode of farming is considered as the only way forward.

Executive summary B: Dairy farming in the Finistère district

Introduction

The purpose of this report is to investigate the policy requirements and market imperfections, and their implications for the resilience of Dairy production in the Region of Finistère, France, as part of the EU-funded Horizon 2020 project, Sufisa (Sustainable finance for sustainable agriculture and fisheries). This executive summary has been derived from a much larger report, which is available from: http://www.sufisa.eu/publications (project reports). Dairy production in the Finistère is an exemplary case study to think about the conditions under which an agricultural transition towards greater sustainability could occur, in France but also more generally in Europe. Two production models indeed co-exist and, to some extent, compete: one being fairly intensive, which represents more than 70 % of farms and in which feed strategies rely mainly on maize and soybean cake; the other one being called "thrifty / autonomous" systems, which represent around 15 to 20 % of all farms, and in which feed strategies rely predominantly on grassland. At the moment, the sustainability of the later (including its economic profitability) exceeds in many cases, and equates in all, that of the former. One of the key question is thus: is a generalization of the thrifty production model possible? If yes, then two other questions arise: what needs to be changed in the institutional framework (both market / regulatory and financial conditions) for this to happen? Who can take action, with which strategy, for such change(s) to happen?

While this short report do not pretend to give definitive answers to those questions, it will provide the reader with a general overview of the situation and some preliminary findings regarding the available options to increase the sustainability of primary producers.

To do so, data have been collected during three main phases. A first phase of market and regulatory inventory relied on grey / scientific literature analysis and expert / key informant interviews. 21 interviews were carried out between July and October 2016 and a sum of reports of all sorts were collected. This allowed to map market and regulatory conditions which farmer face in their day-to-day business.

In a second phase, carried out in March and April 2017, group interviews were carried out to (i) confirm the preliminary results obtained from the first phase regarding conditions; (ii) uncover the set of strategies farmers deploy to cope with those conditions and to attain their objectives; (iii) analyse how other actors (supply chain actors, bankers, civil society organisations, local governments and state administration) contribute to (or oppose to) the deployment of farmers' strategies. Two focus groups with farmers have been carried out (one with intensive farmers, the other with "agroecological" ones) and one participatory workshop, including stakeholders involved at various points in the functioning of the dairy sector in the Finistère district.

The third phase was dedicated to rework the whole analysis in the light of the results obtained in the first two phases. It eventually ended up in the present executive summary, whose remainder is organised as follows. A first section will introduce to the case study and then describe the main conditions (regulatory, market and financial) that structure the farmer business environment. The second section will shed light on the two main strategies that have emerged at the farm level to cope with this environment, while the third will describe in more details the types

of institutional arrangements that are currently discussed to strengthen the sustainability of the sector.

Presentation of the case study

Finistère is a NUTS 3 region in France, called a *département* (department) and forming a peninsula at the westernmost part of Brittany. The population is just over 900 000 people with an average density of 133 inhabitants/km². The agricultural area covers 58 % of the total area and the district counts nearly 7 800 farms, out of which 38 % are specialized in dairy production (2934 farms). As of today, a typical dairy farm is run by 2 persons, counts 60 lactating milks and 78 ha of arable and pasture land, and produces on an average 600 000 L of milk a year. In many cases, dairy production is associated to pig production and / or vegetables production on the same farm, which allows farmers to diversify their sources of income.

Over the last 30 years, the total number of farms has notably decreased – by 2,9 % per year from 2000 to 2010 (-32 % in 10 years), and by 62 % from 1988 to 2010. As a consequence, farm size has slightly increased as well as their capital intensity (the fixed capital of a dairy farm amounts on an average to 500 000 €, with a debt ratio of nearly 45 %). While the typical Finistère farm is still quite small when compared to Northern European countries, things are moving quite quickly. The proportion of farm having more than 100 cows has slightly increased, which has in turn led to a "double intensification" of the production: intensification of land production (pasture being replaced by fodder /silage maize) and of cow production (cows producing more than 7000 kg of milk / year, thus in needs of more concentrate – from 115g / L of milk to 155 g / L of milk from 2004 to 2009).

However, dairy production systems in the Finistère still rely for a large part on grass / pasture lands for their feeding strategy: on an average, each cow has access to 40 are of pasture land – though there are important disparities between production systems, as we shall see below. Consequently, half of the total UAL is used either as pasture lands (permanent or temporary) or to grow fodder (mostly silage maize). To complement this source of energy and proteins, farmers also rely on feed concentrate: 1000 kg / cow / year on an average – this figure being again highly variable depending on the type of production system we look at, see below.

Regarding incomes, dairy farmers in the Finistère earn on an average 30 to 35 k€ / year before tax. As in most European countries, the milk crisis has strongly hit most farms, and incomes have decreased strongly to reach, in 2016, an average of 16 k€ / farm – even less than during the 2009 crisis.

Dairy production in the Finistère accounts for nearly a quarter of the total production of Britanny, and 7 % of the French production. The production is mostly industrialized with no specific differentiation, and used to produce undifferentiated end products (skimmed milk, butter, raw milk…) which are either sold on the domestic, national or international market. Organic production accounts for less than 2 % of the total production, and there is not any specific labels / standards to valorise the specificity of the production in the area. The Finistère district is marked by the presence of major industrial players, both cooperative (e.g. Sodiaal) and private ones (e.g. Lactalis), which compete on the global market with other international brands / groups (Arla, Frieds Campina and others).

Regulatory conditions

On the regulatory side, two sets of policies have affected dairy farms over the last 20 years and help to account for the current situation. The first relates to the quota system and its disappearance. The second one relates to environmental issues.

During thirty years – from 1984 to 2015 – the quota system has maintained highly stable prices and ensure outlets at a rather fixed price for dairy farmers. This sort of "price insurance" has allowed farmers to invest in their production system and to modernize it, in search notably of increased competitiveness vis-à-vis Northern Europe countries. When the end of the quota system was confirmed, most actors of the sector collectively anticipated a growing demand coming from China and the world market. As such, they encouraged important investments to develop the production in the district. Dairies proposed to farmers "development quotas" which they bought at a "B price" and farmers invested in their production system. The end of the quota however led to a growing instability on the world market without clear opportunity on export markets, leading the whole sector to the current crisis. While the Milk package, negotiated in 2012, was supposed to soften the impact of the end of the quota, its implementation in the Finistère district did not yield the expected results. As we shall see below, producer organisations are still not widespread on the territory and farmers are still isolated in their negotiation with their buyers.

The other key regulatory aspect that shaped dairy farms development has been environmental policies, and most particularly the nitrogen and the Water framework directives. Over the 2000's, the implementation of both directives has led to a profound modernization of most dairy farms, whose cost has been mostly borne by public money. Livestock buildings have been modernized and facilities have been developed for the management of mineral and organic nitrogen inflows, stock and outflow of the extra quantities. On the other hand, measures implemented as part of the second pillar of the CAP have had limited impacts so far.

Market conditions

At the moment, dairy farmers can deliver their production through two main channels: the cooperative dairies or the private dairies. Both are collecting and processing operators. Major French leaders of the dairy sector are present in Finistère: Lactalis, Sodiaal, Eurial, Laïta. They collect and process significant volumes in one to several subsidiaries/sites (e.g. Sodiaal owns different subsidiaries in Finistère: Entremont, Candia, Synutra). Among these significant buyers, Lactalis is the world leader of the dairy sector, valorising 20% of the French production (equally with Sodiaal). A bit more than half of the production is collected by cooperative dairies: Laïta (Even+Triskalia), Sodiaal, Eurial.

On an average over the last few years, half of the milk produced a year in the Finistère is exported (*vs* 42 % at the national level) and half of it is consumed nationally / regionally, in a context where the national production covers roughly 70 % of the domestic demand. The national market of milk is divided between household consumption (57 % of the national consumption, covered at more than 90 % by the national production), catering (10 % of the national consumption, covered at 60 % by the national production) and the agro-industry (33 %, covered only at 40 % by the national production).

Three main aspects related to market / value chain organisation have affected farmers' business environment over the last couple of years. They relate respectively to the role of the inter-

branch agreement in the setting of milk prices; the emergence of producer organisations as part of the implementation of the milk package; and the progressive restructuring and growing concentration downstream the milk supply chain. At the moment,

As of now, dairy producers are above all price takers on a market that used to be highly structured by the quota regulation. However, this has not always be the case. Besides the quota, which of course played a key role in stabilizing prices, French farmers indeed used to negotiate milk prices with private dairies and cooperatives through the inter-branch organisation, which was created back in 1974. The negotiations were based on a series of indicators reflecting both production costs and the evolution of end product prices. The agreement reached in 1997 between producers and dairies was however denounced as incompatible with European competition regulations and thus partly abandoned in 2009. As a consequence, farmers are now much more exposed to price volatility than in the past, in a context where this volatility has itself increased a lot.

Amongst the different "solutions" brought by the European Commission to help farmers to cope with the milk crisis was the creation of "producer organisations" (PO), as part of the 2012 Milk Package. The creation of PO is to reinforce farmers' bargaining position in the milk value chain: in derogation from the competition regulation, farmers are asked to gather into PO in order to collectively negotiate prices with their buyers – only in the case of private dairies. The implementation of this regulation in France has however proven difficult so far, with many POs being poorly effective. As a consequence, many farmers have eventually negotiated a delivery contract with their dairy on a bilateral basis, even if they decided to adhere to a PO.

While POs have been created to facilitate negotiation between farmers and private dairies, they do not apply to farmers selling their milk to cooperative dairies, which represents nearly 55 % of the production. One of the key aspect that has impacted upon the business environment of those farmers is the progressive concentration of dairy cooperatives, following a series of merger / acquisition. There are two main consequences to this trend. First, most farmers who are members of cooperatives have the feeling that they have not any more a say in decision making processes. Second, they also denounce the lack of competitiveness of some cooperatives comparing to private dairies and the fact that farmers delivering to cooperatives are often paid less than those delivering to private dairies.

Multi-level strategies to cope with contemporary conditions

Farmers – alone or in partnership with other key actors of the sector – have developed (or tried to develop) strategies at three different levels to cope with contemporary conditions: at the farm level, at a collective level (targeting either policy makers or other value chain actors), and at the territorial level. Those three levels are by no means exclusive to each other, though some strategies of course better combine with others.

Farm level strategies: the choice between two broad technical orientations

Two broad technical (and also economical) strategic orientations have developed over time: either the farmer maximises the physical productivity of work (that is, the production system is designed to maximise the amount of milk produced per unit of labour); or he / she can maximise the economic productivity of work (that is, the production system is designed to maximise the economic return per unit of labour).

Intensive systems: maximising the physical productivity of work

At least 70 % of Finistère dairy farms are engaged in such systems, in which the main objective is to *saturate* the production system and maximize its physical productivity, that is to harmonize the production capacity of all production factors at the farm level (land, capital, labour, quotas). It has led to farms whose functioning is highly reliant on external resources, most notably energy crops and proteins for feed, with a key consequence on their economic equilibrium: income is generated on the basis of high volume produced at a – relatively – high cost. The margin per litre of milk is low but is compensated by the volume. The outing of the quota and its consequences on price instability has severely hit them. Different coping strategies have been explored by farmers. A first one is financial: all investments have been frozen and debts have been as much as possible staggered. A second one has been to continuously increase production volumes, with the hope that it could compensate prices drop (implying that cutbacks in investments need not to hamper the increase in production). A third approach focuses on the control of production costs, most notably feed costs and mechanisation costs. On that topic, the question of mechanisation (and its associated costs) is a heated debate amongst Britanny farmers, especially when coming to milking robots. A milking robot is a significant investment that weigh on the farm economic equilibrium for a long period. Most farmers who adopted it justify their choice by (i) the fact that it frees them much time and (ii) it's an excellent alternative to hiring people when the parents or farm partners retire

Autonomous pasturing systems: maximizing the economic productivity of work

This type of systems, which tends to rely more on pasturelands, is deemed to represent 10 to 30 % of all farms in the Finistère. The overall strategy is to minimise costs and maximise the economic return per unit of work. Such systems tend to rely more on pastureland and less on energy crops, leading to (i) a much lower level of dependency on external resources for both the livestock (protein / energy feed) and the cropping system (fertilizers and seeds); (ii) a lower physical productivity per cow (6 000-7 000 Litres / cow instead à 9 000-12 000) and per hectare; but (iii) an equivalent economic productivity per hectare.

All pasturing and autonomous / semi autonomous systems today result from a de-intensification movement on which farmers have deliberately chosen to embark as part of a medium to long term strategy. There are gradients between fully autonomous systems, that do not rely anymore on feedstock, energy or protein feed, and semi-autonomous system, that still include energy / protein crops such as maize in their rotations to constitute stocks, "in case of". What is however crucial is the fact that all those systems have put pasturelands and grass at the heart of the feeding strategy.

From a technical point of view, relying more or exclusively on grass / pasturelands implies First to accept both a greater variability and an overall decrease in milk productivity / cow. From this follows a second important consequence: the fact that most farmers now rely on a mix of bovine species / races to compose their herd rather that a mono-specific and milk-maximising herd. A third key characteristic of those systems, already expressed in the quote above, is to avoid as much as possible heavy investments or to amortize them over a long-term.

Similarly to the analysis conducted for the wheat study case, an analysis of the data collected among 100 dairy producers allowed us to complete the information on farm strategies in Finistère. In order to have a finer approach on those strategies, we have classified the farms in several categories, based on their cow yields, allowing to classify farms between the ones that are only/mainly based on grassland and the ones that are mainly/only based on maize and soybean cakes. Considering all farmers, we can notice that they consider that they can more easily achieve environmental aims than economic ones. Concerning social aspects: securing successor and achieving societal recognition of farm activities are perceived as the most difficult goals to achieve. A finer analysis of the ability of farmers to answer sustainability issues according to their yield category shows that the technical orientation seems to have more influence on economic issues than on other issues, especially the ability to maintain profitability or the ability to cope with changing market conditions. The data collected also confirms that dairy producers have few alternatives in terms of new market strategies, and the main strategies evoked (for any type of farm considered) are investment and specialization.

Collective level strategies:

Advocacy and political work: struggling to change the policy framework

The Finistère district is well known for being a land of strong political mobilisation and resistance, especially in the field of agriculture and farming. Local farmers' unions are amongst the most vocal at the national and even European level to defend what is often called the "Breton modèle" when some regulations are deemed to threaten it. Over the past 5 years, farmers' political mobilisation in the dairy sector has remained high, targeting either French policy makers or European ones. Such mobilisation are considered as an integral part of the overall strategy of some farmers and they dedicate important resources to it – mostly time resources – with no immediate return (except in few cases where politicians have proven to be highly reactive, notably because of the magnitude of the mobilisation).

The type of demands brought to politicians can vary depending on the political side on the farmer union considered, but all unions tend to converge on the need to better remunerate farmers and to increase milk price at farm gate.

Increase farmers' position in the milk value chain

Farmers not only rest on policy makers to get better prices; they also try to *change* value chain organisation and the market organisation. There are two strategies here. One focuses on strengthening farmers' *bargaining capacity* in the milk value chain through the development and the reinforcement of producer organisations (to sell to private dairies) or the improvement of cooperative governance. The other one focuses on upstream market segmentation, to ensure a better remuneration for farmers.

Improving farmers' bargaining capacity

Regarding farmers' bargaining capacity in the milk value chain, we mentioned above the fact that they tend to feel "trapped" in their commercial relationship with dairies, be they cooperatives or private dairies. To reverse this situation, some farmers invest in collective action / strategies. Some of those selling to private dairies have, on the one hand, put much effort in the development of producer organisations (POs). Most POs are currently unable to weigh on dairies and improve the situations of their farmers-members, for at least two reasons. One is that they are all attached to one dairy instead of being able to negotiate with several of them; an other one is that they are too small and don't represent significant volumes to truly negotiate with

dairies. That is why some farmers try to convince others to adhere to existing POs and even to federate POs in one single regional federation for the whole Western part of France. Though most farmers don't place too much hope in this, some do believe that if cooperatives would join the PO federation, that would constitute a determinant lever to increase the bargaining power of farmers and get more remunerating prices.

Upstream market segmentation

An other option being developed by farmers is that of upstream market segmentation. In the current situation, only a small fraction of the milk is sold through short chains or as differentiated milk (especially organic one). The bulk of the milk is sold undifferentiated to dairies who, in turn, transform it into basic products: butter, "simple" cheese (with no PDO / PGI), milk, cream, yogurt, skimmed milk and infantile milk powder (probably the most complex product produced in Finistère – only for the Chinese / export market). On all these products, the value added is realised and captured down the value chain by dairies and supermarkets. Upstream market segmentation has recently been put forth as a way to counter this trend and allow farmers to get a greater share of the value added – even for those running an intensive or semi-intensive system. The idea is by no means new but until recently, the main farmer union was reluctant to consider it, considering that "milk is milk and it's white". But it gained resonance when Finistère farmers discovered that their Dutch, German or Danish counterparts were getting a "grazing premium" for farm that apply grazing for at least six hours / day during 120 days. This duration is indeed well below the average grazing time in Finistère and, more broadly, Britanny, thanks to the excellent agro-ecological conditions that allow to grow grass all year round. On that basis, what was discussed was a threefold strategy:

(i) to continue when possible to develop "local" short milk value chain in which the farmer gets a greater share of the value added thanks to the limited number of intermediary. While it has been said that this will probably remain a "niche markets", there are opportunities to develop them – thanks notably to the help of local governments – and derive greater profit for farmers.

(ii) to develop "medium range" milk chains (~ max 1000 km from production to end consumption) in which farmers have more power than in the existing chains, thanks notably to the development of specific products that allow to valorise niches;

(iii) to better valorise what is currently sold as undifferentiated milk by emphasising the specificity of Finistère dairy systems in terms of animal welfare and grazing time. The development of a specific quality standard based on principles, criteria and indicators fit to the specificity of the Finistère (or Britannt) has been discussed at length and is currently under development ("hay milk").

On top of that, the development of organic production has been considered during workshops as a particularly promising possibility at all levels. Organic milk is indeed well remunerated by the market, with a premium up to 20-25 %. Besides that, organic producers are organised through a specific PO that sells to all private dairies, Biolait, that gives it a real bargaining power compared to other POs.

Minimise production costs through mutualisation

As discussed above, a cornerstone of farm-level strategies – be it in intensive or extensive systems – is the minimisation of production costs, and most particularly those related to mechanisation and labour. While there are ways for farmers to control such costs based on individual

choices, some also invest in collective action through two types of structure / institutional arrangements: the CUMA – cooperative of agricultural machines utilisation – and the ETA – enterprises for agricultural labour. Both allow for reducing production costs or working time in different ways.

— the CUMA aim at sharing machines between a group of farmers and thus at reducing the investment level of each farmer. Depending on the number of farmers involved in the CUMA and on the efficacy of the system, it can greatly help to reduce the cost.

— the ETA is a collective system that proposes different services to farmers (mowing, ensiling, sowing) at costs that are often more competitive than if farmers would have invest its own resources to do the same thing.

Certain farmers chose to invest themselves quite a lot in the governance of ETA or CUMA as they see it as an efficient collective strategy, as this farmer:

Others, on the contrary, find it too constraining, especially because relying on CUMA for certain machines, or on ETA for specific tasks, reduce their reaction capacity (they have to wait for ETA's workers or CUMA's machines to be available for something to be done on the farm), and hence their decisional autonomy. They prefer to support a higher indebtedness but to be "free" to do what they think needs to be done at the moment they want to do it.

Farmers' capacity building through their involvement in collaborative learning processes

Last but not least, all farmers have mentioned the importance of collaborative learning processes to improve the efficiency of their system or even to give them ideas to rethink it. Collaborative learning processes are organised through working groups which are most often animated by a technician or an engineer from public extension services. The importance of such groups is particularly underlined by farmers having extensive systems. It is presented a way to share innovations that would not have reached them through "conventional" extension services. Besides collaborative learning processes, an other key variable to allow for the development of alternative strategies relate to territorial organisation. Which implies to develop territorial strategies, in particular to improve access to pasture land and to develop short milk chains. We now turn to those strategies.

Territorial-level strategies

Territorial level strategies are those strategies that need to be endorsed and supported by a broad set of actors, beyond the sole agricultural profession. The role of public authorities, civil society organisations and businesses is, in particular, crucial. Such strategies are key in two respects: to develop farmers' accessibility to pastureland (an important variable to transition towards low-input systems, whose performances on the economic, social and environmental dimension are clearly superior); and to develop the demand for higher quality products at the territorial level, in a context where the whole territorial agricultural production system (ranging from input suppliers to dairies) has been designed to optimise the production of undifferentiated milk whose valorisation could be done downstream the value chain. This latter strategy is undertaken jointly by local NGOs, local governments and some groups of farmers. They have invested various resources to develop local demand for organic products and hence encourage conversion of local farmers to organic. At this stage, it is however acknowledged by all that it would not become a driving force of farming systems transformation in a near future. The former strategy dedicated to the improvement of land accessibility deserves further attention.

As discussed above, the physical accessibility of lactating cows to pasturelands is a key variable that determine to a large extent the type of technico-economical options available to farmers. Having little grass accessible for cows means, for a farmer, that he has to feed them most of the time which, in turn, implies to develop stocking capacity for feedstock and, depending on the cases, to produce or to buy this feedstock. On the contrary, a greater access to grass decreases his level of dependency and hence increase his economic resilience. Yet, over the last 30 years, the quota policy has had tremendous effects on land organisation. As quotas were allocated on the basis of land, farmers who wanted to increase their production capacity had bought land irrespective of the possible impacts on land fragmentation. Many farms have been split between several buyers / tenants when a farmer retired. This has resulted in a high level of land fragmentation which now limits the physical accessibility of cows to grass / pasturelands.

To counter this trend, farmers need to collectively work together with public authorities to facilitate land exchanges and land reallocation towards a more coherent landscape.

Conclusion

A key conclusion that can be derived from this case study can be phrased as follows: while as of today, farmers' margins of manoeuvre to increase the economic resilience and the sustainability of their farms rests on individual decisions – as they don't feel they have enough power to change the broader context in which they operate – a larger scale transition, in which semi-extensive and pasture-based systems would gain prominence, could only happen if collective and territorially-based strategies are implemented and succeed. This conclusion leads, however, to a subsequent remark: the fact that to some extent, the development of intensive systems and extensive / pasture-based ones in recent years has progressively led to the emergence of two quite distinct socio-political networks and community of practices which function in relative isolation to each other (Fouilleux & Ansaloni, 2006). While most – if not all – actors recognize that pasture-based systems are more resilient and more sustainable (even those embarked in more intensive systems), this situation is most likely to impede a true agricultural transition at the district / regional level.

1 National report introduction

The purpose of this French report is to investigate the nature of policy requirements, market imperfections and their implications for the resilience of large scale cereal farmers in the region of Île de France (IdF) and dairy farming in the district of Finistère, respectively. It is based on the conceptual framework developed in WP 1, and aims to go beyond the relatively fragmented insights consolidated in WP 1 to produce a more comprehensive and holistic view of the conditions faced by large scale cereal farmers and dairy producers and the strategies they employ to ensure their sustainability, resilience and continuation. The two case studies have their own sections with the French National Report, but many similarities can be drawn from the two case studies analysed. This is significant and a key benefit of conducting simultaneous investigations into these two different primary production sectors. In this report the main objective is to identify key market and regulatory conditions as they relate to and impact upon the commodities and regions selected for analysis. A comparison between the two sectors is not provided in detail in this report, but in the final report similarities will be highlighted where appropriate, as well as the distinctive nature of the responses, thereby having the potential to provide a valuable learning experience.

Before starting the case studies, a media analysis was conducted to better understand the way in which agricultural topics were dealt with in the French public space. The two case studies are based on a desk-based analysis of market and regulatory conditions for each case region/commodity, supplemented with expert and actor interviews per case study. In more detail, the media analysis examined national, regional and specialised media from 2014 to 2016, with a focus on publications reporting on the economic and financial sustainability of primary producers. Table 1 summarises the press coverage in terms of the types of sources analysed. Specialist media were derived from four main sources: general media, agricultural media, agricultural media specialised on one sector (cereal and milk), and grey literature / advocacy documents produced by agricultural unions and NGOs.

Table 1: Summary of media analysis sample

Source Type	**Texts Number**	**% of the sample**
General media	45	28 %
Agricultural media	43	27 %
Agricultural media specialized by sectors (grain and dairy productions)	26	16 %
Farm lobbies/NGOs	47	29 %
Total	**161**	**100 %**

The desk-based review involved analysis of key policies, regulations and market issues that impact on grain and dairy producers in IdF and Finistère, respectively. Sources reviewed included academic publications (research papers, books and websites related to sectors and/or key regulations, policies, market issues, standards or instruments); Government and policy documents and websites; market data, market research and consultancy reports; industry data/reports and NGO documents. A number of academic articles were reviewed for both sectors. The Common Agricultural Policy (CAP) was reviewed in detail for both cereal and milk sectors, as well as relevant regulations related to each sector, supplemented with analysis of policy documents. Market research and data on each commodity sector was also reviewed, as well as relevant industry data, including analysis of secondary data to examine socio-economic changes in both sectors over time.

The analysis of market and regulatory conditions was designed to reflect two things: firstly, it reviewed what the current market and regulatory conditions are; and secondly, it tended to reflect the perceptions and experiences of those who have to work under those market and regulatory conditions. One key feature of both case studies was the high integration between market and regulatory conditions, making sometimes difficult to draw a line between what has to be considered as "market" or "regulatory" conditions. A major objective of agricultural policies in France since the end of the 19th century has indeed been (and is still) to shape agricultural markets towards a twofold objective: (i) insure national food security; (ii) develop the agro-industrial sector as a key component of the French economy.[2]

The stakeholder interviews were intended to supplement the desk-based review. The aim of the interviews was therefore to gain further insight into the nature and complexity of market and regulatory conditions and emergent CSP issues. Having conducted a preliminary desk-based review of the literature available on each commodity, the interviews were used to (i) identify possible lacks in the bibliography constituted so far and (ii) getting a more concrete sense of how the market and regulatory conditions identified in the literature were concretely experienced by farmers and major stakeholders of both sectors. A total of 40 interviews were completed for the French National Report, 21 for dairy and 19 for grain / cereals. The interviews completed for each sector are listed in section 6 of the report with a summary of the type of stakeholder interviewed in each case. Bot case studies are fairly new for the Iddri team and necessitated to carry out a bit more interviews than what was planned initially. Most interviews lasted 1h30 to 2 hours, some of them being longer. All interviews but two have been recorded, transcripted and analysed.

The structure for the rest of the report is as follows. The next section of the report provides a summary of the key media analysis findings. The main part of the report is then made up of the two commodity case studies, which review key regulatory and market conditions for grain production and dairy farming respectively. Both case studies end with a SWOT analysis and short discussion which summaries the key issues/conditions emerging in both sectors, including social issues as well as regulatory and market issues. These issues will inform the design and content of future rounds of research, including focus groups and workshops with producer and other actors in both commodity chains.

[2] The agro-industrial sector is actually the most important French industrial sector, accounting for 16.6 % of the French annual GDP.

2 Media analysis

A media analysis has been conducted on media content from 2014 onwards and on four categories of media : general media (national and regional) ; media on the agricultural sector in general ; more technical media on specific subsectors (cereal and milk) ; media linked to different farmer's unions or social movements, with a more explicit normative standpoint. This analysis yielded three main results, that are briefly presented below: the existence of three main narratives related to agricultural production in the media (paragraph 2.1); the fact that all those narratives consider a similar set of conditions as determining for farmers, but draw opposite conclusions regarding farmers' strategies to cope with them (paragraph 2.2); and the fact that the issue of farm sizes and levels of specialization is a central topic hat sort of crystalizes public discussions (paragraph 2.3).

2.1 Three main narratives : agroindustrial, agro-ecology transition, radical-alternative

The analysis has revealed that, across these categories, three main narratives were polarizing how conditions, strategies and performances were linked with one another.

2.1.1 The agro-industrial narrative

In this narrative, market and supply chain conditions are critical factors affecting farms resilience and sustainability. Current crises are explained by a lack of competitiveness (main performance indicator, set to farmers by industry but never expressed as such by farmers in the articles analysed), that can be temporarily compensated by subsidies to postpone more difficult decisions, but would necessitate, at some point, a complete and hurtful restructuring of farm structures.

Strategies are mainly about getting bigger, concentrating, increasing capital intensity (and thus reducing labor costs), to be more competitive ; it can even go until collective strategies to but land and capital together at the level of a group of farms, or specialization of whole regions on one commodity – the so called Danish model for milk.

A complementary competitiveness oriented strategy, particularly if the apparent reluctance of the French society to accept farms as big as in Denmark or Germany continues to prevail, is that massified agroindustrial products will nevertheless have to play a high quality differentiation strategy (explained through the smaller size of farms and the higher labor cost, and resulting in better safety standards) on global and European markets. A rebalancing of power between farmers and what is presented as an oligopole of retailers would also ease out the transition. The technical model is never questioned as such in this narrative.

2.1.2 A "transition" narrative

This narrative acknowledges the unsustainability of current pathways of evolution : non-viability in economic terms, as in the former narrative, but also continued environmental degradation (exemplified through the continued increase in pesticide use), and even social impacts (measured by the rapid decrease in the number of active farmers).

Therefore looking for at least a double performance of farms (economic and ecological performance), as well as trying to slow down the decrease in the number of active farmers (an implicit

objective in this narrative), will necessitate to implement strategies of changing the technical production system.

Strategies are often about transition to agroforestry, a better preservation of soils, or the diversification of genetic resources, without directly mentioning diversification of products on farm. They also entail seeking for labels like organic, or other labels of quality or of geographic origin, to account for the public goods produced that would else not be valorised on markets. Collective strategies of groups of farmers seem relevant in this narrative, to seek for such labels, but also to share knowledge, as well as machinery. Increasing capital intensity is not considered as the key to performance in this narrative, but this is mainly implicit : a diagnosis of over-equipment of farms leads to putting more emphasis again on a sharing economy of agricultural machines. Public support will have to go beyond the remuneration of these public goods, and would also have to be designed as policies to support reconversion of existing farms.

2.1.3 A radical-alternative narrative

In this narrative, a radical change in the farming system and in the market conditions is presented as necessary (contrary to the former "transition" narrative where market and supply chain conditions would only have to be adjusted or renegotiated).

The farmer here is not considered an entrepreneur but has to be reframed again as a peasant (positive valorisation of the word "Paysan" as in Via Campesina/ Confédération Paysanne). On top of delivering food products, he contributes to environmental quality and plays a vital part in the local community.

This narrative emerges mainly as a criticism of the agroindustrial narrative, because of its focus on production increase or yields (substituted as an indicator of competitiveness), leading to too much economic dependency of farmers, and therefore to their structural vulnerability, even with a high capitalistic intensity. Autonomy and resilience of farmers are therefore here a major performance indicator. The environmental degradation is also mentioned as a major downsize of the agroindustrial model. The social performance is also explicitly mentioned (contrary to the transition scenario) through the too rapid decrease in the number of farms, leading also to too large farms. Job creation on farms is a key performance indicator in this narrative.

Strategies are here about a complete redesign of the technical production system, to reduce the dependency on artificial inputs and their prices, as well as completely stepping out of a current pathway that is focused on increase in capitalisting intensity and substitution of labor by capital. In such a perspective, a redesign of the link with supply chains and markets is also necessary.

Policies are very necessary in this narrative, to remunerate public goods produced by farmers (subsidies, but targeted in a way that do not favour a continued increase in capitalistic intensity – land concentration, investments in machinery – contrary to what happened with CAP subsidies), but also to drastically reorganise supply chains (more local and shorter) and markets (more protection on domestic markets).

2.1.4 Intermediary conclusion: linking narratives with a frame analysis

These three narratives can be related to different theoretical ways to frame agricultural policies and debates.

First, the agroindustrial narrative is mainly grounded in a neoclassical frame, even if it is hybridised with some elements of neo-institutional frame because of the prevailing importance of the role of state intervention and regulation in the French context and particularly in agriculture; in

the agroindustrial narrative, the main market failure accounted for is about unfair relations along the supply chain

The alternative narrative, consisting of a strategy of radical redesign of farming systems and their link to territories and markets, is then both grounded in an economic sociology frame, and a transition frame (more radical than our second narrative)

Finally, the second narrative, called here “transition”, is a degraded version of the “transition” frame, where mainly the technical system has to be redesigned, but without radically changing external conditions, or at least not explicitly.

2.2 Transversal analysis on conditions, performances, and strategies

2.2.1 Conditions

Competition on markets is in all three narratives a major condition that drives the evolution of farms over time. The two first narratives develop different strategies to cope with this condition: enlargement and economies of scale in the first one; differentiation in the other. The last narrative proposes to change this condition by redesigning the link of farmers to markets and supply chains.

Unfair relations along the supply chain is also considered as a major condition in all three scenarios, leading in all of them to a discussion on how to rebalance power and value share along the chain, either through labels, competition regulation policies, or reducing the number of intermediaries.

Climate change is in general also acknowledged as a structural condition that explains why change is considered inevitable, in all of the three narratives: the farm of the future is not going to be the same as the farm of today. But while reconversion to another technical model or even a complete redesign of the economic model is at the heart of strategies in the two last narratives, the first narrative mainly relies on the adaptive capacity of very large farms, for instance through their capacity to rely on insurance and technological innovations.

Across these three scenarios, public subsidies are seen as determining conditions for farmers to develop any strategy, even in the agroindustrial scenario. Their collateral negative effects are often emphasised, if they are not properly designed: just maintaining non viable farms, in the lens of the agroindustrial narrative; only favouring increase in capitalistic intensity in the alternative narrative.

The conditions in terms of financial markets and risk management are also particularly salient in order to contrast the agroindustrial and the alternative narrative: the specialisation and concentration trend in the agroindustrial narrative has to go with insurance schemes to manage the risk of vulnerability (linked to specialisation and dependency on input markets); the same diagnosis in terms of vulnerability in the alternative scenario leads to the proposal of a complete redesign of both the internal farm production system and its external links to markets and supply chains. The reduction of risks and the increase in resilience is also one of the motivations for the transition scenario (preserving soil for a better resilience of crops, increasing genetic diversity for a better resistance to pests).

2.2.2 Performances

Environmental performance is only considered as a constraint and an impediment to competitiveness in the first narrative, while it is a key performance in the two last ones.

Social performance is implicitly present in the transition narrative through the idea that a change in the technical model is necessary to maintain existing farms (therefore maintaining the number of farms or at least slowing down the decrease in the number of active farmers). The social performance is explicitly present in the alternative narrative both through the objective of on farm job creation, and in the explicit remuneration of the vital role of the peasant farmer in her/his local community.

Economic performance is mainly presented through the competitiveness indicator in the agroindustrial narrative : it is often reduced to a comparison of productivity of land or the cost of labor with other countries, and is never expressed by farmers themselves but rather by representatives of the downstream industry. In the second narrative, the economic performance is expressed through the economic long term viability of existing farms, while the autonomy of these farms (or conversely the reduction of their dependency to input markets) is the main economic performance measure in the alternative scenario.

2.2.3 Strategies

Strategies are of course the main axis of differentiation of these three scenarios: specialisation, enlargement in size, increase in capital intensity, for the first one, including some differentiation strategy in terms of safety and quality at the scale of the whole French agricultural sector; change in technical production system, with some form of diversification, and collective strategies for seeking a recognition in terms of a certification scheme, as well as an emphasis on knowledge sharing for the transition scenario; complete redesign of the production system as well as the relation to markets and supply chains in the alternative scenario.

2.3 Important characteristics of the public debate in the media in France

A first very interesting finding from this media analysis is the polarization of the media in France around the evolution of farm structures. A supposed “specificity” of the French debate in the media is that there exists a debate on the evolutionary pathway of farm structures (how fast they grow and concentrate, until which size): discussing the “right size” or a kind of “maximum size” of farms from a normative point of view might be considered a specificity of France, and is at least presented in the press as very specific to France, contrary to any other examples where sharp increases in farm sizes and concentration are not considered a problem, but rather a solution.

The emphasis on this debate in the French media, even if the notion of a threshold of what is the good size of farms can not be addressed objectively and scientifically, at least highlights two key features of this debate :

- Strategies of concentration and increasing capital intensity are not considered as the only possible strategies, and are even contested as desirable strategies by different actors
- The framing of the public debate is such that the size of farms is not considered as just determined by economic phenomena (like economies of scale), but that it should also be an objective for public policies to control or influence the evolution of farm sizes.

Looking more into how the different sources mobilise the three narratives, the following findings appear :

- Sources that are linked to a farmer union or a social movement are generally completely only accounting for one of the three perspectives (FNSEA and Jeunes Agriculteurs for the agroindustrial narrative, “Confederation paysanne” for the alternative narrative; it could be added that the transition narrative fits really closely to the official project of the minister of Agriculture for “agroécologie”)
- The national scale generalist media mainly focus on crises and on innovations showcasing the transition or alternative scenario, which they are nearly exclusively voicing (at the exclusion of the agroindustrial narrative), but more for reasons linked to the way they prioritise news on agriculture than for an explicit normative or political choice: the general media at national scale (like Le Monde) put agriculture on the agenda only because of a specific moment of crisis. This explains the bias on mainly crisis situations. Their approach of storytelling also explains why there is a bias towards individual experiences of innovating farmers.
- On the contrary, regional press like Ouest France (regional but more important in terms of number of readers than the national press) accounts in a much more balanced way for the three narratives, which enables a much more pluralistic debate, and potentially makes more explicit the differences and comparisons between the narratives, as articles often express explicitly conditions, strategies, and performances.
- The agricultural press (France Agricole) mainly voices the agro-industrial narrative, while more technical subsector specific media are not directly tackling conditions and strategies, remaining on a very technical level. Nevertheless, the subsector specific press, even in a very homogeneous and agroindustrial oriented sector as cereals, can propose a pluralistic vision of the different viewpoints and narratives about the future, particularly giving space for the transition narrative among agroindustrial oriented papers.

2.4 Conclusion of the media analysis

The polarisation of the public debate in the French press reveals that the French agricultural sector is on the whole considered from within as well as from the rest of the society as undergoing a period of very important changes, and a rapidly evolving situation. The fact that there are not just two extreme viewpoints, symbolised by the political positions of two opposed farmers unions, but actually three narratives in the debate offers space for an interesting debate on the variety of possible strategies.

The national press has a bias towards the alternative and transition narratives, which could have unexpected collateral effects, namely that these narratives could be presented in the policy debate as only developed for and by the elite in Paris. Interestingly, a very read newspaper like Ouest France or the more technical press offer a space for a structured debate on the comparison between the three narratives and even an explicit mention of conditions, performances and strategies.

A very important axis of differentiation, that might be specific to the French context, is constituted by the question of the evolution of farm size and farm structure. Is it an object for public policies or just the result of economic processes? This variable is key to differentiate the strategies developed in the three narratives, and might play a key role for the rest of the SUFISA project.

3 Case Study A: large farms in Île de France

3.1 Case study introduction

The purpose of this case study is to investigate the nature of policy requirements, market imperfections and their implications for the sustainability and resilience of large cereal farms in Île de France (IdF), France. Île de France is both a NUTS1 and NUTS2 region in France (NUTS1 because it concentrates 1/6 of France's population and a very important part of its economy). It is one of the only world metropolis region in which nearly half of the total area is occupied by agricultural activities, making agricultural land preservation a key issue for the local government (CR IdF, 2014, p. 5). From an agronomic point of view, its central feature is to concentrate some of the richest soils (Beauce, Brie, two main areas renown for their richness) in France (and even globally) and a growing metropolis of more than 10 billion people. This coexistence poses challenges and opportunities for the strategies of a very wealthy and organised large cereal producing sector which will be central for this case study. The figure below situates Île de France and presents the main land use of the region.

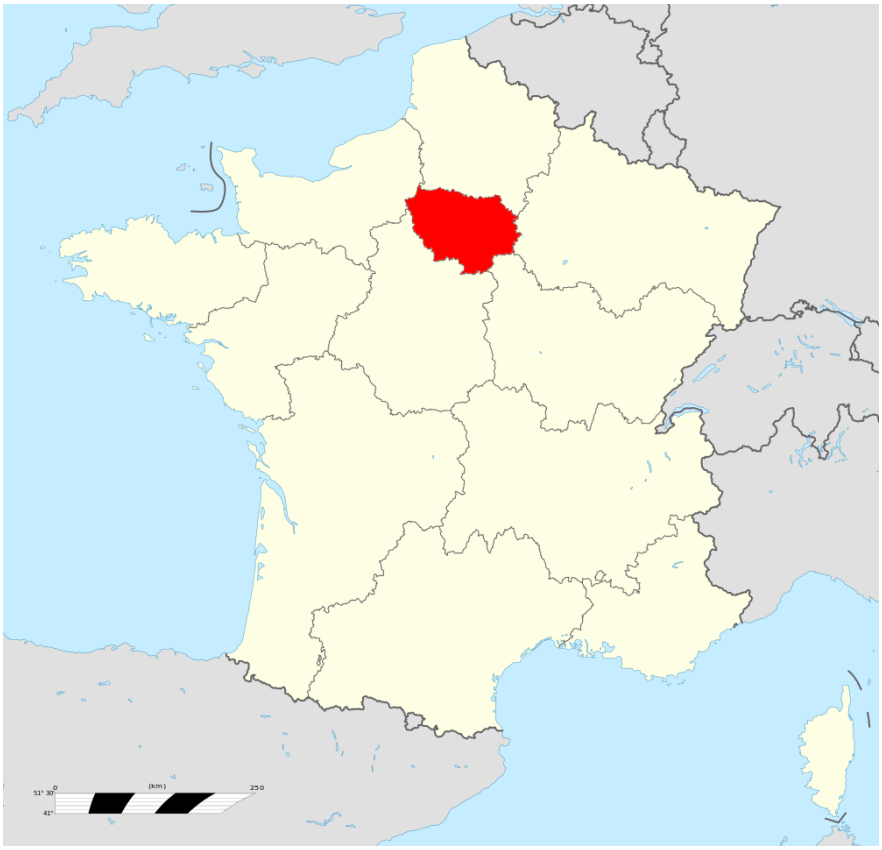


Figure 1: Situation map of the IdF region

We will briefly present what do farming systems in the area look like from both an agronomic and a socio-economic point of view before turning to a quick presentation of the two main value chains they feed.

3.1.1 Farming systems in Île de France: a snapshot of their structure and evolution over the last 50 years

As in the rest of the Parisian basin, farming systems — which were relatively diverse and mixed in the 50's (see for example Poulot, 2010) — have been and are still specialising and concentrating on main crops like wheat, corn and rapeseed, due to several factors, among which their high profitability on international markets and the existence of incentivizing policies for the development of rapeseed-based biodiesel. As a result, livestock and permanent grassland have almost completely disappeared in the last two decades; other cultivations such as vegetables and fruits have been marginalized and are now concentrated in urban peripheries (see map below); the average size of farms has been strongly increasing while their number has dramatically dropped; last but not least, rotations have been severely simplified, with dominant rotations being now rapeseed/wheat/barley or even wheat/wheat/rapeseed or wheat/rapeseed/ wheat (see notably Schott *et al.*, 2010). But contrary to other less favoured regions in the Parisian basin (like Champagne), the fertility of soils enabled and would enable more diverse farming systems, which are however not favoured by the current market conditions (see section 3.3 below). The few figures in the Table 2 below synthetize major trends of the agricultural sector over the last 50 years. Figure 3 shows the current distribution of farming systems in the region and Figure 2 presents the evolution of cropping systems over the last 50 years at the Seine watershed level.

Table 2: evolution of main agricultural features in IdF from 1950 to 2010 (source Poulot, 2010 ; Agreste Île de France, 2015)

	1955	**1970**	**2000**	**2010**
Farming area			582 992	569 000
Number of farms	17 680		6 460	5 075
Average size of farms			90	112
Areas of grasland & permanent pastures	100 000			22 060
Area of vegetable production	20 000			4 430
Number of dairy cows		32 500		6 934

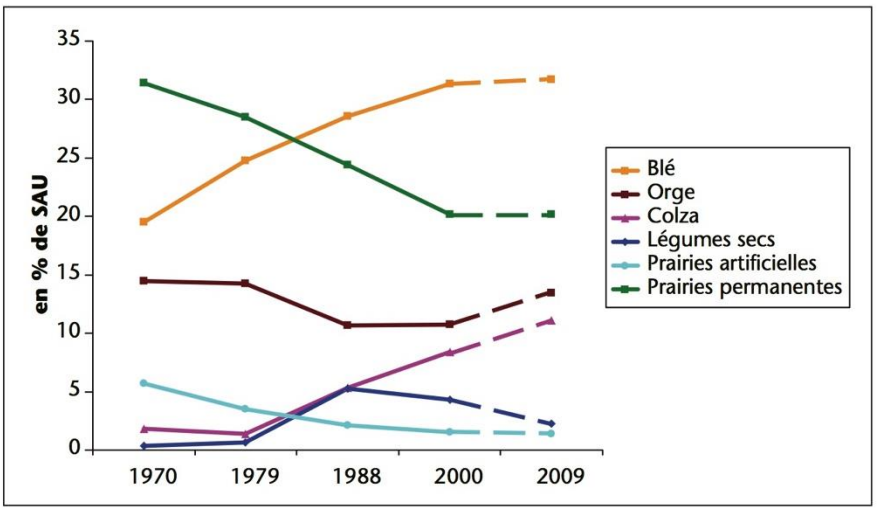


Figure 10. *Synthèse de l'évolution des principales occupations du sol du bassin de la Seine entre 1970 et 2009 (source : RGA et enquête Teruti 2009).*

Figure 2: Evolution of the main crops in the Seine watershed (including Île de France) from 1970 to 2009 (from Schott *et al.*, 2010)

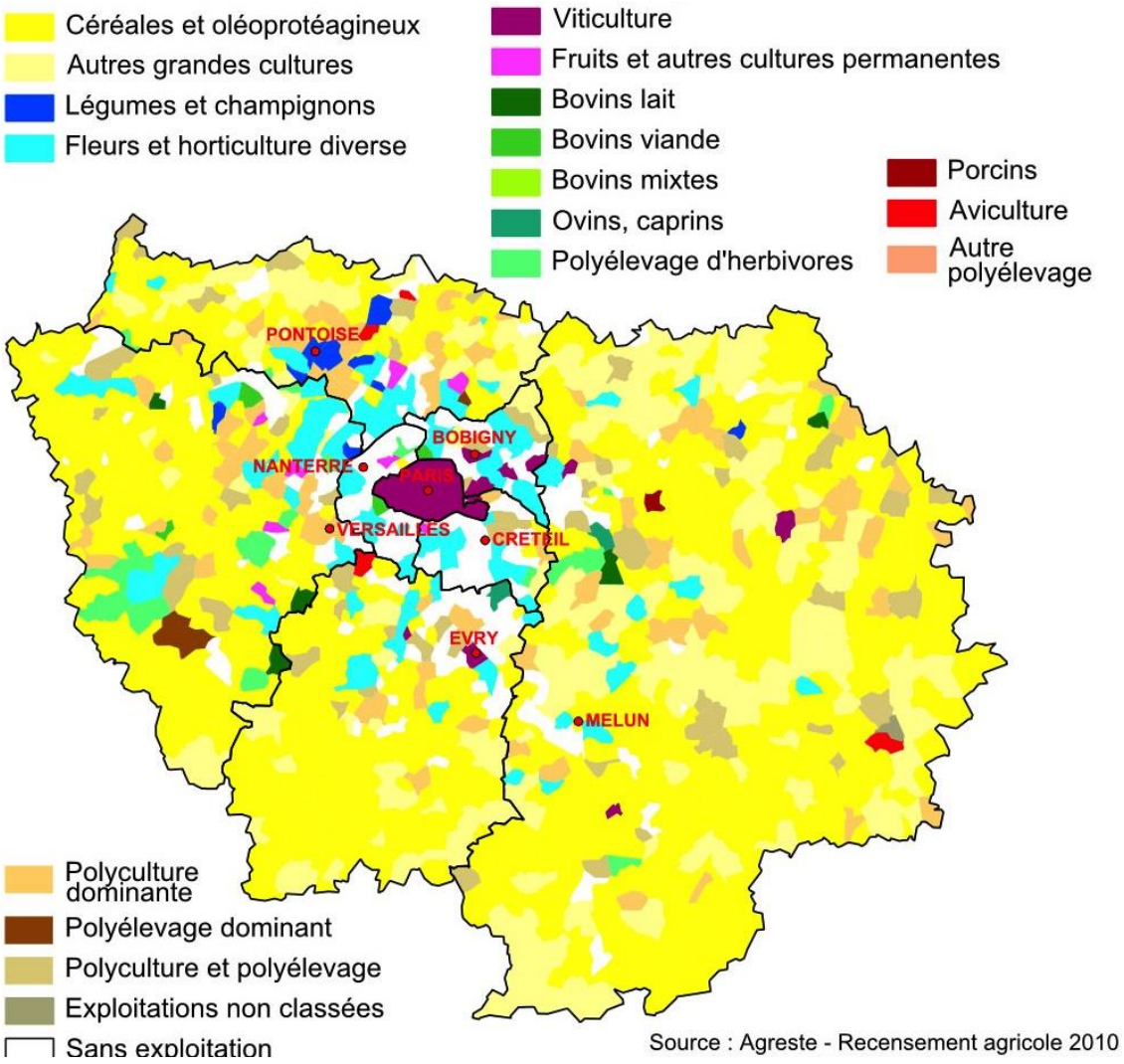


Figure 3: distribution of farming systems by commune in Île de France — in yellow: cereals and oilseed / protein crops farming systems (Agreste Île de France, 2015)

As of today, there are approximately 5000 farms in the whole Île de France, occupying nearly 50 % of the total area and employing less than 0,18 % of the active population (while the agro-industrial sector downstream employs around the double with 0,36 % of total employment and 21 500 jobs). 84 % of the agriculture area is in tenant farming, way more than the French average. Out of the 569 000 ha of Utilised Agricultural Land (UAL), two third is cropped with cereals (60 % wheat, 20 % barley, 13 % maize for the main crops), 15 % with oilseed (95 % rapeseed — especially in southern part of the region, rapeseed representing nearly 13 % of the total UAL), and less than 7 % with industrial vegetables (mainly sugarbeet and to a lesser extent potatoes). Generally speaking, southern areas of the region are characterized by the rapeseed/wheat/barley rotation, while northern areas, where the climate and soils are even more favourable, are characterized by the alternation wheat / sugarbeet or potatoes. Those large scale farms, cultivating cereals, oilseeds / protein crops and industrial crops (sugarbeet and potatoes), are the focus of this case study, as they represent 3/5 of the total number of farms and 2/3 of the total UAL (Agreste Île de France, 2015).

From a technical point of view, large farms of IdF are amongst the most developed of France, being close to the main agronomic research hubs. Yields / ha are the highest for France and probably amongst the top 3 in the world, especially for wheat (nearly 95 quintal/ha). Those high yields are permitted by a high degree of specialization which implies also high production costs — at least higher than the world direct concurrent of French farmers, especially Russian, Ukrainian and American ones (see below for the economic consequences of this on the export market).

From an economic point of view, farmers of Île de France (IdF) are amongst the wealthiest in France with an annual income generally comprised between 20 and 30 k€ (except for the 2006-2008 period of agricultural price spikes) and a differential compared to other farmers in France of 5 to 20 K€ / year (see

Figure 4 below). However, as most of their production — wheat in particular — is sold on the international market, their revenue highly depend on the market prices volatility (see figure below). While they have benefited from agricultural price spikes of 2007-2008 and 2011, they are now exposed to lower prices and their situation is, in 2016, aggravated by the low yields they have obtained.

Given the economic and functional importance of wheat and rapeseed, this case study will focus on market & regulatory conditions for those two crops, the value chains of which being quickly presented in the next paragraph. The situation of the sugar beet could have also been considered, as it is quite an important crop for all farms situated in the northern part of IdF — where soils are richer. However, the topic has only been touched upon in the final sub-section of the case study, given the fact that it only represents 6 to 7 % of the cropped area.

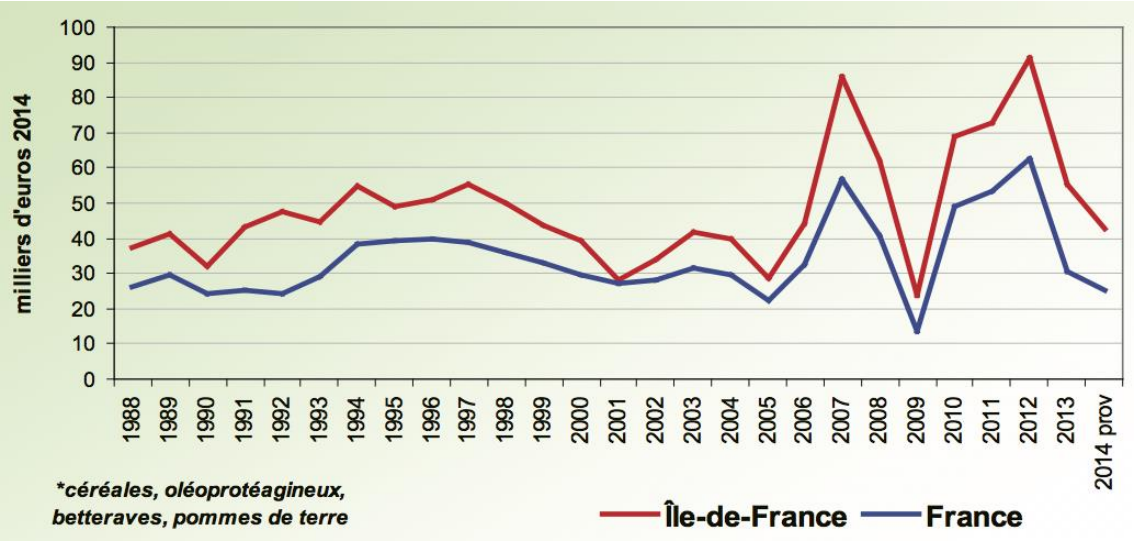


Figure 4: IdF farmers' pre-tax current result compared to the national average for cereal and oilseed / protein crops farmers (source: Agreste Île de France, 2016)

3.1.2 Wheat and rapeseed in France and Île de France: production and main markets

Annual wheat production in France oscillates around 36 Millions of tons (Mt). Wheat represents a strategic crop for the French agriculture, as France is the 1st producer and 1st exporter at the EU level and one of the only EU country to have a surplus in its wheat commercial balance. Out of the 36Mt annually produced in France, around 2Mt are produced in IdF. This represents around 5,5 % of the national production. Around 50 % are exported, while 25 % are used in the IdF region and 25 % in other French regions. The main uses of wheat (at the French level) are as follows:

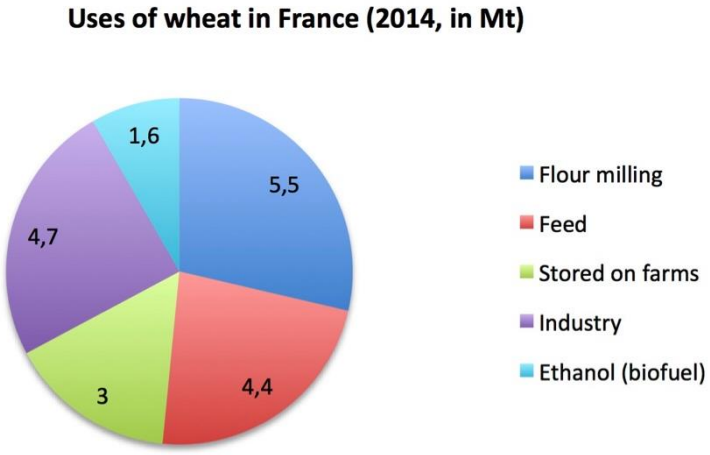


Figure 5: main uses of wheat in France (source Passion Céréales, 2016b)

In the Parisian basin and in IdF, an even greater proportion of wheat is channelled to mills to produce flour and then bread (for more than 65% of the total flour production).

Annual rapeseed production has been evolving greatly over the last 10 years, stabilizing at a around 5Mt / year since 2012. As we shall demonstrate below, most of the increase in rapeseed

production can be attributed to a series of public policies implemented since the 90's and targeting different objectives, from the end of intervention prices in the PAC in 1992 (see for example Thomas *et al.*, 2013) to the development of agrofuel production in France and Europe, from 2005 onwards. Out of the 5Mt annually produced, the IdF region accounts for 5 % with 0,25 Mt produced on nearly 80 000 ha. Rapeseed production is mainly channelled for trituration to 11 French factories (two of them being in the IdF region). Once processed, rapeseed gives two main products: vegetable oil (43%) and protein cakes (55%), the rest being lost. Vegetable oils are used either for human consumption — but for a really tiny part, less than 0,1 % — or for producing biodiesel, for the most important part. Protein cakes are used for the production of animal feed that are then nationally consumed. This has been — and is still — an important issue for France in order to decrease the national dependency to foreign proteins coming from Brazil and the US in the form of soybean cakes.

The remained of this case study is as follows. Section 3.2 presents the policy and regulatory frameworks in which farmers operate, the main pillar of it being the Common Agricultural Policy (CAP). It notably shows that public policies and the various regulations screened frame farmers' activities in two, quite independent ways: they first shape the market on which they sell their product; and they submit them to a growing set of rules and norms intending to orient their practices to ensure food safety and limit environmental impacts. Section 3.3 then turn to the market conditions faced by farmers and show (i) that farmers are price takers and depend upon price variability for commodities that are mainly exchanged on international markets and (ii) that the possibility for market differentiation are tenuous for the crops they grow, and especially for rapeseed. Section 3.4 finally summarizes the key conditions that are faced by large scale farmers in IdF.

3.2 Public policies and regulatory conditions: shaping the market, (re)orienting agricultural practices

The agricultural sector in Europe has been widely shaped by the Common Agricultural Policy (CAP), and more particularly in France, a country which has long sought to influence the CAP with respect to the interest of its main agricultural unions. During the first 30 years of the CAP (1962-1992), a major objective of the policy was to regulate markets and insure farmers' income in order to allow them to develop their production system. This situation was, however, totally changed by the 1992 reform that replaced guarantee prices by coupled subsidies, which were themselves replaced by decoupled subsidies after the 1999 reform and the 2003 Luxembourg accord. Sub-section 3.2.1 presents the series of measures taken to implement the successive CAP reforms and how they have progressively totally changed the market conditions with which farmers had to deal, from a system of guarantee prices to the high exposure to price volatility presented above. In Sub-section 3.2.2, we present the main disposition of the 1st pillar of the current CAP and how its contribution to cereal farmers' incomes will decrease in the coming years. In sub-section 3.2.3, public support to the development of insurance tools aiming to help farmers to hedge against a variety of risks are presented, along with the ways in which they are used in IdF. Sub-section 3.2.4 then analyses the multiple ways in which public policies — at the European, national and regional levels — have intended to (re)orient agricultural practices to decrease their impact on local ecosystems (water quality, biodiversity, …), often with poor results but with clear consequences on farmers' administrative constraints. Finally, sub-section

3.2.5 deals with agricultural land tenure policies; it will notably show how the system put in place has both accompanied the progressive re-structuration of the agricultural sector in the IdF region (concentration, specialisation) and contributed to the safeguard of agricultural lands in a context of growing tension for land, while posing other types of difficulties for farmers when it comes to deal with succession and recruitments of new farmers.

3.2.1 The successive CAP reforms and the progressive liberalization of wheat and rapeseed markets

3.2.1.1 General introduction to the CAP: from market regulation to decoupled subsidies

The CAP has long been one of the major European policy. Since its inception in 1962 to now, it has been the most costly policy of the EU and will probably remain so for the next reform. Among its main objectives, set out in the 1957 Rome treaty and still in force today (as key articles of the Rome Treaty have been incorporated as is in the European Constitutional Treaty), are the following: raising productivity and farmers' income, providing food to European consumers at reasonable costs (Bourgeois & Pouch, 1993).

While those broad objectives are still central to the CAP, three main periods can be distinguished in the CAP implementation, especially with respect to the two main crops this report is concerned with: 1962-1992, during which market regulation instruments were central to the CAP; 1992-2003, as a "transitional" period towards a "full" liberalization, marked by the emergence of coupled subsidies; and 2003-now, with the decoupling of subsidies, the progressive introduction of environmental concerns and the growing subsidiarity in the CAP implementation, leaving more space for member states to develop / adapt their policies. Let us now briefly present how the instruments implemented during each period impacted upon farmers' activities in the IdF region.

3.2.1.2 The 1962-1992 period: the time of market regulation

One of the main instrument of the CAP was the set up of Common Market Organizations (CMO) for each major crop / commodity. Though from a formal point of view the wheat and the rapeseed CMOs were subjected to the same rules, their concrete implementation was a bit different. From 1962 to 1992, the organization of the CMO for cereals (wheat, maize, barley) guaranteed a minimum production price to farmers while protecting the European market from cheaper importation through tariffs. This system rested on the setting of three different prices each year by the European council:

- a target price: it is the "ideal" market price, defined on the basis of objective data coming from the different member states, that would allow to cover production costs and to rightly remunerate farmers;
- a threshold price (< to the target price): it is the minimum price at which a given cereal could be imported on the European market. When world market prices were below that threshold, taxes were imposed to importation and a restitution was granted to exportations.
- an intervention price (< to the threshold price): it is the price guaranteed to farmers, that is the price at which they used to sell their production to intervention bodies (in France, intervention bodies were the recognized storage agencies — hence the need for

their recognition[3]) when market prices were below this intervention price. Storage costs were covered by the European Union.

Even if this system was adjusted during the eighties to limit the quantity of cereals to be bought at intervention prices and stocked by the European commissions — the stock of cereals reached nearly 25 Mt in 1991 — it gave farmers the insurance of a stable income over the years.

Things went a bit differently for rapeseed and more generally oilseeds and protein crops. While intervention and target prices were also defined, the intervention mechanism had in fact never been activated. Support to trituration factories whose production costs exceeded world market prices was however provided to favour their competitiveness on export markets and enhance the European production.

The comparatively lower support to rapeseed explain in part why this crop was not so widespread before the 1990's (see Figure 2 p. 36), and that maize was often preferred to rapeseed in IdF to start a rotation (maize-wheat-barley). The 1992 reform gave a decisive impetus to rapeseed development in the area, as we shall see below, together with water rarefaction[4] which made it more and more difficult to cultivate maize.

3.2.1.3 The 1992 CAP reform and its consequences

The 1992 reform of the CAP came after many years of intense negotiations between member states, professional organizations and NGOs — most notably environmental ones. Two main measures had a direct impact on farmers from IdF. The first was the drop of intervention prices for most cereals (almost — 35 %), which were progressively replaced by coupled and direct subsidies: instead of having their wheat bought at a given price if market prices were too low, farmers were now to receive direct payment on the basis of the number of hectares they were cultivating. The direct payment was however conditioned by the farmers' commitment to fallow 15 or 20 % of his land (depending on the type of fallow that was chosen) OR to cultivate industrial crops (i.e. not dedicated to human or animal consumption) on those 15 to 20 %.

This was a key factor that fostered the development of rapeseed production in France, and more specifically in IdF (see notably Carles & Millet, 1997 ; Thomas *et al.*, 2013). The opportunity was indeed seized by the inter-branch organisation for oilseed production (ONIDOL) and the financial instrument it set up in the 1980's (SOFIPROTÉOL) to develop industrial capacity in France for processing rapeseeds into biofuel. Cereal production in IdF was not too much affected by those changes at least in the first years after the reform. Coupled subsidies indeed played their role and literally "buffered" the impact of the end of intervention prices, leaving farmers nearly 10 years to adapt their production system to world market prices — that is, to reduce their production cost in order to be more "competitive".

The dispositions of the 1992 reform were reinforced by the 1999 adjustments that led to (i) a further decrease of 15 % of the intervention price for cereals and (ii) a progressive alignment of the system of coupled subsidies existing for cereals to oilseeds and protein crops.

[3] It has to be noted here that this interventionist system, through which farmers were insured to sell their production at a minimum price whatever world market price fluctuations, was set up in France as early as 1953. At that time, the ONIC was in charge of coordinating wheat collection by storage agencies on the entire territory (Comité d'histoire des offices agricoles, 2015).

[4] This rarefaction came from both a decrease in the precipitation regime and a growing demand for groundwater for the Parisian metropolis.

3.2.1.4 The Luxembourg accord (2003): the emergence of decoupled aids and Single Farmer Payments (SFP)

The 2003 Luxembourg accord was implemented in France in 2006. Its most important consequence is the end of coupled subsidies, replaced by (partially) decoupled aids, depending on the choice of the member states. French government chose to partially decoupled aid in order to prevent from a too massive abandonment of agriculture in fragile areas (MAP, 2006). For cereals and oilseed / protein crops, the decoupling rate was fixed at 75 %. A compensatory and coupled aid of 63 €/ha has thus been maintained for both wheat and rapeseed. Unlike most European countries, the French government also chose to fix the amount of decoupled aids — called "Single Farmer Payments", or SFP — on the basis of historical references at the farm level. That is, the amount of a SFP (in €/ha) for a given farm was calculated as the average of the amount of aids received by a farmer between 2000 and 2002, and divided by the number of ha exploited.[5] The consequence of this choice is that SFPs of large farmers in IdF are, on an average, close to 380 €/ha (Agreste Île de France, 2015, p. 15) while in other, less favoured areas, SFPs can be as low as 150 €/ha.

As a result, if large farmers of IdF are now "exposed" to world market prices, they have long benefited from specific aids that could cover up to one third of their production costs (taking into account the figure from the 2010 Ernst & Young study on French wheat competitiveness of 1450 €/ ha for wheat production, see FranceAgriMer, 2010, p. 42). This system still contributes to a large extent to farmers income, but has also progressively been accompanied by environmental counterparts. The next sub-section deal with those issues.

3.2.2 The current CAP on the 1st pillar: a decreasing contribution to farmers' incomes, new constraints on the environmental side without much effect

The 2013 CAP reform had three major outcomes. It first re-confirmed the orientation taken since 1992 towards the liberalization of the European agricultural sector (end of milk and sugarbeet quotas, no or very low tariffs and export subsidies). However, intervention prices were kept for wheat production, meaning that in case of brutal / unplanned drop in market prices, the EU is still habilitated to buy wheat at intervention prices through storage agencies. The idea of counter-cyclical subsidies, that was advanced by some organizations during the reform debate, was however not retained by the commission (see the milk case study for a deeper discussion on that point).

A second important aspect of the 2013 reform was the "CAP greening", that has deepened / furthered the environmental conditionality system set up by the 2003 reform. This "greening" is to be implemented in France at least by the progressive transformation of SFPs in two distinct decoupled payments: a "basic payment entitlement" which amounts for 70 % of the previous SFPs; and a green payment, that is to be paid only if farmers comply with specific environmental requirements (three main criterions have been considered, see below).

The third main dimension of the 2013 reform has been the strengthening of the 2nd pillar for rural development, involving notably financial transfers in the CAP budget from the 1st to the 2nd pillar.

Those three evolutions have already had — and will continue to have — considerable impacts on farmers' income in IdF, which are presented in a first paragraph. On the environmental side,

[5] While in many countries, the amount of a SFP was fixed by dividing the budget available by the number of cultivated hectares and was thus common to all farmers.

the 2003-2008 & 2013 reform subject farmers to a considerable number of rules that, while having a weak impact on ecosystems themselves, is often seen by farmers as a "regulatory burden". This aspect is developed in a second paragraph.

3.2.2.1 A decreasing contribution to farmers income

As stated above, until the 2013 CAP reform, the SFP average amount for large cereal farmers in IdF was between 350 and 380 €/ha (Ferenczi, 2014 ; Agreste Île de France, 2015). For a "typical", large-scale cereal farm of 150 ha, total annual subsidies thus amounted to between 52 000 and 57 000 € / year, contributing substantially to the farm annual income. Desrier et al. (2009, p. 84) estimated for example that from 2000 to 2005, direct subsidies coming from the CAP amounted on an average to 175 % of the current income before tax for French cereal and oilseed farmers.

The 2013 reform significantly reduced this amount as a result of several dispositions which are, in part, specific to the French context: the allocation of specific rewards to the first 52 ha (favouring smaller farms) and the "convergence process", by which all SFPs in a given member state should converge to a unique value by 2019. By that time, the amount of subsidies received by a farmer should be comprised between 200 and 220 €/ha, which means a reduction of more than one third compared to what farmers used to receive over the last 20 years in IdF (Ferenczi, 2014). The Figure 6 below gives the example of the impact of both measures for a 200 ha farm of cereals on the amount of subsidies to be received.

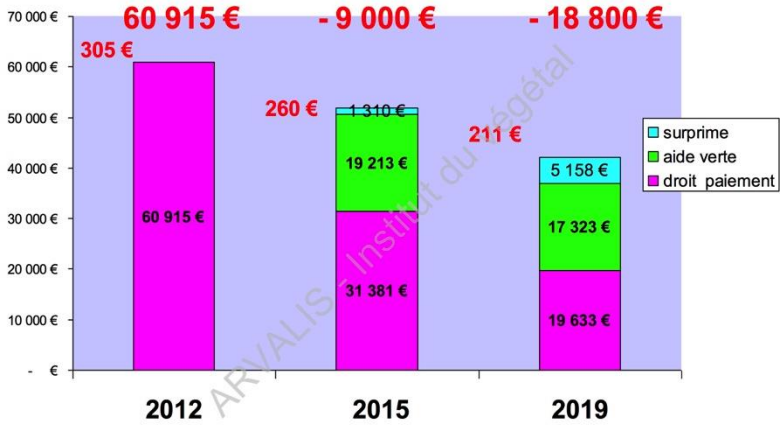


Figure 6: Impacts of the 2013 CAP reform on the amount of annual subsidies received by a "typical" 200 ha cereal farmers (Thoyer, 2014)

This is a major matter of concerns for cereal / large scale farmer unions, which have denounced the fact that the French implementation of the new CAP has mainly led to take money from them to distribute it to cattle growers. Moreover, the implementation of the new CAP in France has suffered from several administrative delays which has led farmers to be notified and then granted their subsidies several months *after* the normal / official deadline. Not only had this situation been problematic with respect to farmers' cash flow, but it has also led to a loss of trust between farmers and the agricultural administration.

To add on that, and as we shall see in the section 3.3 dedicated to market conditions, average market prices for cereals and oilseed production have decreased over the last 4 years, while production costs have been kept constant or are even increased. Hence, while the reformed Common Market Organization (rule 1308/2013 of the CAP) has maintained an intervention price for wheat (101 €/t), this price is well below both production costs (around 190 €/t) and current

market prices (around 140-150 €/t). This intervention price has thus not have any effects for IdF farmers.

For French civil servant working for the Agricultural ministry at the regional level, the combination of those two evolutions — the decrease in both decoupled subsidies and intervention prices — has led to a situation in which farmers' safety nets to cope with climatic and market hazards have been dramatically curtailed. The 2016 campaign, marked by low / medium market prices and very bad climatic conditions in France well illustrates this situation, as the vast majority of farmers will be in deficit by the end of the year:

> "la ferme IdF en 2014 c'est un 1,2 milliards de chiffre d'affaires et les aides publiques qu'elle touche c'est 170 millions d'euros (la PAC plus le reste, les aides des départements, du Conseil Régional, de l'Etat qui ne sont pas dans la PAC) donc 15% d'aide publique par rapport au chiffre d'affaires. On peut dire que ces 15% c'est tout le revenu des agriculteurs, c'est-à-dire que quand on fait le différentiel entre le chiffre d'affaires et tout un tas de charge, ce qui reste ce n'est pas tout à fait le revenu que l'agriculteur se met dans la poche puisqu'il faut encore qu'il réinvestisse et qu'il paye certains trucs mais 15%, les aides, c'est à peu près du même ordre que le revenu de l'agriculteur. Donc on entend assez facilement dire, parce que ça parle, en fait les agriculteurs sont des fonctionnaires puisque tout leur revenu est versé par l'aide publique. C'est vrai sauf que quand il y a un gros choc économique on se rend compte que les aides publiques ne font que 15% du chiffre d'affaires et qu'en fait ces aides publiques sont tout à fait insuffisantes à compenser des chocs économiques, dans les deux sens. » (Yves Guy, p. 16)

In this context of changing regime for agricultural subsidies, external shocks related to market price fluctuations (see section 3.3 below) and climatic hazards are likely to have a greater impact upon farms' functioning and farmers' income (for a typology of the risks to which farmers are exposed, see notably Cordier *et al.*, 2008). Several public policies aiming to help farmers to cope with those "shocks" have hence progressively been set up. They are presented in the following sub-section.

3.2.3 National subsidies to the development of climatic insurances and income variability management tools

Two of them have been more particularly designed for large scale cereal farmers. A first one rests on a fiscal approach, the other one on the subsidization of private insurance systems. Each of them is treated in a separate paragraph below.

3.2.3.1 A fiscal tool to facilitate farmers' savings: the "hazard allocation" (Dotation pour Aléas, DPA)

The hazard allocation was created in 2002 to help farmers' savings in preparation of different types of hazards which can hit the farm. The tool's principles are quite simple. During favourable agricultural campaigns, a farmer is allowed to save up to 27 000 € a year and to deduce this amount from his taxable income. To be eligible to the fiscal deduction, at least 50 % of this amount has to be put on a specific bank account opened for this purpose (MINEFI, 2005).

The money thus saved can be used freely by the farmer when a hazard hits his farm during seven years. After seven years, if the money has not been used, it has to be added back to the farm's result to calculate the income tax. Three types of hazards give farmers the entitlement to use the money saved in this way:

- in case of a fire;
- in case of a climatic hazard recognized by administrative authorities;

— in case of an economic hazard, characterized by a decrease in the farm income of more than 10 % compared to either the average income of the three last campaigns, or the three years average income of the last five campaigns, the best and the worst campaigns excluded.

Until recently, this tool had not been too much mobilised by farmers given its complexity. The way in which it defines an economic hazard is also considered as too restrictive by all farmers we met. In that respect, the 2015 reform of the tool, which has left this disposition untouched, is not likely to change the situation in the coming years.

Moreover, a recent study that evaluated ex-ante the benefits of using this tool shows that only the biggest farm can really take advantage of it and that small and medium farms are not likely to derive clear benefits from it (Pagès & Leveau, 2015).

3.2.3.2 The rise of insurance systems to cope with a variety of hazards

Besides the hazard allocation tool, farmers are more and more incited to contract crop insurances to cope with climatic hazards. Since 2005, successive plans offer farmers to contribute to up to 65 % of the insurance premium asked to the farmer. The latest declination of this plan, funded by the CAP 2nd pillar, has the following objective: to develop new means for farmers to cope with economics losses when prevention and protection measures have not been enough to limit the impacts of a given hazard on the farm and when those impacts outweigh the farm's resilience capacity (MAAF-DGPAAT, 2015, p. 64). Concretely, from 2011 to 2015, the following subsidies have been allocated for cereals and oilseed production:

— 44 % of the insurance premium for cereals, which on an average amounted to 36 €/year;

— 36 % of the insurance premium for rapeseed, which on an average amounted to 81 €/ha.

This insurance system has been proposed by the French Ministry of Agriculture as a possible major cornerstone of the next CAP reform (see notably the French proposition to the informal meeting on the next CAP reform hold on May 29-31 this year MAAF, 2016b). It is already in the process of replacing previous national scheme for agricultural disasters, which was set up in 1964. Crops for which insurance premium are subsidised by the existing plan have indeed been excluded from this scheme. Practically, this means that a farmer growing wheat and rapeseed in IdF can not anymore benefit from the national solidarity fund in case his crops are damaged by a natural hazard. Since he can get subsidised for it, it is indeed considered as his own responsibility to contract a personal insurance for it.

Despite these new rules, crop insurances did not receive such a strong support from farmers. Less than 30 % of farmers in IdF have contracted a climatic insurance. This figure is close to the national averages (Figure 7) but far from the objectives set by the 2015 plan, which are to reach 56 % of farmers by 2018 and 95 % by 2025. The objective seems difficult to attain in a context where the number of farmers contracting an climatic insurance has even been decreasing by 11 to 12 % / year over the past 3 years. This is a very concrete and topical point, as the 2016 campaign in IdF was marked by huge spring rains, resulting in a mere 40 % loss of yield for most farmers than can not be compensated by the national solidarity fund.

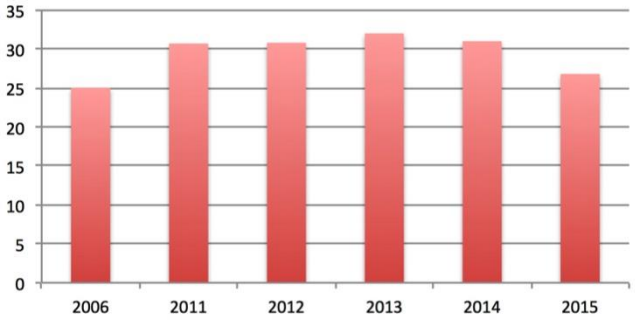


Figure 7: Areas of cereal crops covered by an insurance scheme (in % of the ULA) (source Mortemousque, 2007 ; MAAF, 2016a)

There are several reasons why farmers did not plebiscite insurance tools, among which the most frequently cited by both the literature and our interviewees are the followings:

- the deductible is considered as far too high, amounting to 25 to 50 % of the total insured crop;
- the obligation to take a global insurance, either for all crops at the farm level or for a given crop, is seen as too constraining;
- the way in which trigger points are calculated: the insurance indeed only covers economic losses that result from the destruction of more than 30 % of either the average crop of the three last campaigns, or the three years average crop of the last five campaigns, the best and the worst campaigns excluded.

But besides the criticisms coming from farmers themselves, as they consider that the tool does not fit to their needs, broader ones have also come from other economic and political actors. A first one relates to the fact insurance companies lack robust statistical data and risk analysis for the agricultural sector (besides the sub-sector of fruits and vegetables, for which climatic insurances covering hail damages were set up a long time ago). Consequently, it has been difficult to calculate insurance premium owed by farmers; it has also led to growing difficulties for insurance companies to find reinsurance contracts on the private market. One of the reason for that being that climatic risks in agriculture are often highly systemic (Boyer, 2008 ; Cordier *et al.*, 2008), meaning that there are high probability that when a farm is hit by a hazards, many other in the neighbourhood would also be so. Figures from the national solidarity fund for agricultural disasters well illustrate this situation, as expressed by Figure 8 where the consequences of the 2003 drought is for example well visible.

A second criticism is that in the current situation, in which the adoption rate has been decreasing for the last 3 years, has engaged the whole plan in a sort of vicious circle to which it will likely be difficult to escape without strong public incentives. Indeed, if less and less farmers contract an insurance, premium will become more and more expensive, leading in turn to less and less farmers opting for an insurance system… and so on.

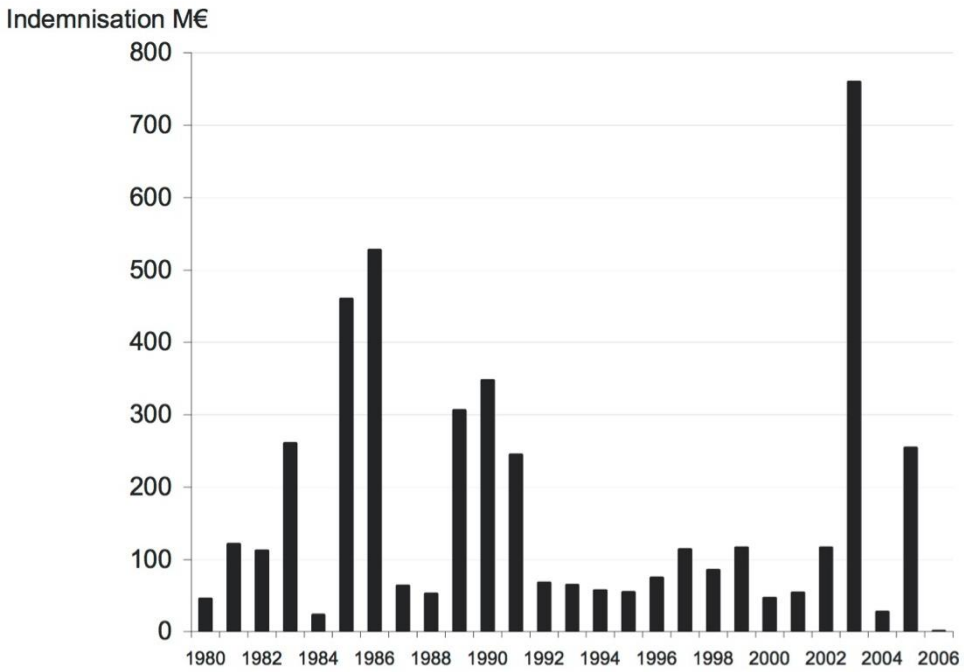


Figure 8: amount of compensations paid to farmers as per the national solidarity fund for agricultural disasters (Mortemousque, 2007, p. 6).

Quite paradoxically, several interviewees also report that aside from the official plan to develop climatic insurance, many actors from the financial sector now propose ad-hoc insurance tailored to the farm needs, including for example annual income insurance. This situation will need to be further explored during the round table organized in the coming months as part of the project.

Public policies not only organise the agricultural sector to insure its competitiveness and resilience. Over the last 25 years, they have also sought to re-orient practices in order to lower environmental impacts of the agriculture, which have become clearer and clearer. The next subsection is dedicated to such policies.

3.2.4 Environmental policies: on the difficulties to reduce the environmental impacts of agricultural practices

Besides conditionality and greening, several other policies have been set up to reduce farmers' impacts on the environment. Before presenting those, let us briefly recall the main environmental impacts of large scale farming systems in IdF — which are not be neglected.

3.2.4.1 Main environmental impacts of current farming systems

Main environmental issues in the IdF region are linked to water quality and biodiversity. According to the Agence de l'eau Seine Normandie (AESN), agricultural inputs (both pesticide / herbicide and fertilizers) negatively affect nearly 70 % of underground water reserves of the Seine Watershed. This greatly contributes to the fact that France is likely not to be able to reach the water quality objectives set out by the European Water Framework Directive (WFD) by 2021 in more than 80 % of the groundwater reservoir of the Seine watershed. On top of that, 119 water catchment have been closed over the last 15 years because of their decreasing quality (AESN, 2013).

Regarding biodiversity, recent publications have shown that in a 5 years time frame, the abundance and diversity of birds, butterflies and ordinary plants have dropped by 20 to 40 % in agricultural areas, especially where large scale agriculture is well developed (Chiron *et al.*, 2014 ; NatureParif, 2016).

The main "culprits" of this situation are, on the one hand, the simplification of crop rotation and, on the other hand, the considerable increase in the use of agricultural inputs (pesticide / herbicide / fertilizers) in large scale farming, both aspects being linked. It's indeed mainly because crop rotation are simplified that farmers need to use more inputs (Schott *et al.*, 2010). However, an other factor has played an important role in the considerable increase in the use of pesticide: the progressive emergence of resistances. Hence, the efficacy rate for some pesticide has dramatically dropped from 95 % to sometimes less than 60 % over the last 10 years. In the frequent case where no chemical alternative was available on the market, most farmers have answered to that problem by increasing either the frequency of their treatment or the dose, sometimes both.

It is in this context that several public policies at different levels have aimed at changing practices or reducing agricultural impacts through several approaches: incentives, strict regulations, taxes… They are presented below.

3.2.4.2 Environmental conditionality and greening in the CAP 1st pillar: are the tools up to the job?

The CAP is the first "provider" of environmental measures for the agricultural sector. Measures falling under the first pillar are of two types: the environmental conditionality system, set up by the 2003 Luxembourg accord; and the 2013 CAP greening.

The 2003 Luxembourg accord first set up as system of environmental conditionality for the payment of direct aids. Farmers are since then submitted to unplanned controls during which they have to prove that they comply with a series of 18 existing European environmental directives. In terms of implementation, each country had the possibility to define its own "operational" criterion of compliance / non compliance for those 18 directives. France chose to distinguish between three broad domains, themselves subdivided into five sub-domains[6] and 16 norms. For each norm, a series of possible anomalies are described, the presence of which in a farm involving different degrees of payment reduction (from 1 % to 5 %). Four different controlling bodies belonging to different administrations have been designated to carry out controls at farm level for each domain / sub-domain, under the local coordination of the district council for territorial development (DDT). The commission asks member states to control at least 1 % of farmers receiving subsidies.

According to Poux et al. (2006), the interest of such a system lies in its — potentially — subtle combination of coercion and incentive: farmers can get paid of the subsidies they are eligible to, only if they are able to prove that they comply to existing rules regarding the environment. However, at least two factors have led to a weak impact of those measures. First, the way in which criterion and indicators have been defined is not enough straightforwardly linked to clear changes / shift in the most damageable agricultural practices. A farmer can hence well respect the conditionality without diminishing substantially the impact of its farm on ecosystems (Poux

[6] The three domains are: Environment, climate change and agricultural practices (with two sub-domains: environment / good agricultural and environmental conditions); Public health, vegetal and animal health (two sub-domains: health and vegetal production / health and animal production); Animal well-being.

& Ramain, 2006). Second, in the current context of lack of trust between farmers and the administration, controls have been reduced to the minimum in order to avoid tensions (personal communication).

But the 2013 reform has brought an other level of complexity to this situation. Farmers are now required not only to comply with the above mentioned rules, but also to meet three additional conditions to receive a "green payment". Those three conditions are as follows:

- maintain permanent grasslands and keep their disappearing rate below 5 % at the farm level;
- diversify crop rotation: all farms larger than 30 ha have to run minimum three crops in parallel, with the most important one occupying no more than 75 % of the total area and the least important one more than 5 %;
- maintain at least 5 % of on-farm areas of ecological interest (buffer strips, hedges, forest edges…).

While the environmental impact of those measures is quite ambiguous and is even likely to be very low (see notably Poux & Ramain, 2006 ; Bureau & Thoyer, 2014, p. 45), they have created administrative obligations for farmers that are often considered as a "burden" by many actors and observers of the sector, as stated by this coop director:

> "CAP rules are almost un-understandable now by farmers. There are some many rules, so many requirements to be met, that farmers always fear to be in fault. So with the cooperative, we had to provide them with an assistance in order to make sure they comply to the rules and that, in case of a control, they will be able to answer all the questions" (Cooperative director).

This statement also seems to hold true for the measures which fall under the CAP 2nd pillar, broadly aiming at improving environmental quality. The way in which they are implemented and affect farmers' activities is described in the following paragraph.

3.2.4.3 The second pillar of the CAP and the role of the regional government in its formulation and implementation

Since the agenda 2000 reform in 1999, a second pillar dedicated to rural development and the environment has been added to the CAP. An important tool for the implementation of this second pillar are Agri-Environmental Measures (AEM), which aim at providing payments to farmers for voluntary environmental commitments. While at the European level, AEM accounted for 23,6 % of the total 2nd pillar budget during the 2007-2013 programming period, it represented a bit more than 10 % of the French 2nd pillar budget and less than 5 % of the total amount of subsidies distributed to farmers in 2012 (which represents less than 10 €/ ha of arable land, to be compared Austria or Ireland where it represented from 60 to 80 €/ha) (Uthes & Matzdorf, 2013).

Generally speaking, large scale cereal farmers have not been much concerned with AEM since they were launched, as the French priority has long been to orient such measures to extensive livestock systems and as the amount of subsidies they could derive from it was much lower than from the CAP 1st pillar. However, the 2013 reform has brought two innovations that might impact upon farmers of IdF. A first one is the French decision to re-allocate 10 % of the national

CAP budget from 1st pillar aids to 2nd pillar aids[7], meaning that AEM could become financially more attractive and more widely distributed among the different production systems.

The 2013 CAP reform has also led the French government to opt for the co-management of the CAP 2nd pillar measure with regional councils. While the content of the regional measures are jointly defined by the French agricultural ministry and the regional council, this later is in charge of their concrete implementation through the definition and implementation of a "Regional Rural Development Plan". For the IdF region, this plan was issued and validated by the European Commission in August 2015 (Région Île de France, 2015b, a 1143 pages long document!).

Among the types of AECM[8] proposed in IdF, at least five of them can directly concern large scale cereal farmers. Three of them are "classical" AECM, in the sense that they were already proposed during the last CAP programming period. They concern (i) the maintaining of an herbaceous cover all year round; (ii) the maintaining of linear elements of the farm, especially hedges, natural talus, drainage channel and herbaceous strips; (iii) a decrease in pesticides use. Farm plots eligible to those measures are those whose farms belongs to defined territories (on the basis of the mapping of environmental issues — see Figure 9 below for the example of water catchment areas).

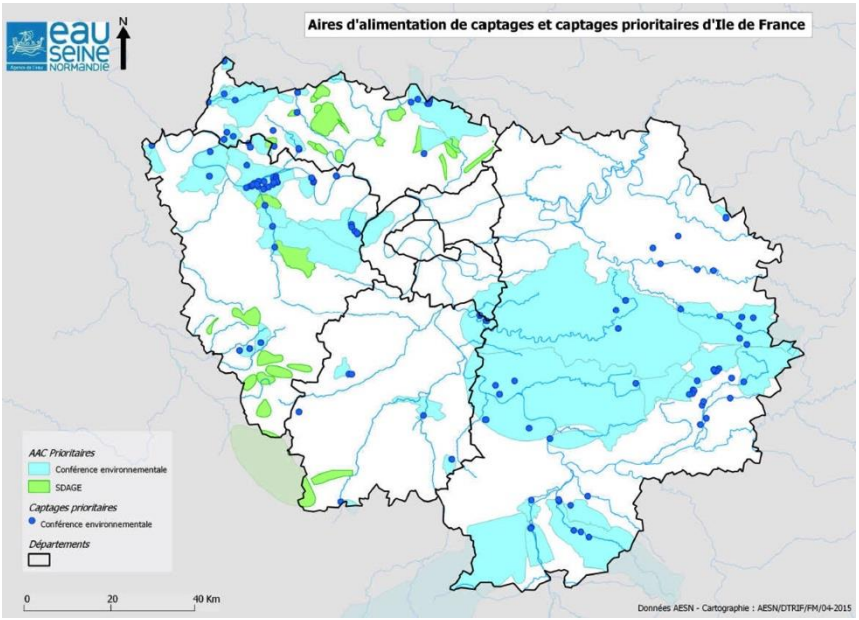


Figure 9: priority water catchment areas eligible to AECM (source Région Île de France, 2015a)

A fourth one differs from those three first types of measure by the fact that the measure has not to be applied at the plot level but rather at the farm level. That's the reason why this type of measure has been called "system AECM". For such "systemic" measure, farmers must commit to (i) diversify crop rotation and (ii) reduce the use of chemicals (both pesticides and fertilizers).

A fifth type of measure aims to help farmers to convert (or maintain) their farm (partly or on totally) to organic agriculture. This type of measure also benefits from a specific support from

[7] In a context where 2nd pillar measures have now to be co-financed by member states and the EU.

[8] The C has been added by the last reform and stands for "climatic": agri-environmental and climatic measures.

the regional council, besides what comes from the CAP (see for example Région Île de France, 2014).

For all those five measures, farmers have to make a five years long commitment. The payment they can receive ranges from 80 to 285 € / year but some of them are cumulative. Those amounts can not be considered as negligible in a context where subsidies coming from the 1st pillar will be decreasing. However, the implementation process is highly complex[9] and was not defined until the end of 2015 while the 2013 reform was supposed to be implement from January 2015 onwards. This means that for more than one year, nothing was possible for farmers willing to improve their practices. The type of controls that apply to farmers opting for AECM is also much "harder" than for those who only ask for 1st pillar aids. As a consequence, the proportion of farmers who have actually asked for AECM has so far been quite low and is not likely to grow quickly in a near future, as explained by this actor:

> "Measures that concerns the 2nd pillar are supposed to be fine tuned to the territorial context, but this entails high administrative costs. For farmers that go for AECM, it also implies more control — which we shouldn't say to loudly as it could discourage them to apply. […] The EC indeed defines controlling rates for each measure it funds, which can be up to 3 % at the district level. Ok, fair enough, but if there are only three beneficiaries in the whole district, at least one of them need to be controlled, which means that one third of all farmers will be controlled… Overall, farmers applying for one or several AECM are likely to be much more controlled that their colleagues who only rely on CAP 1st pillar subsidies and who do not make any effort. But there is also a second problem, which is the fact that AECM are the last subsidies to be paid for, administratively speaking. So farmers have to comply with strict rules, they are heavily controlled, but they get paid very late…"

To foster the implementation of AECM at the regional level, the regional council has also developed specific plans and measures to reward farmers' transition towards agro-ecology or even organic agriculture (see CR IdF, 2014). The results seem, however, to have been limited so far. But other approaches have been developed to re-orient farmers' practices that rely more on a regulatory approaches than only on incentives. This is partly the case of the Ecophyto plan, which is described in more details in the following paragraph.

3.2.4.4 The eco-phyto plan to halve the use of pesticides in agriculture by 2025: ambitious objectives, difficult implementation

The Ecophyto plan was launched in 2008 in the wake of the French "Grenelle de l'environnement", a multistakeholder conference dealing with all environmental issues hold under the Sarkozy presidency. A strong consensus emerged from the Grenelle regarding the need to simultaneously reduce the use of pesticides, outlaw those which were considered as too dangerous and better use those which were still authorized. Following the commitment n° 143 of the Grenelle, an expert group was gathered in 2007 to define an implementation strategy, which was then called the Ecophyto plan. A year later, the EU issued the 2009/128 directive which established "a framework to achieve a sustainable use of pesticides by reducing the risks and

[9] For each area concerned by AECM, a project bearer have to be designated through a call for expression of interest (which was launched at the end of 2015). Then, this project bearer — which is often a local elected body, a public administration or a local organisation / association involved in local natural resources / areas management (such as Natura 2000 network site) — is in charge of helping farmers to prepare their application.

impacts of pesticide use on human health and the environment and promoting the use of integrated pest management and of alternative approaches or techniques such as non-chemical alternatives to pesticides". The Ecophyto plan was then considered as the French plan to implement the directive.

It set an ambitious objective: halving the use of pesticide in France in ten years, *if possible* (emphasis added to the original wording). This plan is of particular importance for large scale cereal farmers, as they represent the largest share of pesticide use (in value) at the national scale (see Figure 10 below) (Butault *et al.*, 2010).

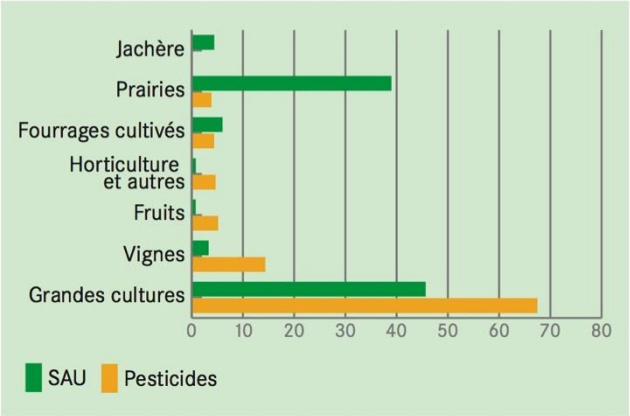
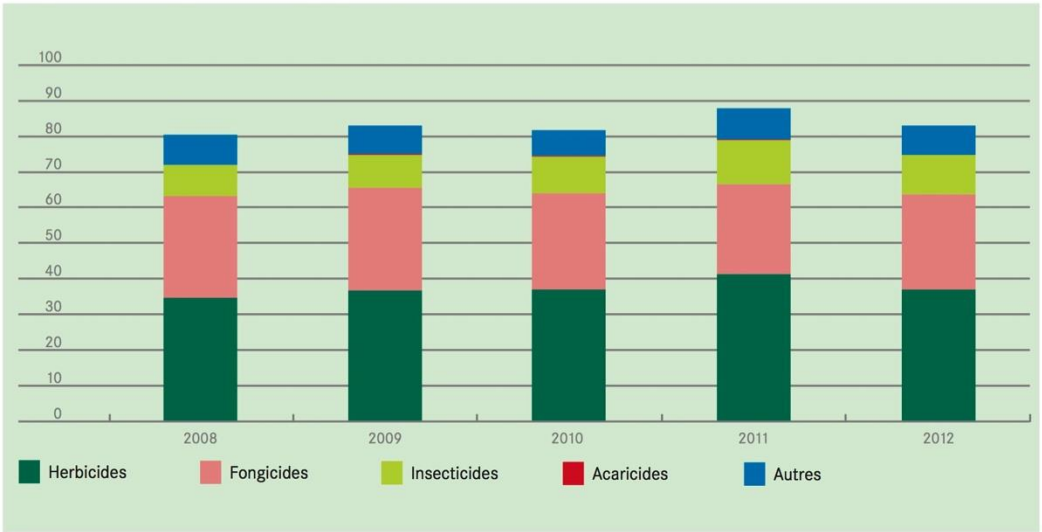


Figure 10: comparison between the proportion of pesticides used by each cultural types (yellow) and its importance in the national UAL (green) (Potier, 2014, p. 25)

If the plan sets ambitious objectives, the policy tools on which its implementation rests are mostly "soft" ones: research and evaluation, incentives, farmers' training. Hence its limited results: by 2013, total use of chemicals in agricultural areas, at the national level has indeed not decreased, but slightly increase by a little 5 %.[10]



[10] The indicator used for the calculation is the "NODU" (NOmbre de Dose Unité, in French), i.e. the number of unit-dose, equivalent to the number of effective dose of a given active substance. This indicator is used to allow comparisons between products of different concentration

Figure 11: number of NODU used in agricultural areas from 2008 to 2012, desegregated by type of pesticides (Potier, 2014, p. 27)

A research report issued in 2010 as part of the Ecophyto implementation plan then proposed technical solutions to attain the initial objective (Butault *et al.*, 2010). It was followed in 2014 by a revision of the initial Ecophyto plan under the then leftist government. The revised plan, which is now in its implementation phase, has had (and will have) two major regulatory implications for cereal farmers.

- on the one hand, the plan has set out to progressively withdraw market authorisations for the – so recognised – most dangerous pesticides. As a consequence, all pesticides from the neonicotinoid family, notably used for rapeseed cultivation, have been banned by a recent law on biodiversity conservation and are to disappear from French agriculture by 2018. In the same vein, The use of glyphosate is concerned by similar measures at both European and French levels. If those processes led to an effective ban on glyphosate, this could threaten the whole dynamics launched under the banner of "conservation agriculture";
- on the other hand, the plan has planned to put all pesticide retailers (and above all cooperative) under the obligation to reduce the amount of chemicals sold to farmers by 20 % by December 31st 2021. The reference to which this 20 % decrease will apply will be based on the average quantity sold between 2017 and 2020. A recent application decree also specifies that in case a pesticide retailer would fail to meet this requirement, a 5 € fee will be applied for each dose that exceeds the limit fixed by the 20 % reduction objective (RF, 2016, article 4).

A couple of other measures are likely to impact upon farmers' situation in a 5-10 years time frame, without being regulatory / mandatory for farmers. Among the 45 measures which are part of the plan, we have picked up the followings:

- increase the support to the development of decision support tools and bio-control at the farm level (measures 1.2 and 1.3);
- increase the support to experimentation in the DEPHY farm network, a network of farms that have committed to develop experimentation and are monitored by research institutions (measures 2 and 3);
- increase support to the improvement of the vegetal health bulletin in order for farmers to better anticipate the development of pests and bio-agent and control the use of pesticides (measure 5)
- increase support to the development of integrated pest management guidelines at regional / territorial levels (measure 20);
- increase support to the development of low input value chains (measures 22 and 23).

Besides the potential of such measures to bring about concrete changes in farmers' practices, one can note that external experts and agricultural unions do not share the initial statement that lies behind the actual set of measures of the Ecophyto plan. For most experts and researchers, the diagnosis is reducing the use of pesticide by 20 to 25 % could be possible "only" by improving farm management or developing new tools to combat pests and vegetal diseases, while reaching a 50 % reduction would imply a complete redesign of current farming systems (Butault *et al.*, 2010). And this holds particularly true for large scale cereal farming systems,

which trend to use more and more pesticide to counter the fact that the efficacy of most products is declining because of the emergence of pest resistances. However, agricultural union representatives, many professionals of the sector, and technical institutes working with / for agricultural unions (like Arvalis for the Grain sector or Terres Innovia for oilseeds and protein crops one) contest the figures of this diagnosis. To them, improving farm management or developing new tools would only allow to reduce pesticide uses by 13 to 15 %, to by 25 %. And a complete redesign of farming systems by 2025 is at best a promise made to content environmental NGOs, at worse a dangerous political orientation. Hence, the implementation of the Ecophyto plan is seen as one more administrative burden that farmers have to bear, one more sign that political elites do not really understand farmers' situation.

This feeling is nurtured by other administrative difficulties farmers claim to face, especially when it comes to land management and tenure issues. This is the last aspect of our analysis of regulatory conditions, to which we now turn.

3.2.5 Access to agricultural land and farmers' generation renewal in a context of growing land pressure: the role of regulations

Land tenure issues are of a central importance for IdF farmers for at least three reasons. First is the question of farmers' generation renewal. To give a quick overview, the average age of farm's head is 51.6 years old and 57 % of them is above 50 while only 17 % is below 40. The rate of new installation has slightly decreased during the last 10 years, and decreased from 120 / year in 2001 to less than 80 as of today. And less than 50 % of farmers above 50 years old have a clear idea of who will take the farm, while 12 % consider that their farm is doomed to disappear (DRIAAF, 2016, p. 20 and 36). Farmers who are close to retirement as well as those looking for opportunities to start an activity are both concerned by land allocation processes.

The ageing of the farmer's population and the decrease in generation renewal rate goes hand by hand with a second factor, namely the growing pressure for land which exist in a metropolitan area such as the IdF region. In such a context, agricultural land is often seen by economic actors as a "landbank" that can be used for the development of various activities. Local governments have thus frequently to re-assert their wish to maintain the agricultural activities in the area. They also need to develop measures to promote the setting up of new farms or the resumption of existing ones (CR IdF, 2014).

A third factor lies in the dominant narrative surrounding the cereal sector regarding competitiveness, which broadly says that French farms have to get bigger to stay competitive (FranceAgriMer, 2010). As a consequence, farmers who have financial capacity are looking for opportunities to enlarge their farms. They have thus to deal with the existing regulatory framework to do so.

To give a sense of this framework and the extent to which it affects farmers, let us recall the fact that in France, more than 66 % of the Utilized Agricultural Land is in tenant farming '(a figure that goes up to 84 % in the case of IdF). Land use policies that follow the 2nd world war were much concerned by the need to feed the nation, hence the high degree of protection they gave to farmers in its relationship to the landowner. A second element to consider is the agricultural structures policy that France formulated and started to implement in the beginning of the 1960's. At the heart of this policy was the need to modernize the French agricultural sector by

favouring medium to large scale farms which a couple (husband + wife) could run. This policy was structured by two main set of measures: one dealing with land use aspects, the other one with the setting up of new farms and generation renewal. Two important structures were created to implement this policy: the Comité Départemental d'Orientations Agricoles (CDOA — District committee for agricultural orientations) and the SAFER (Société d'aménagement foncier et d'étalissement rural — Society for land management and rural development), which were together tasked with making sure that each agricultural land movement at the district level would well contribute to the agricultural development plan, as it was conceived at that time (that is, leading to both concentration and specialization in order to be competitive): to whom should the land be allocated, on which basis, for which project?

This agricultural structure policy had a strong impact on agricultural land use at the national level, and more specifically in IdF, where the process of concentration and specialization started earlier than in other French areas. However, in the 1990's, new trends in farmers' generation renewal and growing concerns regarding the environmental impacts of large scale agriculture led various actors to claim for a change in this policy (e.g. the association "Terres de Liens"). Their aim was to foster the development of alternative agricultural in an area dominated by large scale farmers. Both the CDOA and the SAFER are indeed still highly attached to the continuity of what is often considered as the only viable agricultural models, which often makes difficult for alternative project bearers to get farm land.

Despite these attempts and the fact that the regional government rallied this perspective 15 years ago, the current framework is still mostly favourable to farm's extension and specialization, as large scale farmers have also found ways to circumvent the different amendments brought about in the policy framework (see notably Barral & Pinaud, 2015). While certain authors contend that things are likely to evolve towards a weaker hold of large scale farmers over land access given the growing openness of the land attribution process (Sencébé *et al.*, 2013), our interviewees pretty much confirmed the still important control they have.

Let us now turn to market conditions and how farmers manage to sell their production.

3.3 Market conditions: farmers as price takers on a market highly structured by public policies

As discussed above, access to markets for cereals and oilseeds has been highly shaped first by French policies and then by the CAP evolutions. Given the evolutions of the policy framework, we'll fist show how farmers developed tools to cope with growing market liberalization (section 3.3.1). However, they also invested important resources to develop new markets in order not only to cope with policy changes, but also to be able to take advantage of them (section 3.3.2). As we shall see in this section, while the general framework is pretty much the same, market conditions for wheat and rapeseed production have evolved differently (sections 3.3.3 and 3.3.4).

3.3.1 Access to market: the legal obligation to sell grains and oilseed / protein crops to recognized storage agencies

In France, farmers have since 1936 the legal obligation to sell their cereals and oilseeds to a storage agency which has to be recognized by public authorities.[11] These storage agencies have the legal obligation to periodically report on the amount of grain collected and sold. In such a system, farmers can not, for example, directly sell their production to a processor or to an other farmer. Twenty seven such recognized storage agencies exist in the IdF region, but many others are situated in the nearby regions and used by local farmers. Two types of storage agencies can be distinguished: private ones and cooperative ones. Cooperatives largely dominate the market and collect more than 75 % of the total wheat and rapeseed production. While cooperatives are production tools used and owned by farmers themselves, farmers can also be seen as "captive suppliers" of the cooperative system. This latter, which was developed in France at the end of the 19th / begin of 20th century, has since then received a constant support from the successive governments. In particular, they were often mobilized to implement agricultural policies, which led to their progressive consolidation (Nicolas, 1988, p. 119). Over the last three decades, the cooperative system has been highly transformed through a series of fusions / acquisitions / capital investment (including abroad) on the one hand, and diversification / subsidiarisation (including under non-cooperative forms, especially downstream the food chain) on the other hand (see for more details Filippi *et al.*, 2008).[12]

While the system imposing farmers to sell to a recognized storage agency was set up in the mid 50's to help farmers to cope with price volatility[13], the successive CAP reforms have led farmers to be fully exposer to this same price volatility, despite the maintaining of the historic system. And the high instability of international market prices (see below Figure 12 for the example of cereals) led to an important variability in farmers' income over years (see Figure 13, reproduced from the case study introduction).

[11] Since 2010, storage agencies have just to be declared to public authorities and the recognition is not anymore mandatory.

[12] Many cooperatives are now part of cooperative unions, some of which weighting more than 5 billions € of annual turnover and being officially "owned" by more than 10 000 farmers. Their importance on the French food market is so widespread that for example, one out of three foodstuff brand is owned by a cooperative. But cooperatives also have stakes in the feed and agro-industrial sector apart from food, having with for example a 26 % stake in the company "Diester Industry", main French company to produce biodiesel (see below).

[13] The 1953 decree on a cereal plan for France set up, for example, a guarantee price for wheat that was to be paid *cash* to farmers by the storage agency, which was in turn reimbursed by the government if market prices were lower than the guarantee price.

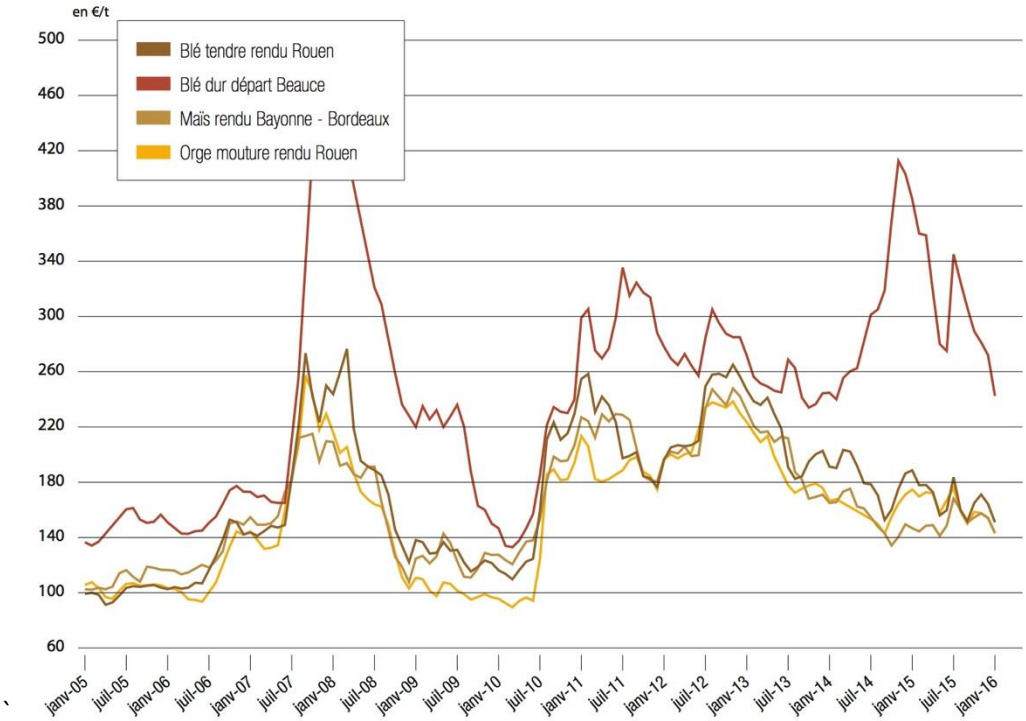


Figure 12: Evolution of main cereal prices over the last 10 years (source: Passion Céréales, 2016b)

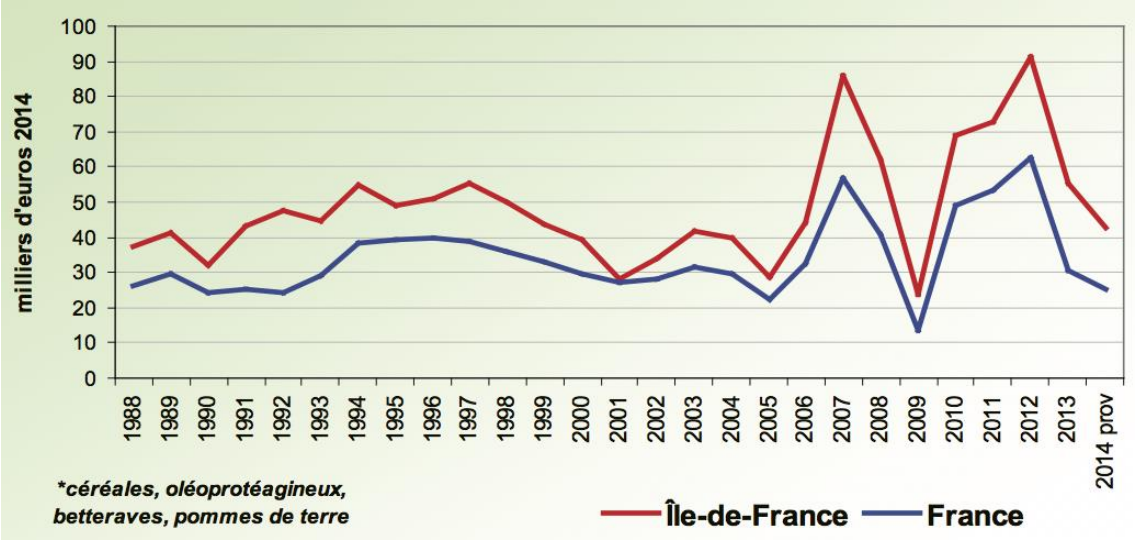


Figure 13: IdF farmers' pre-tax current result compared to the national average for cereal and oilseed / protein crops farmers (source: Agreste Île de France, 2016)

But as Desbois and Legris (2007) have shown, market prices in agriculture have been progressively disconnected from production costs, meaning that the price farmers get for cereals and oilseeds often not cover their production costs. For example, average production costs for wheat have been estimated to be above 140 €/t and around 1450 €/ha. In a context where market prices are around the very same value of 140 €/t, subsidies are thus needed to generate an income.

In this context of price volatility, farmers are above all price takers. Private merchants generally offer to buy at market prices, while cooperatives can propose farmers two options. Farmers can either delegate selling operations to the coop to be paid an "average price" at the end of the

campaign. Or, they can take the responsibility of the sell by selling strictly “at market price” to the cooperative.

In the first option, a farmer usually get a first payment when he delivers his production to the coop. This payment is calculated on the basis of current prices and prices on future markets 6 to 9 months down the line. At the end of the production campaign, generally around December / January, the coop calculates the average price to which it has itself sold a given product for a given quality (be it wheat or rapeseed) during the campaign. Its own margin / operational costs are then subtracted to this average price to give the average price *paid to all farmers who have chosen the “average price” option*. In this case, the farmer is not directly exposed to price variability, but “through” the cooperative. However, if the average price he will get at the end indeed depends from actual market prices, this option also allows him to partly hold the coop accountable for this price. This is indeed the coop responsibility to manage price variability, over risks on financial market, and to sell at the right moment to the right customers, in order to valorise the intrinsic quality of farmers’ production (if any — but this is often the case for wheat grown in IdF, highly convenient for the flour milling industry). Advantages of this system for cooperative is that they can manage their stock with more flexibility.

In the second option, the farmer physically deliver his production to the coop — this is a legal obligation, as mentioned above. But the coop has then to wait for his order to sell his production on the market. In this case, the farmer needs to stay tune to market evolutions and his himself exposed to price variability against which he has to hedge, especially by using future markets, options and swamps. Such a situation imposes the farmer to spend a significant amount of his on his computer to follow price fluctuations, identify options, etc, and it also requires specific skills and a good knowledge of what financial instruments are. As a consequence, this option is not the most used by farmers, though we don’t have official figures for the whole region. The proportion of farmers selling at an average price is said to be a bit higher than 50 % total, while farmers selling at market price is a bit below. Let us now quickly review the type of financial instruments commonly used by farmers to hedge against price volatility.[14]

3.3.2 Hedging against price variability: a diversity of tools but no easy solution

Apart from insurance tools that we presented in paragraph 3.2.3 and which are likely to be developed to insure not only climatic hazards but also farm’s turnover, farmers have at least two other options to hedge against price volatility: financial instruments, and the development of storing capacities.

3.3.2.1 Using financial instruments to cope with price variability: the rise of future markets and the emergence of options

Future markets were set up in the US at the end of the 19th century for major cereals (wheat, corn, etc.). However, they were banned by the 1936 French law that set up the first intervention prices (before the CAP) and the obligation for farmers to sell their grain to recognized storage agencies (mentioned above). The use of future markets for agricultural commodities was re-authorized only after the 1992 CAP reform in 1993, while the French future market was created in 1986 (the MATIF). The first agricultural commodity quoted on the MATIF was the rapeseed,

[14] Cooperatives and private merchants also use such financial instruments to cover themselves against price variability once they have bought farmers’ production. The ways in which these organisms make use of those instruments will however not be detailed in this report, which mainly focuses on farmers’ situation.

in October 1994. While the number of rapeseed contracts exchanged on the MATIF rapidly increased after this date, the wheat future market did not develop that well before the mid-2000's. One of the reason behind this situation is clearly the maintenance of intervention prices and important coupled subsidies for wheat whereas such dispositions were abrogated for rapeseed after the 1992 reform (see above). The progressive end of coupled subsidies and the increase price volatility on the wheat market, in the years 2000's, changed the situation and the number of contracts exchanged on the wheat future market started to increase after the mid 2000's (see Roussillon, 2008). Farmers who sell their production at market price to the cooperative now commonly use future markets to hedge themselves against variability. In some cases, they can also ask the cooperative to do it for them and then pay management fees to the cooperative. This limits transaction costs as in this case, they don't need to open themselves an account on the Euronext market, nor to make themselves the guarantee deposit that is to ensure that they are solvent. Future markets perform two major functions for farmers (and cooperative / private merchant): a hedge function against price variability; and an important "price discovery" role, as farmers have come to rely more and more on futures prices for their planning (Lecoq & Courleux, 2011).

With the 2007-2008 agricultural price spike, farmers also started to use options to take advantage of possible and rapid price increases. Once a farmer wants to sell a part or the totality on his production, he can buy a selling option (called a *put*), which is formally the possibility to sell his production at a given price at a given time, whatever the market price will be at that time. If market prices are raising, he can sell his product at the market price and will then benefit from the price increase. If market prices are falling, he can exert his option and sell at the fixed price decided at the time he bought his option. He will only have lose the price of the option, usually between 10 and 20 € / ton (Eurépi, 2012). Options are sold to farmers by banks, insurance companies or agricultural consultancies. In recent years, some cooperatives have also started to propose options to farmers, who marked a clear interest for such tools.

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While those financial instruments (both future markets and options) have become crucial to manage the risks associated with price volatility, both for many farmers and for their buyers (cooperatives and private merchants), the rise of agricultural derivatives markets has also been said to be responsible for the growing agricultural commodity markets instability (Clapp & Helleiner, 2012). As such, if some farmers can sometimes derive benefits from these financial instruments — those who chose to sell their production by themselves and at market prices — they are all affected by the growing price volatility. Hence their ambiguity with respect to farmers' conditions.

3.3.2.2 Developing storing capacity on farm to hedge against / take advantage of price variability

An other tool farmers who have enough financial capacity can use to hedge against price variability is to invest in storage, in order to be able to wait for the best moment to sell their production. However, storage capacities are not well developed in the IdF region, as stocking cereal is often costly and logistically complex (see map below). This complexity is linked to sanitarian and quality issue, that is the need to insure that grain quality will not be affected during the time it is stored. In that respect, the French government has issued a set of guidelines that farmers have to respect when they set up storage facilities on their farms (Coop de France *et al.*, 2011).

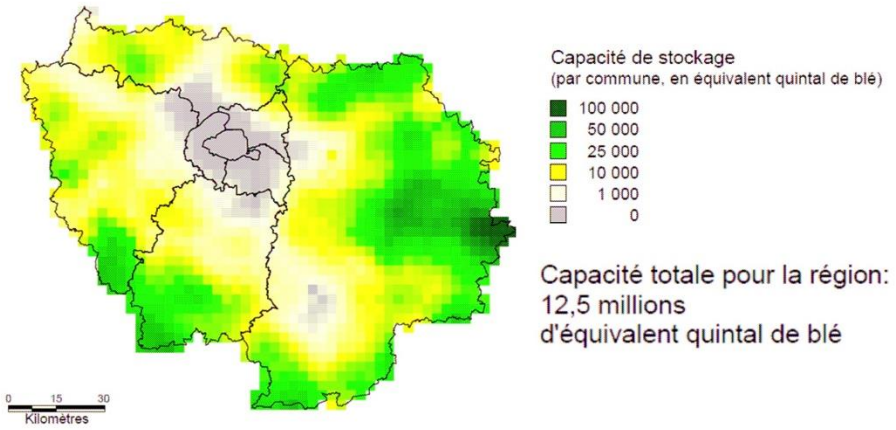


Figure 14: Storage capacity in IdF, commune by commune (Agreste Île de France, 2015)

3.3.2.3 Organising and structuring the markets as mean to limit risks at the farm level

As discussed in the section 3.2.1, the successive CAP reforms have led to the disappearing of guarantee / intervention prices for most productions — except for wheat. Hence farmers' greater exposure to price variability, but also the need for them to reflect on the marketing of their production. Major tools developed to do so were interbranch organisations and financial instruments (for both the oilseed and the grain sector). Before presenting how farmers themselves truly organized their markets through the rapid development of those two instruments (sections 3.3.3 and 3.3.4 below), a quick technical and economical note is needed to better understand the type of factors considered by large scale farmers in IdF to decide upon crop rotations.

An important starting point is that wheat is often considered as "the noble grain" par excellence and hence the preferred crop for most farmers. Not only has this cereal a symbolic value, but it benefits from a constant and growing demand, and is technically not too complex to grow. Overall, it can be said that it is probably the most efficient crop a farmer can grow in terms of the ratio economic gains / resources and time allocated.

However, from an agronomic point of view, it's difficult to grow wheat on the same farm plot for two consecutive years — even more difficult for three years and almost impossible for four years — hence the need for farmers to find diversification options at the farm level. Historical crop rotations in IdF involved "secondary cereals" like barley, durum, oat or maize, and protein crops such as spring or winter fababeans, lupins, alfalfa, peas…

As long as intervention prices were existing, the issue of marketing these "secondary" products was not a too strong preoccupation for farmers, and growing one or the other was mostly a personal choice of the farmer with respect to its agronomic or logistical constraints. The liberalization process and the end of intervention prices progressively put an end to this situation. As we shall see, as early as the mid 1980's, farmers started to organize themselves to organise possible outlets for oilseed and protein crops, notably because of unfavourable trade agreement that forced them to identify alternative market options. This situation came later in the wheat sector, which has benefited from a longer protection from European policies.

3.3.3 The wheat market: issues of price and quality on an unstable market

Out of the 2 Mt of wheat produced in IdF, an important proportion is sold on the domestic market (and up to 90 % according to Passion Céréales, 2016a). This is a specificity of the IdF region, as nearly 50 % of French wheat production is otherwise sold on the export market. This results

in part from the presence of an important milling industry in IdF which is the first French producing region for flour. The 23 mills set up in the area together produce nearly 700 000 tons of flour. Though local mills do not necessarily buy local wheat, they often do so and represent a major market for most cooperatives (DRIAAF, 2016, p. 51), as stated also by this cooperative director:

The quality of the wheat produced in the area for the local milling industry and the making of "French style" bread is well recognized — though the value added captured by the producer in the bread value chain is, on an average, inferior to 6,5 % of the total value generated (OFPM, 2016). This has led many cooperatives and private merchant to invest in a differentiation strategy in order to supply this regional market. Some of them have for example built direct partnerships to supply McDonalds France or the French biscuit brand Lu. Existing contracts entail that farmers respect a given set of specification for producing the wheat in exchange of a price premium. Such initiatives do not however rely on specific marketable standards or brands as they are specific to each situation. In the same vein, a cooperative has recently launched "AgriÉthique". The initiatives aims at involving all stakeholders of the bread value chains to favour national and environmental-friendly wheat production in order to supply at fair prices regional mills for bread production. As of today, the initiative gathers 921 partners and is still growing.

While French wheat is well adapted to national demands, its low tenor in proteins (10,5 to 12 % on an average, compared to Russian, Ukrainian or American wheat that can contain up to 14 % of proteins) makes it less and less suitable to the international market were the demand is increasingly for a wheat with a higher tenor in proteins. The issue is not a burning one for farmers in IdF, as the export market only represents 10 to 15 % for them. Most of them are nonetheless quite interested by the French "protein plan" launched by inter-branch organisation and which aimed at increasing protein tenor in wheat through innovation in both genetics and cultural techniques (Arvalis, 2015).

Other market differentiation options exist for wheat producers, which are rapidly presented below.

3.3.3.1 Going for organic?

The wheat organic market has been highly profitable over the last few years, with a mere 60 to 70 % premium on the market. The difficulty of the organic market is often that while farmers can get an interesting premium if they get good crops, they have also to take greater risks. As such, one of the most frequent cited difficulty of the transition towards organic agriculture is how to deal with that risk? In case of a pest or any disease for which they do not have agronomic / technical solution, farmers indeed run the risk to loose the whole harvest threatened by this pathogen. Though the Ecophyto plan (see above, sub-section 3.2.4) has announced that the state will soon make concrete propositions to help farmers hedging themselves against this risk (MAAF, 2015, measure n° 26), the proposed solutions are not likely to be available before 2017 or 2018. The growing support given by public actors to the conversion to organic is also presented by some as leading to a risk of overproduction with respect for the demand in 5-10 years. This will need to be discussed in more depth during workshops and focus groups.

3.3.3.2 The biofuel option

As we will see in the following section, the biofuel sector has been widely developed by a series of public policies by the beginning of the 2000's. At that time, a large part of wheat produced in France was still bought at intervention prices (101 €) by the EC as world market prices were quite depressed. The need to supply oil companies with biofuel that was to be incorporated in their

products as per the 2005 law requirement was then a great opportunity since the average price to which wheat was bought for biofuel was nearly 110 to 120 €/ton (see notably Cour des Comptes, 2012, p. 105). If prices are now more around 140-150 €/t, most actors of the sector agreed on the fact that the bioethanol outlet will remain an important adjustment variable in a context of growing price variability. Many cooperatives in IdF hold shares in one factory in Seine et Marne, which is operated by Bléthanol, a consortium owned by two cooperative unions.

3.3.4 The rapeseed market: a (mostly) domestic market structured by public policies and inter-branch organisations over the last 25 years

As seen in the case study introduction (see section 3.1.2), animal feed and biofuel are the two main outlets for rapeseed production. The development of these two market opportunities at the French level, which resulted in the important development of rapeseed production, can not be separated in France from three intertwined factors. The first one, which we developed in paragraph 3.2.1 on Policy & Regulatory conditions, is the 1992 CAP reform. The second one is the complex array of laws and directives (at both national and European levels) which, from 2003 to 2009, set up a series of incentives for the development of biofuel production. The third one is the structuration of an inter-branch organisation in the oilseed and protein crops sector back into the 1980's. Simply put, while the former opened the possibility for farmers to be remunerated to cultivate rapeseed — considered as an industrial crop — the two later allowed for the development of an industrial chain able to process rapeseed grains and transform it into both biodiesel and animal feed. The combination of the three factors allowed industrial players to benefit from really cheap raw material and an advantageous fiscal regime during the first years of their development and thus to quickly consolidate their position in the sector. The result today is the existence of a strong national industrial sector for both biodiesel and animal feed which tends to stimulate the demand for rapeseed and insure farmers a market. This strongly influenced the development of rapeseed cultivation in the area, which increased by nearly 10 times between 1979 and 2010 (DRIAAF, 2016, p. 52). From a commercial point of view, it has also allowed for the development of specific long term contracts (on a three years period basis) that give farmers some visibility, an appreciable aspect in times of high instability. Currently, nearly 80 % of the rapeseed production produced in the region is sold and processed in France, more particularly in the two closest trituration factories of Grand-Couronne and Mériot (DRIAAF, 2016, p. 53).

The 2009 European directive on climate and energy, which set the objective of 7 % of biofuel incorporation in the transportation sector, has recently been re-asserted at the French level by the 2015 law on energetic transition and green growth. This recent law indeed establish that by 2030, 15 % of the total fuel in the transportation sector should come from biofuel. In parallel, the French government has reaffirmed its will to maintain or even increase its capacity to cover national protein demand for animal feed, that heavily rests on rapeseed production. In such a context, the domestic demand for rapeseed is likely to continue to grow or at least to maintain at its current level, giving farmers clear opportunities to sell their production (see notably Le BIPE, 2014). On the energetic side, one should not, however, neglect the growing competition with imported palm oil, as the oil company Total has recently announced its whish to develop an alternative process to produce biodiesel based on palm oil — a much cheaper raw material than rapeseed.

3.3.5 Intermediary conclusion: market conditions as the result of actors' effort to (re/de)structure value chain

The last two section (3.3.3 and 3.3.4) on wheat and rapeseed markets evolution well illustrate the crucial role played by farmers themselves, trough different organizations, to structure their outlets on both domestic and international markets. In the IdF context, where wheat production is technically quite simple and profitable enough (at least compared to other crops), efforts made to structure those markets have however been limited to specific outlets and few, most profitable, crops. Even if several plans have recently been launched to favour the development of various value chains (barley, durum) or to improve the profitability of protein crops through direct support to producers (MAAF, 2014), those "secondary crops" have long been quite disregarded by both policy makers and farmers' organisations. As a result, potential outlets have remained limited and thus farmers have no incentives to develop them, hence forming a "vicious circle" (see for example the statement made by MAAF, 2014, p. 8).[15] However, there would be many other good reasons to develop those cultures, from an agronomic, environmental and even economic and commercial point of view, if one consider for example the important French deficit in proteins for its livestock sector (Interview Y. Guy).

More generally speaking, many actors consider for example that there is a lack of public and private effort to structure value chains for crops requiring less chemicals or having the potential to improve the quality of ecosystems, called "low input crops". A recent report published on behalf of the AESN considers that the development potential for such crops at the whole Seine watershed level is probably of more than a few dozens (AESN, 2016). Some of the measures of the second Ecophyto plan (see section 3.2.4 on public policies supporting environmental practices) could contribute to the development of those value chains and hence to create market opportunities for farmers, but the results are not likely to be seen before 2-3 years (see section 3.2.4 above). A positive aspect is that, from a logistical point of view, the "technical aspect" for accessing the markets is pretty much the same than for wheat and rapeseed. Farmers have indeed either the legal obligation (for all cereals) or the logistical possibility to sell those crops to the same recognized storage agencies (private or cooperative ones) to which they actually sell most of their production.

The case of sugar beet, which represents more or less 7 % of the UAL in the region, deserves a special mention as well, for at least two reasons. A first one lies in the end of the sugar quotas of 2017. This is said to be potentially a strong opportunity for French sugar beet growers as it should allow them to increase their production and benefit from the development of new markets (export as well as domestic). However, to seize this opportunity, French farmers will need to improve their productivity and decrease their production costs in order to be more competitive, notably when compared to Brazilians (CGB, 2015).

Second, the logistic chain for sugar beet is way more complex than for wheat, as the beet need to be processed no later than 48 h after having been harvested. This implies that on-farm storage is not possible and thus that farmers heavily depends on their buyer.

[15] A recent report by published on behalf of the AESN has estimated that the gross profit differential between wheat — as a reference crop — and three other alternative crops (lucerne, hemp, miscanthus) is between 30 and 50 % (AESN, 2016, p. 99).

3.4 Key issues related to market and regulatory conditions from the literature

The analysis of regulatory and market conditions through literature review and stakeholder interviews for large scale cereal farmers in IdF has identified a list of key issues that are briefly summarised through a SWOT analysis (Table 3). The key issues mentioned will inform future discussions with producers and other supply chain representatives as part of Task 2.3.

Table 3: SWOT analysis for large scale cereal farmers in IdF

Strengths	**Weaknesses**
Excellent agro-ecological conditions Still important production subsidies coming from the CAP even if are declining Strong agricultural Unions capable to weigh on the policy process and defend farmers' interests A strong hold on the administrative process for agricultural land allocation Good communication network to distribute the production Big cooperative as strong player on both national and international markets Excellent and stable wheat quality (normally! 2016 is not a case in point to that respect…) Strong inter-branch organisations capable of developing market opportunities on domestic and export markets	French decision to decrease the support to large scale cereal farmers as part of the CAP convergence process Moderate to high sensitivity to price variability / volatility, with no easy-to-use instrument to cope with Over simplified farming systems unsustainable on the long run (soil degradation, pest resistance with no chemical solutions) Farming systems with a high environmental impact and low incentives towards agro-ecological transition, difficulties to comply with existing environmental regulations. Lack of generation renewal in a context of ageing farmers' population
Opportunities	**Threats**
Next CAP reform? Emergence of insurance instruments to hedge against market prices volatility A growing demand for biofuel incorporation as per the new law on energetic transition	Next CAP reform? Emergence of new generation biofuel made up with palm oil instead of rapeseed oil, threatening the domestic market for rapeseed. Competition is getting stronger on the wheat import market with eastern Europe countries Difficulties to develop the export market due to the specificity of French wheat Lack of market opportunities to re-diversify farming systems through the re-introduction of (at least) protein crops, but more generally livestock

	Growing pressure for land

3.5 Key insights from focus groups and workshops

3.5.1 Introduction

To explore further how farmers develop strategies to face an evolving business environment, two focus groups (FG) and one participatory workshop (PW) were organised over the period between March 2017 and May 2017. FGs and the PW were recorded and fully transcripted to allow for a careful analysis of the data gathered.

Considering the (relative) homogeneity of farming systems from a technico-economical point of view, but also the area under consideration, the two focus groups were organised based on geographical considerations: one focus group for the Eastern part of the Île de France region, one for the Western part. The first FG gathered 12 farmers and the second one 5 farmers. Each FG lasted for 2h30 from 10 a.m. to 12.30 and were followed by a lunch during which discussions went on (details on participants are given in appendix 1). Each FG was organised the same way: after a short presentation of the context of the study, the main results of the market and regulatory inventory for the case study were put into perspective with the results obtained in other SUFISA case studies of the same commodity cluster. The presentation ended with a sort of framework through which each farmer was invited to briefly describe his / her farm during 8-10 minutes (date of creation, structure of the farm in terms of areas and heads, number of working person on the farm, other types of production than milk / dairy products, main commercialisation channels, main problems encountered over the last 5 to 10 years). After this first round the table, the discussions unfolded following two main axis:

— farmers were invited to discuss each other's strategies to face similar changes in their business environment: what have been keen factors to account for successful / failed strategies?

— they were then invited to discuss about their respective overarching goals and / or the main determinants of their strategic decisions over the last 5 to 10 years.

The FGs ended up with a discussion on future perspective regarding the ongoing CAP reform process.

The PW was organised a month later and gathered seventeen participants, including farmers' representatives and farmer professional organisations, local governments, state representatives, value chain actors, a banker, and civil society organisations. It lasted 2h30 and was also followed by a lunch gathering all participants. The discussion was introduced by a quick presentation of the main findings of the focus groups and the market and regulatory inventory. The participants were asked to react through post-it following four main lines of analysis, namely:

(i) commentaries or propositions to add to the proposed diagnosis;

(ii) what do they see as the main driving forces of the sector over the next 5 to 10 years? Which changes are likely to happen that are beyond their reach but will impact upon them?

(iii) what projects do they currently have or do they plan to develop to face those possible evolutions (i.e. to take advantage of any opportunities or to avoid too negative constraints)?

(iv) what sort of actions/ decisions do they think other actors (than them) should take to foster the sustainability of the sector, to contribute to the establishment of what kind of institutional arrangements?

The data collected during the two FGs and the PW were analysed following three axis of reasoning, which form the main headlines of this section of the report. A first axis relates to the way in which farmers *frame* / think about the conditions under which they farm. While the market and regulatory inventory allowed for a formal analysis of those conditions, FGs in particular allowed to understand how farmers *subjectively interpret* and *weight* them with respect to their personal *stakes*. The two other axis of analysis relate to the kind of strategies farmers develop to face the conditions perceived as the most *problematic.* Those strategies can be roughly clustered in two categories that are, of course, interlinked: strategies at the *farm* level, and at a *collective* level. As we will show below, those strategies can translate into the creation of (or the attempt to create) specific institutional arrangements aiming at modifying the framework in which farmers are embedded. As we will also see, for each condition deemed problematic, one or several strategies are developed by farmers at one or several levels.

3.5.2 Main challenges of the contemporary conditions as perceived by Île de France farmers

In the current context, farmers gathered during the two FGs and the PW underlined seven major challenges that affect the most their activity. They relate to both the policy and economic framework, and are developed in more details below.

3.5.2.1 The 1992 CAP reform and its consequences: price volatility and international (unfair?) competition on the world commodity market

For all participants, and most particularly those who experienced directly the 1992 CAP reform, one of the main current condition of their activity is that they have to sell most of their production at world market prices. This has, to them, at least two direct consequences on their income: it depends directly upon world market prices fluctuation; and they are in direct competition with other major cereal growers in the world (Northern America and the Black Sea region especially).

Price volatility and long term investments

The end of the guarantee price has indeed not only affected farmers' direct income; it has also directly impacted upon price volatility, that has fairly increased. While the direct payment still function as a form of insurance – farmers know how much they will get per ha independently from how much they produce – most of them have pointed out the fact that their production costs for wheat (the most important crop) were most of the time *not covered* by the price they get for it. Production costs are indeed said to range from 1300 to 1500 € / ha, which means, depending on the yield, between 162 and 250 € / t, while over the last 20 years, and apart from the 2007 and 2010 price spikes, prices ranged between 100 and 200 € / t. The high fluctuation and the interval of this fluctuation has great consequences over the *variability* of farmers' income. While farmers have unanimously considered this as a major constraint for planning long term investments / strategic changes in their production system, other actors gathered during the participatory workshop were quite critical *vis-à-vis* this position. They indeed pointed out the important material investments made by most farmers in machines, tractors and so on, that were not all the time *as needed* as claimed but were rather a mean to avoid taxes (see above section 3.2.3.1).

World competition, French competitiveness and the cost of production factors in France

The question of competitiveness has been highly debated. During focus groups, all partners mentioned that the 1992 reform has put them in direct competition with other key areas in the

World, especially the Black Sea and the Northern American one. All farmers denounced the sort of "unfair competition" they were suffering from, as the European – and more specifically the French – regulatory conditions are way more stringent that their Eastern Europe or American counterpart. This, to them, is a key factor leading to a higher cost of most production factors and, in turn, a much lower competitiveness. The question of labour costs and of the impact of a quite stringent labour code was especially discussed and compared to the situation in Eastern Europe and Russia, where conditions are judged much more favourable to farmers. Farmers' analysis was quite aligned with (and sometimes directly inspired by) a report published in 2010 by Ernst & Young on the French wheat sector competitiveness (FranceAgriMer, 2010).

A quite controversial aspect regarding production costs was also discussed: that of the size of farms. Many farmers and professional organisms pointed out that, besides the additional cost of respecting norms, French farmers can not compete with German, American or Ukrainian ones because their farm is too small. This has been quite challenged by other participants of the PW, as well as by a minority of farmers inside FGs. One farmer even insisted on the fact that in his areas, accountancy data tends to demonstrate that small farms were more competitive than large ones. While there is obviously no single answer to the issue of size, it has again (as found in the media analysis) polarized part of the debate. Many farmers denounced the fact that the French regulatory conditions were favouring small scale farms, referring to (i) the premium subsidy given to the 52 first ha to farmers (but which large farmers also receive…) and (ii) the so-called "structure-policy" that govern agricultural land deals (either for buying or renting land) and which is actually supposed to favour newcomers rather than to facilitate enlargement.

Amongst the other aspects of the regulatory framework deemed unfavourable to French farmer competitiveness – when compared to their European and international counterparts – were all regulations related to the environment. A specific section needs to be dedicated to it given the importance it has been given and the number of consequences it has.

3.5.2.2 Environmental regulations and environmental demands (from the society)

Environmental regulations have been pointed out as a – if not THE – major constraint farmers have been facing since 25 years. Two main aspects were discussed: the unfairness of environmental regulations vis-à-vis both other sectors of the French economy and other countries; their large impact on farm functioning and their inefficacy.

The "unfairness" of environmental regulations

On the one hand, environmental regulations are judged too sharp in France and Europe when compared to other competing countries, and this is deemed to affect farms' competitiveness. While this can be hold true when comparing with Ukrainian or American Farms this is obviously not the case when doing so with German farms – as French environmental regulations directly derive from European ones and are common to all EU countries.

Considering the EU level, most farmers pointed out the fact that any new environmental constraints / conditionality (such as the greening of the CAP or the cross compliance mechanism, two key instruments of the current CAP) were having direct consequences on the level of subsidy they receive, as it costs money to implement them.

On the other hand, some farmers called into question their "true" responsibility regarding environmental degradations, or even the reality of this degradation. They denounced the impact of other sectors – most notably land artificialisation or the transportation sector – on the environment and the fact that those were not subjected to so stringent regulations than them.

The impact on farm functioning and the inefficacy of environmental regulations

The main aspect of environmental regulation discussed during FGs and the PW relate to the use of chemicals / pesticide. In farmers' view, the constant diminution in the number of authorized molecules is a major factor that has had systemic impacts on their farm functioning. According to farmers, it has led them to come back more often with the same molecule on a given crop, and hence to increase pest resistances. A research institute representative mentioned that resistance to a given pesticide in rapeseed cultivation has grown from 3-4 % to more than 40 % over the last 10 years, and that this is not at all an isolated case but rather a general trend.

While the "plan Éco-phyto" launched in 2008 was supposed to bring the French agricultural sector to a 18 % reduction of pesticide consumption by 2025, it has totally failed so far and is denounced by farmers for being inapplicable. On the other hand, agri-environmental measures of the second pillar of the CAP are highly criticized for being not adapted to farmers' conditions.

3.5.2.3 The growing impact of climate change on farmers' strategies

Farmers have strongly underlined the growing impacts of climate change on their farms. Its impacts are manifold: decrease or stagnation of yields, increase in pest occurrence and resistance, extreme climatic events having determining impacts on the quality or quantity of the production. Extreme climatic events, such as the drought of 2003 and 2009 or the driving rain of 2016 are of course the most impacting events for farmers, as it often has immediate and dramatic consequences. But the stagnation of yields, which can however have multiple determinants, has been pointed out as a probable consequence of climate change, as well as the increase in pest occurrence / pest resistance. For pest occurrence, all farmers mentioned the extremely warm 2015-2016 winter which resulted in a high prevalence of fungi, which, consequently, required farmers to use much more fungicide than a "normal" situation. The increasing pest resistance encountered by farmers was also clearly considered as a consequence of climate change, the result of which being the increase in production costs associated with the increase in pesticide uses.

3.5.2.4 Market conditions: the weigh of (very) large scale buyers for highly commodified production and the consequences of (the lack of) value chain structuration for "alternative" crops

Farmers see their market conditions as marked by two main features. For major crops (rapeseed, wheat, maize, rapeseed and increasingly barley), it is first a highly commodified market, subjected to world market prices fluctuations and organised, at the territorial level, by large to very large operators – be they private traders or cooperatives. Conversely, value chains for less important crops – in particular protein crops, durum wheat, hemp or alfalfa often considered as "alternative" – are far less developed / structured. This impacts quite directly on the ability of farmers to develop such crops in their rotation, as they often fear not to be able to find a buyer buying it at "the right price".

In the Île de France region, cooperatives collect roughly two third to three quarters of the main productions, be it for cereals or for oilseed crops, and private merchant the remnant. Over the last two decades, most cooperatives have undergone a series of fusion and hence have grown quite a lot in terms of their size, number of adherents, annual turnover. Most of them now gather several thousands of members who, in turn, feel more and more afar from decision making processes. It has also led to slight changes in the business strategy of such large cooperatives, that are more and more based on volumes and on financial speculations. While most farmers gathered in FGs and the PW did not consider this as a problem, few of them pointed out two main difficulties brought about by such a system. One relates to the search for value added

creation at the farm / cooperative level. To capture a greater share of the value added, farmers indeed need – in their view – to be able to segregate between different types of production on the basis of quality indicators. Yet, such segregation is barely possible when the cooperative strategy relies mainly on volume, rather than on quality.

The other one relates to the difficulty for those large structure to invest in the development of facilities for "orphan" crops, such as most protein crops (such as Faba beans, lupins or peas – even alfalfa), hemp or durum wheat. This has been pointed out as major roadblock towards the development of such crops in the rotations. In this regard, the lack of value chain structuration has systemic effects and create true lock-ins / path dependency over a certain time. Farmers took the case of the faba bean to illustrate this point: most of them stopped to cultivate faba bean at the beginning of the 1990's and after a sharp increase in production in the 1980's for sanitary reasons. They were indeed not able to manage a fungi, aphémomycèces, that severely impacted upon their yields. Since then, agronomic and genetic research to either find a solution to aphénomycèces or adapt the variety to climate changes remained low, resulting in the faba pean yields decreasing by more than a half. Farmers progressively stopped to plant it, cooperatives to collect it, and buyers to buy it. Now, the whole system is to reconstruct and it has proven to be highly difficult.

3.5.2.5 A sharp increase in the capital intensity of farms that impact on transmission

Over the last two decades, the capital intensity of large scale cereal farms has sharply increased as the result of a triple movements of intensification, specialisation and enlargement. The main impact of this relates to the possibility farmers have to *transmit* their farm. This has become more and more difficult, even in the context of a familial transmission. Several participants pointed out the importance of this problem given that the vast majority of farmers in Île de France are more than 57 % of farmers are more than 50 years old, and among them, more than a half do not have a single idea about to whom they are going to transmit their farm. As pointed out by a participant, a consequence of this could be a progressive – yet real – disappearance of farms and farmers in the region by 2050.

3.5.2.6 Geographical constraints: on the impact of being close to the largest French metropolis

The Île de France regions is particular in that it is one of the world metropolis with the largest agricultural area (a bit less than 50 % of the area is farmed at the regional scale). Over the last 20 years, all local governments have invested a lot of efforts to maintain the level of agricultural areas as it is and to limit the expansion of urbanised areas. However, the population in sub-rural areas of the metropolis as well as transportation infrastructures have been underlined as two major constraints for most farmers. The population, because it exerts a social pressure incompatible with the day to day management of their farm, especially regarding environmental issues. Some farmers reported that they are often shouted at by people living in the countryside but not involved in the agricultural sector, walking or driving around when they use their sulphate sprayer. Regarding transportations, farmers deplored the lack of infrastructure adapted to agricultural machines – tractors, harvesters, etc – and the fact that traffic jams in peri-urban areas often limit their movements at certain time of the day.

3.5.2.7 Intermediary conclusion

Over the last four years, large scale cereal farmers of Île de France have had to face particularly difficult conditions with extreme climatic events, prices going down, and drastic changes in the policy framework (a sharp decrease in the amount of subsidies / hectare already described in the previous section). This has led to many farmers declaring null or even negative results in 2016, and to a large part of them having severe cash flow problems, leading them to contract

liquidity loans. The types of strategies that were debated / discussed during FGs and the PW were thus mostly short term strategies, and it was sometimes very difficult to take a step back and share experiences or reflect on longer term options.

3.5.3 Multi-level strategies to cope with contemporary conditions

Results from FGs and the PW reveal that farmers – alone or in partnership with other key actors of the sector – have developed (or tried to develop) strategies at two different levels to cope with contemporary conditions: at the farm level and at the collective level (targeting either policy makers or other value chain actors). Those two levels are by no means exclusive to each other, though some strategies of course better combine with others. What will also clearly appears from this review is the fact that most farmers feel they have almost no margins of manoeuvre given the contemporary regulatory framework. It follows from that that policy makers constitute ultimately one of the main target of very well structured collective strategies.

3.5.3.1 Farm level strategies

At the farm level, a main insight from FGs and PW is the relative "homogeneity" of farmers' strategies, at least regarding the main technical orientations of the farming system: the specialisation and enlargement pathway is presented as the "unique" way forward given the national / international context. The well-known environmental impacts of such systems are considered as something than can be managed marginally. However, no alternative strategies are put forth or developed that would fully address environmental issues.

Given this preamble, three main types of strategies – inside of the current system – have been discussed quite extensively. They of course relate to how farmers involved in collective action, especially in a context where the cereal branch of the majoritarian French farmers union has long been a key actor of the French agricultural political system (Pesche, 2008). One can distinguish between risk management strategies; production costs minimisation strategies; and value-added creation / capture strategies through different market arrangements.

Managing risks: risk-hedging instruments and farm management practices.

The question of how to manage risks – climatic risk as well as price risk – is at the centre of farmers' strategies. Regarding price risk, farmers have the choice between different marketing options. One must keep in mind that they *have* to sell their production to state-recognized storage operators, be they cooperative or private merchants. On an average, cooperatives collect 75 % of the whole cereal / oilseed production in the region. While a farmer adhering to a cooperative has the *moral obligation* to sell all his production *through* the cooperative, this is not always the case and many farmers prefer to use different commercialisation channels and sell to both cooperatives and private merchants.

As explained in section 3.3.1 above, farmers have two options when it comes to selling their production: they can either delegate selling operations to the coop to be paid an "average price" at the end of the campaign. Or, they can take the responsibility of the sell by selling strictly "at market price" to the cooperative. A vast majority of farmers choose the "average price" for the sake of convenience. Those who have experienced to sell at market price also explained that in most cases, at the end of the day, it does barely allow to better valorise the production.

Regarding climatic risks, farmers have widely discussed the interest of insurance instruments and, to a lesser extent, of the need to re-think their production system. There were long debates about whether or not crop insurances were needed or not, and if yes, how much should it be subsidized. As of now, farmers receive subsidies that can be up to 44 % of the premium for

wheat, and 36 % for oilseeds. Some farmers argued that in the current context of climate change, crop insurances were an essential tool and that it should be further developed. They explained they had been using it for several years and that they were quite satisfied, though improvements are needed – taking, in particular, the North American example. Others, on the contrary, were quite sceptical. Some did try to insure their crop but were not convinced by the tool, finding (see section 3.2.3.2) it either too expensive with respect to the risk against which it hedges. Or they considered that they need other tools that rely more on fiscal principles than on insurance ones; fiscal tools which will allow them to save money during good years, and use that money during difficult years.

Still others did not even try to use insurance tools, considering that what is needed is to develop farming systems more resilient to climatic (and price) risks. Several options were mentioned in that respects regarding in particular the choice of seeds (choosing seeds that are not necessarily the most productive but can produce well in different climatic situations; sowing a mix of varieties rather than having only mono-specific fields) and the rotation of crops (favouring a diversity of crops that will behave differently depending on the weather, rather than focusing on a few productive crops). Relying on greater diversity of crops is also a way to hedge against price risks, as it is hoped that not all prices will go down the same year:

> Aujourd'hui je suis arrivé à 9 cultures sur mes parcelles dont 4 nouvelles en 6 ans. Il faut plus dépendre de blé-orge-maïs. […] Rallongement pour partie, c'est une manière de sécuriser le revenu, de chercher une valeur ajoutée, d'aller chercher des niches. Ou alors une manière de gérer tes adventices – parce qu'on nous a retiré énormément de produits, on a plus les produits qui vont bien. […] Alors avoir 9 cultures dans la cour, c'est plus complexe que d'en avoir 3. C'est plus de charges de travail, mais ça te sécurise ton revenu.

In search of more value-added

As expressed in the quotation above, the question of risk management often relates to that of how to generate and capture more value added at the farm level. Many farmers try to identify and exploit small "niches" that can complement their income and generate more value added. It can take different forms, but it is often through specific contractual arrangements for smaller scale crops (with respect to the overall farm size). Several such niches were mentioned: blé de force for McDo on a couple of hectares; aromatic plants for Darigal on a dozen of hectares; durum wheat or hemp, even though the market for it needs to be further developed.

An other kind of niche is organic agriculture. None of the farmer who took part in our FGs were organic farmers – as organic farming actually represents only 1,1 % of the total area for cereals (Agreste Île de France, 2015). However, some of them explained that they have converted (or they intended to do so) certain plots to organic for strategic / opportunistic reasons (but also because they wanted to see whether or not it could be possible at a larger scale). They mentioned that this can be profitable when subsidies are effectively granted (which is not the case in France on the second pillar since 2016 for administrative reasons), but that they then faced huge fertility problems they did not know how to solve, notably because livestock production has almost disappeared from the area. Hence, organic manure is not easily available and it is costly to bring it from afar.

Controlling production costs (variable and fix): farm size matters!

The last strategic option available to farmers at the farm level is to minimise production costs. Most participants indicated that they have been concentrating their effort on this over the past 5 years, but that they haven't managed to cut costs down as much as they hoped / thought. They pointed out the impact of different norms on their inability to effectively reduce the use of pesticide (less molecules available implies to use them more as their efficiency decreases), or labour costs. Some of them also explained that the enlargement of their farm has led them to massively invest both in machines and in land and that it heavily impacted on their economic equilibrium. Regarding machines in particular, some farmers referred to cooperative for the collective use of agricultural machines (CUMA), which they depicted as credible options to a certain extent only. While CUMA indeed allow to lower fixed costs and investments at farm level, they also reduce farmer's autonomy as he depends on the availability of the machines. Some farmers also mentioned that they partner with their neighbour to collectively buy specific / expansive equipment. They presented it as a more flexible way to reduce investment costs than CUMA but still quite effective.

An agricultural accountant also recalled that many of his clients have over-invested to take advantage of the fiscal regulation. Such over-investments generates high fixed costs which farmers can't compensate only by diminishing variable production costs.

Those discussions led to a debate on farm sizes: are large and specialized farms more competitive than smaller ones? For most farmers around the table, French farms are not competitive (notably vis-à-vis their eastern Europe counterparts) because they are too small:

> Vous avez des […] des exploitations allemandes qui font 3 fois, 4 fois, 10 fois la votre… je veux dire, ya un moment… Soit on veut une petite agriculture diversifiée et les gens sont prêts à payer pour avoir ce qu'ils demandent. Soit ils veulent une agriculture… ils vont sur le marché mondial mais il faut les mêmes règles pour tout le monde. Moi je vois pas comment politiquement on peut vendre du rêve, et laisser en Allemagne, en Slovaquie, en Pologne, des très grosses structures avec élevage, méthanisation, céréales, négoce, et voilà…

An other farmer answered that in his area, accountancy data clearly shows that smaller farm (150 to 200 ha) perform better, in economic terms, than larger ones. Hence, some participants came to question what they presented as an "accepted wisdom" which basically considers that competitiveness is essentially a matter of farm size. As such, the broader enlargement / specialisation strategy, widely (if not exclusively) adopted in Île de France over the last 30 years was also questioned by some – not all – participants. They notably argued for the need to re-think such strategic options in the light of their impacts on the capital intensity of farms. To them, decreasing farms size could favour not only their transmission (see paragraph 3.5.2.5), but also and above all, a slight decrease in fixed costs.[16] On the contrary, the tenants of the enlargement strategy pointed out the economies of scale such a strategy allows for. They argued, in turn, that French farmers and themselves in particular were lacking competitiveness compared to eastern Europe precisely because they were not able to make enough economies of scale.

3.5.3.2 Collective level strategies

Collective action amongst cereal farmers is ancient and well structured. As of today, it takes three main forms that tend to reinforce each other: developing / managing collaborative learn-

[16] The question of specialisation is probably more complex, as in today's farming sector, each crop relies on

ing processes to share experiences and learn from each other; developing upstream segmentation tools to retain more value added at the farm level and regain consumer's trust; and lobbying policy makers through a broad variety of channels.

Developing collaborative learning processes

Over the last 20 years, the agricultural chambers of Île de France have promoted collective learning processes through the establishment of "Development agricultural groups". Those groups are coordinated by an agricultural technician of the chamber and gather up to 20 farmers. They meet on a regular basis to discuss specific topics, such as, for example, conservation agriculture / no till practices, pesticide and mineral fertilizer reduction, crop rotations strategies… The technician brings his expertise to the group and help in taking stock of each participants' experience, notably by putting it in perspective with the best available knowledge. The importance of those groups has been highlighted by many participants as it clearly helps them to identify best practices and how to implement them. This has also been said to be of particular importance in a context where many farmers feel lonely in their day to day business and need support, as reported below:

> Sinon, j'ai une exploitation où je suis seul. Je sais pas trop comment la faire évoluer. Ce qui me pèse un peu c'est la solitude. On voit le voisin de temps en temps, mais on échange pas tous les jours quoi. Après si y a des réunions on se voit, ça permet d'échanger, de se rassurer aussi sur ses choix, parce que c'est pas évident.

Segmenting markets upstream to retain more value added at farm level and regain consumer's trust

Through their cooperatives, farmers also invest in upstream market segmentation. As said before, cereal and oilseed are highly commodified crops and it is therefore difficult to capture or generate greater value at the farm level. One way to overcome this has been to work on supply chain organisations in order to increase their level of transparency for consumers, and be able to trace / label the origin of most raw ingredients back to farm gate in simple end-consumption products, such as bread, table oils, pasta, or yoghourt (in other areas)… This has been possible thanks to the vertical integration of many cooperatives that, on the one hand, collect raw products at farm gate and, on the other hand, use it in the make up of end-consumption products through the subsidiary they control. Two processes can be mentioned here, as they have developed over the last 10 years or so: Agriconfiance, which is led by Coop de France and concerns three cooperatives of cereals in the Île de France region; and Agri-éthique, led by two cooperatives. Both initiatives concern today a few thousands of farmers all over France, and probably a bit less than thousand in the Île de France region. While the idea of such initiatives is to increase the "value" of raw products and allow for a better remuneration of farmers, it has been difficult so far to assess their real impact on prices paid at farm gate. While they have been cited as a key option for the future, they seem to be far less effective than "tradition" collective mobilisation targeting policy makers. We now turn to this last type of collective strategy.

Lobbying policy makers to defend collective interests

Over the years, cereal farmers have developed privileged access to policy makers, in particular in Île de France, as they are geographically close to Ministries and administration centres. This is particularly the case of the majority farmers union and its two specialized sections for cereals

and oilseed crops, namely the AGPB (Association générale de producteurs de blé / General association of wheat producers) and the FOP (Fédération des producteurs d'oléoprotéagineux / Federation of oilseed and protein crops producers). Both organisations are more than 50 years old and have a well established position in all political negotiations that concern agriculture. They notably defend the need to maintain a strong pillar one in CAP subsidies, and to avoid any environmental regulations that limit farmers' entrepreneurship.

While farmers did not spontaneously address such political aspects, they were keen on recognizing the centrality of the union when they were asked about. This was also the opportunity for the only farmer adhering to the minority union active in the field of cereals and oilseed production (the coordination rurale, through its specialised association OPG / Organisation des producteurs de grain / Grain producer organistion) to have his voice heard and to mark some distance with the positions usually defended by the AGBP and the FOP. In particular, he stresses the fact that the OPG does not believe in the fact that the "vocation" of French agriculture is to export and feed the world, but that they should rather concentrate on the national market and stop produce commodities to generate and capture more value added at the territorial level. He was however quite cornered by other participants who were all adherents to the majoritarian union. Interestingly, the political position of the OPG adherent was quite well reflected in his technical choices. He was indeed amongst those that clearly emphasizes the need to carefully examine the most common farm development pattern (enlargement / specialisation) in order to shed light on the potential benefits of alternatives (de-specialisation, re-introduction of livestock through associations between cereal growers and cattle breeders…).

3.5.4 Conclusion

Contrary to the Finistère case study, the situation in Île de France is marked by an apparent homogeneity in farmers' strategies at the farm level. For most farmers, there is no alternatives to the "enlargement / specialisation pathway" that has been adopted over the last 30 years. In this context, existing strategies at both the farm and collective levels are not able to counter the very negative situation in which farmers are. What farmers rely on the most is thus political action: changes in the policy framework would be, for most of them, the most effective way to regain economic margins of manoeuvre in a context where the dominant mode of farming is considered as the only way forward.

3.6 Key insights from producer surveys in Île de France

3.6.1 Introduction: key questions and sample presentation

In order to deepen the analysis of farmers' strategies and how they relate to both market and regulatory conditions, a quantitative survey has been carried out from November 2017 to January 2018. The survey has been run by phone and outsourced to a private company. 139 farmers have been interviewed following an interview grid common to all SUFISA case studies. The main objective of the survey was to dig further the idea that most farmers are following a common strategy and that few – if not any – alternatives do exist to cope with market and regulatory conditions, both being said to be more and more difficult but for different reasons. Market con-

ditions are deemed to be more and more difficult to cope with because of (i) changes in regulatory conditions that create a greater exposure to price volatility; (ii) the increase market volatility associated to – among other – the financialization of the agrifood sector (Vander Stichele, 2015). Regulatory conditions are said to be more and more difficult to cope with because of their relative instability and the lack of a clear political vision regarding where the French agricultural sector is going.

The sample has been designed according to farm sizes, on the basis of regional agricultural statistics. It is representative of the regional farm population specialized in cereals / arable crops. The surveyed farms are 30 to 470 ha large, cropped with wheat at an average of 42,5 %. The average yield for 2016 was 7 tons / ha,

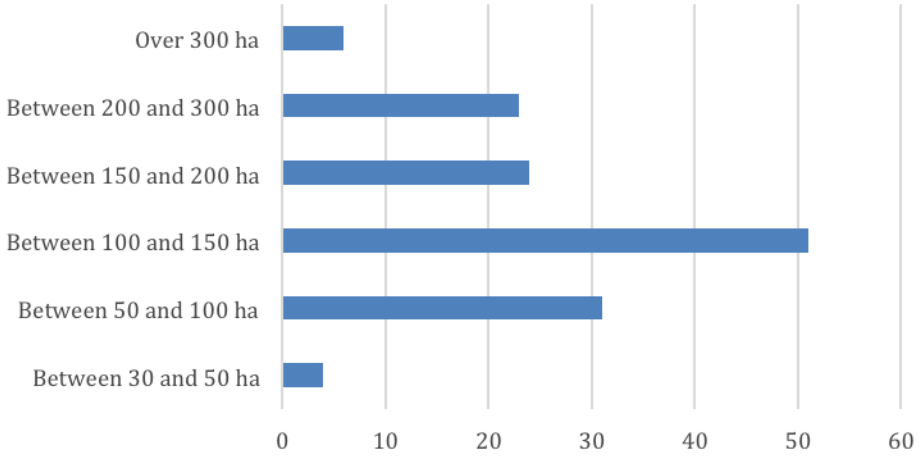


Figure 15: Number of farms (sample) by farm sizes

The vast majority of farms of the sample are run by men who are above 50 years old.

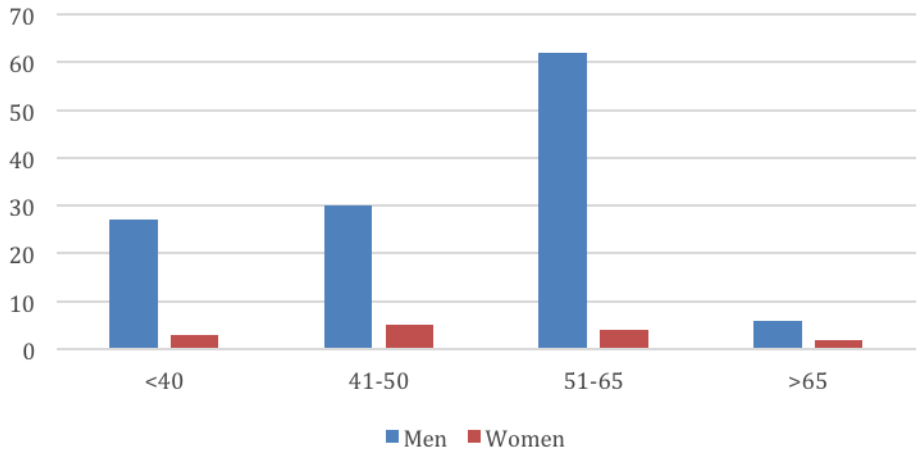


Figure 16: Age and gender of farms' managers

Three main aspects are explored in the following paragraphs: the types and characteristics of sale channels and agreements (section 3.6.2); the way in which the institutional arrangements underpinning those agreements allow farmers (or not) to address a variety of sustainability issues (section 3.6.3); and the type of strategies farmers have been developing over the last years

or plan to develop in the coming years, and how those strategies relate to the two above mentioned aspects (section 3.6.4). As will be shown, no relationships were found between farms characteristics (in terms of size and level of specialization) and the strategies adopted or planned.

3.6.2 Sales channels and sales agreements

As explained in section 3.3.1, two main sales channels co-exist for cereal growers in Île de France: cooperatives and traders / grain merchants.[17] Nearly 65 % of the wheat produced in sold to cooperative and 15 % to private merchants, the remaining being stored on farms either to be used as seeds during the next campaign, or to be sold later.

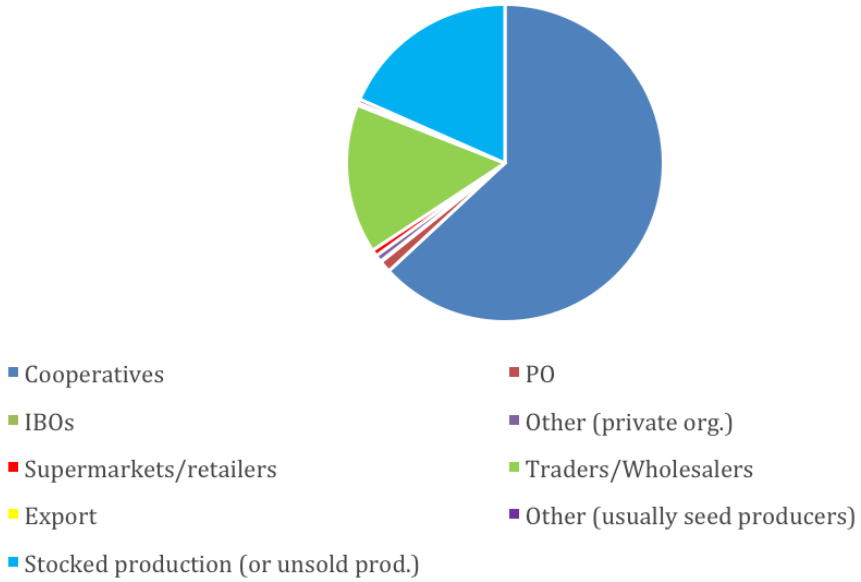


Figure 17: Main sales channels

While most farmers consider that they are not bound to their buyer, only 8,5 % of them sell to both cooperatives and private merchants. This is well illustrated by Figure 18 (last items), which shows that farmers selling to cooperative tend to consider that their sales channel implies some form of exclusivity.

[17] This situation results from the fact that, as explained above, grain buyers in France have to be registered. As such, the possibility of direct sales, for example for the development of local bread chains, is quite limited.

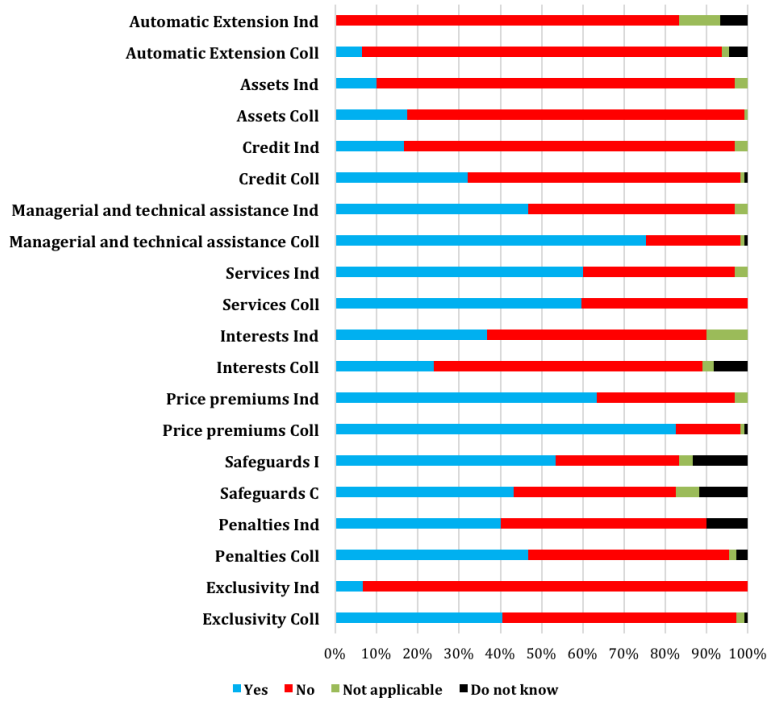


Figure 18: Main characteristics of the sales agreement, depending on the sales channel (individual *vs* collective channels)

Apart from that aspect of exclusivity, the type of sales channels does not have a strong influence over other characteristics of the agreement itself. The main changes we identified between collective (e.g. cooperative) and individual (e.g. private merchants) sales channels can be summarised as follows (see Figure 19):

- The informal character of the agreement with private merchants;
- The average duration of the contract, which tends to be shorter with private merchants;
- The possibility to get a premium (see figure 18).

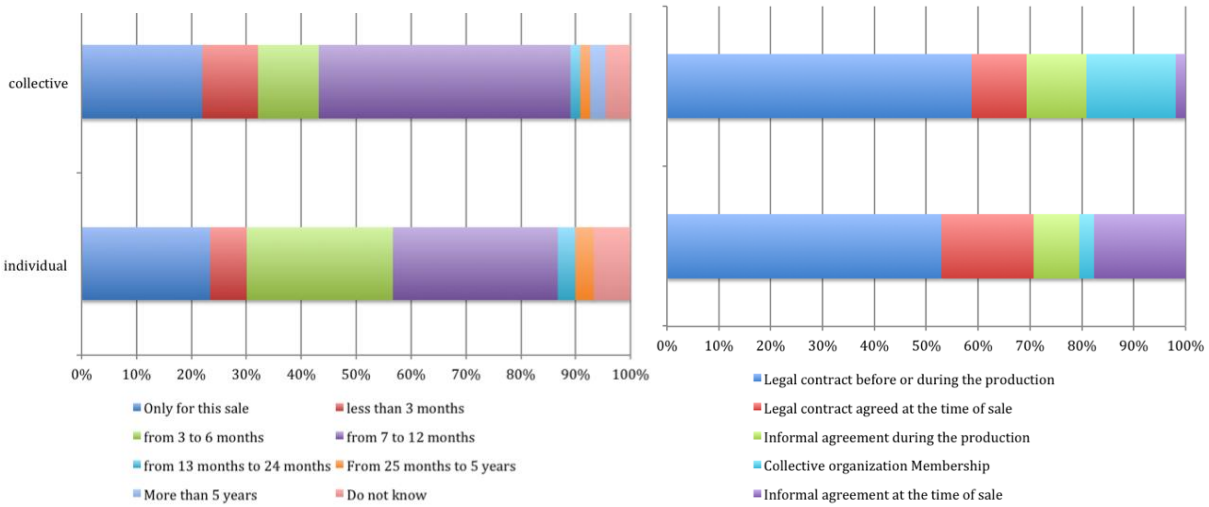


Figure 19: duration and legal aspects of contracts depending on the sales channels

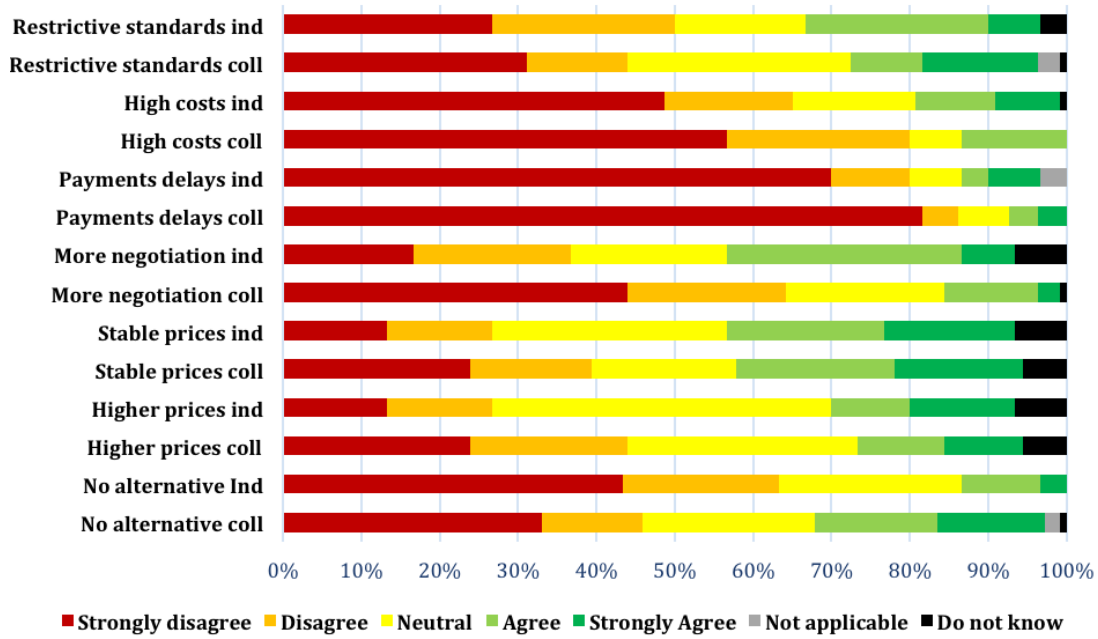


Figure 20: implications of sales agreements depending on sales channels (individual *vs* collective channels)

This is coherent with the data we collected during interviews, during which most interviewees explained that in recent years (and even decades), cooperatives have grown in size and power and have more and more tended to behave "like" private companies seeking profits, rather than like tools collectively owned by farmers (see also Filippi *et al.*, 2008).

3.6.3 Addressing sustainability issues

In line with those first results, a first screening of the survey data tends to show that farmers do not consider that selling to cooperatives or to private merchants makes a big difference in their ability to address a variety of sustainability issues. The three most difficult sustainability issues to address through the sales agreements they engage in are as follows:

- Achieve the social recognition of farm activities;
- Identify a successor;
- Maintain profitability.

The question of maintaining biodiversity comes right after, with 24 respondents strongly disagreeing (and 20 disagreeing) on the idea that their sales agreement could help them address this issue. Other social and environmental issues are considered as loosely related to the sales channels, apart from that of connecting with other farmers.

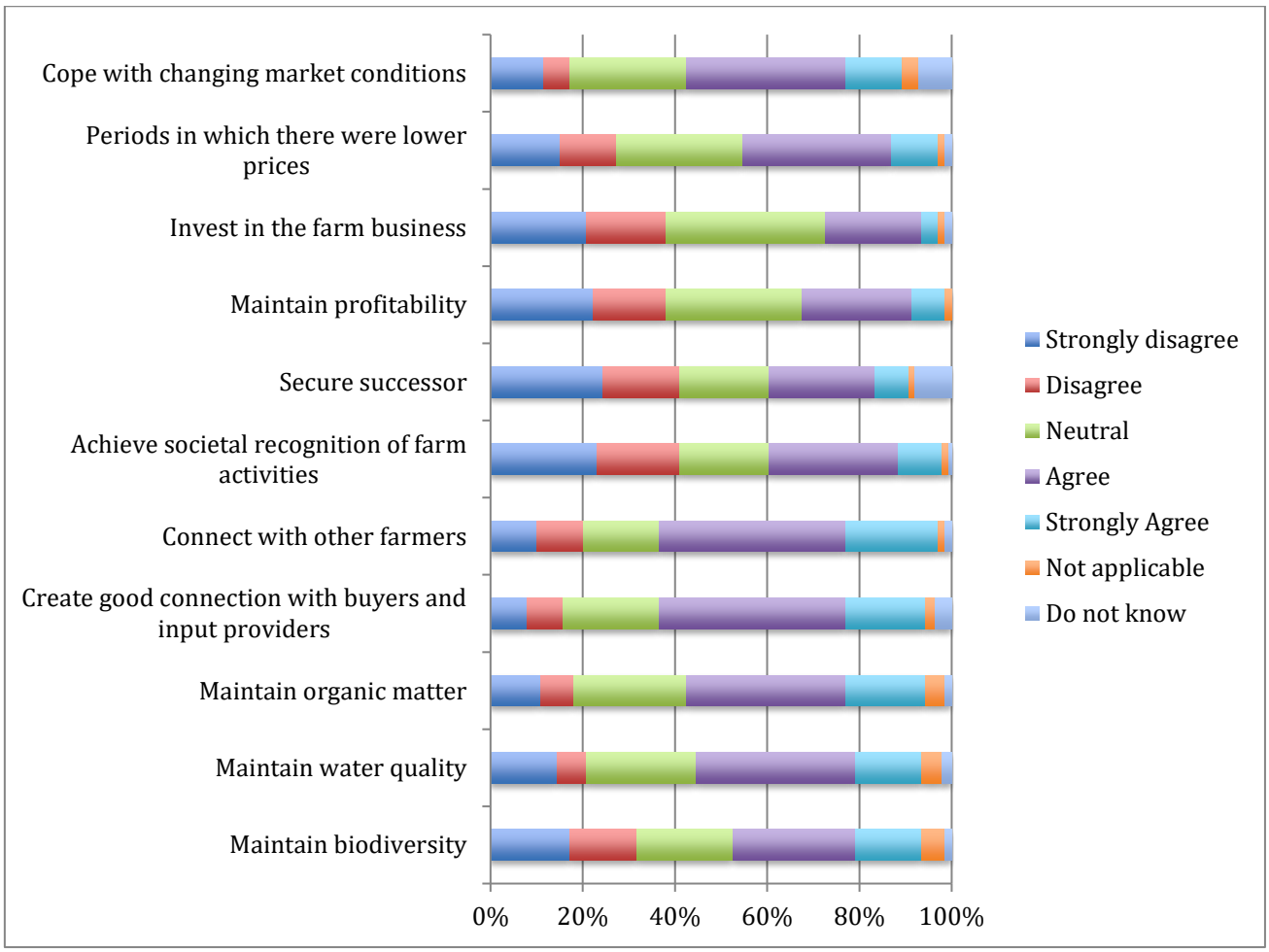


Figure 21: Type of sustainability issues that sales agreement allow (or not) to address

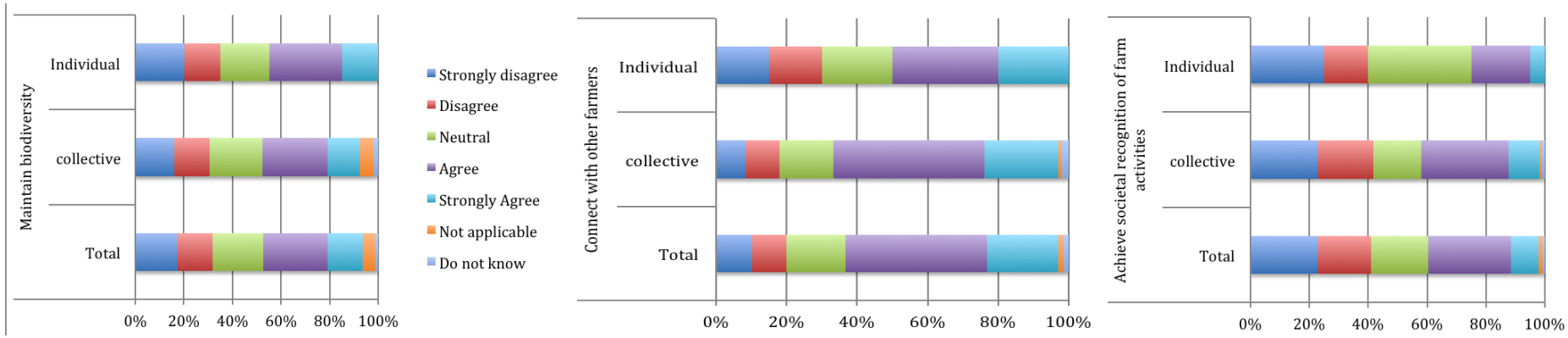


Figure 22: Type of sustainability issues that sales agreement allow (or not) to address, disaggregated by sales channels

3.6.4 Farmers' strategies

The most interesting aspect of the survey concerns the strategies adopted by farmers (or that farmers plan to adopt) in the coming years. The number of farmers having "no plan" in terms of production amount to 35 % of the sample. This tends to confirms the fact that most farmers tend to consider themselves in a difficult situation, with a difficult future to cope with.

In terms of marketing strategies, the diversification strategy that was quite discussed during the focus group is also well represented, with almost half of the farmers identifying diversification as an option. The limited number of sales channels available (itself a consequence of the regulatory conditions) explains why this is not considered as an interesting strategy by many farmers, although a bit more than 10% of them say they will explore new possibilities.

The number of farmers that intend to contract a crop insurance is quite high compared to what was discussed during our focus groups and workshops. Insurance tools were indeed quite debated and not well perceived by the FG participants; one possible explanation is that although they are not totally convinced by insurance tools, many farmers yet consider them as the most viable options in a near future.

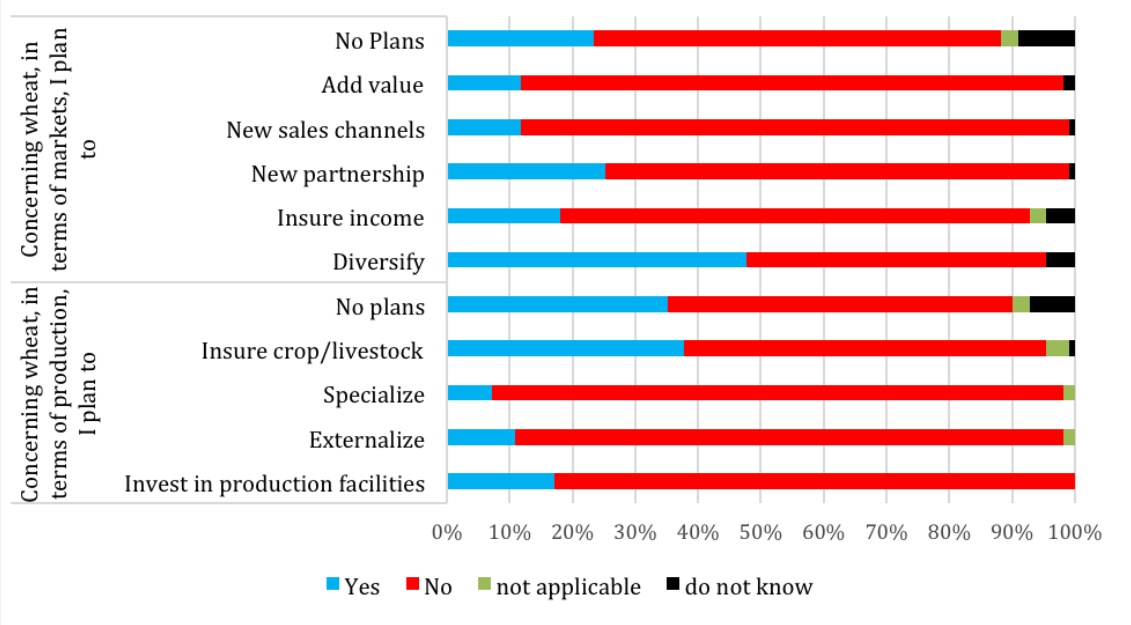


Figure 23: future strategies concerning wheat production and commercialization

Those strategies are associated with two important aspects:

1. One is the fact that more than half of the surveyed farmers do not have any expectations at the moment regarding the future of their farm, which is a bit worrying given the ageing of the population;
2. Second is the fact that almost three quarter of the surveyed farmers intend to maintain their farm at a its actual size. This tends to contradict the tendency of land concentration the area has witnessed over the last 30 years, but is quite coherent with the fact that most farmers usually do not mention the fact that they plan to expand the size of their farm.

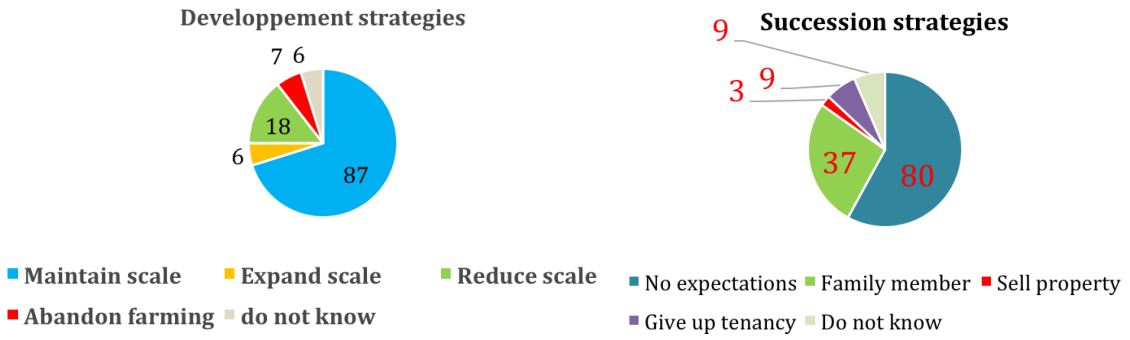
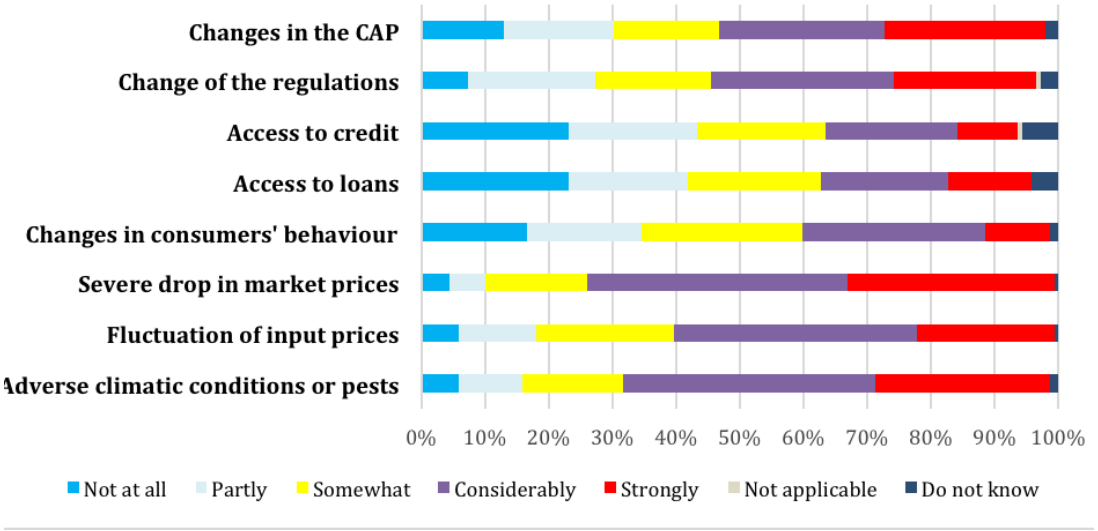


Figure 24: development and succession strategies of farmers

The most important drivers of farmers' strategies seem to be well captured by the survey, the CAP and more generally the regulatory framework being one of the most structuring one, along with market prices. The role of market prices being itself a consequence of 20 years of evolution of the CAP and the regulatory framework, as discussed in section 3 above.



4 Case study B: dairy farmers in the Finistère district

4.1 Case study introduction

The purpose of this case study is to investigate the nature of policy requirements, market imperfections and their implications for the sustainability and resilience of dairy farming in Finistère. We will first give an overview of the Finistère district, before turning to a short presentation of dairy's production systems of the area. The importance of dairy production with respect to the French and then European dairy sector will finally be presented.

4.1.1 Agricultural production in the Finistère district

Finistère is a NUTS 3 region in France, called a *département* (department) and forming a peninsula at the westernmost part of Brittany (see Figure 25).

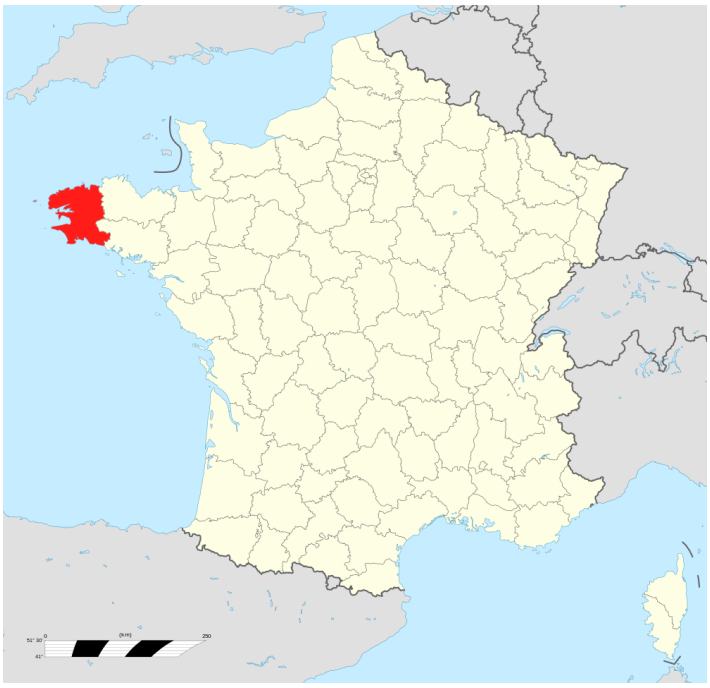


Figure 25: the Finistère district in France

The population is just over 900 000 people with an average density of 133 inhabitants/km² (just above the national average of 118 inhabitant / sq.km). Most of the population is concentrated near the coast. As such urban areas are spread on the coastline whereas agricultural areas are covering 57% of the surface area of Finistère. The central Finistère is sparsely populated and occupied by the rests of the *Massif armoricain*, an old mountain chain which is now really low in altitude but counts a rich landscape diversity with bogs, wetlands, heathlands. A natural park has been created for the conservation of these lands, the second natural park to be created in France in 1969. Besides that Finistère owns the richest natural heritage in Brittany. The importance of its Natura 2000 network is reflecting this landscape richness in terms of terrestrial as well as maritime environment (see **Figure 26**). As a peninsula Finistère benefits from an oceanic climate with a narrow range in temperatures in favour of a continuous grass growth. As

an old massif the region lays on granitic and shallow soils. These two conditions explain the specialisation of Finistère in livestock farming.

Figure 26 : Natura 2000 network in Finistère (Dreal, 2012)

Finistère means in latin *"the ends of the earth"*. It is no surprise that for a long time the region has been isolated from the rest of the country. Back in the 19th century the region was considered as economically "underdeveloped". Only subsistence farming was taking place on the lands whereas the local clergy and nobility were in the centre of the social life organisation. The region experienced difficulties in developing its economy until the first half of the 20th century. It is after the WW II that Brittany suddenly developed its economy mostly on agriculture and agri-food business. Since the 50s, the traditional hedged farmland of Finistère has been little by little transformed into more opened landscapes for facilitating the industrialisation of the agricultural production.

4.1.2 The diversity of dairy farms in Finistère

Agriculture is an important production sector in Brittany. The share of employment in agriculture represents 4% of the regional employment. The added value generated by the Breton agricultural and agri-food sector (8% of the regional GDP) is double the national average (Agreste, 2015). A significant share of farms are specialised in vegetables and cereals production but livestock farming (porcs, poultry, cattle) remains by far Brittany's specialisation. Finistère's agriculture sector is dominated by dairy farming since one third of the farms have dairy farming as their main activity. Specialty types have a varied spread over Brittany's regions (figure 2).

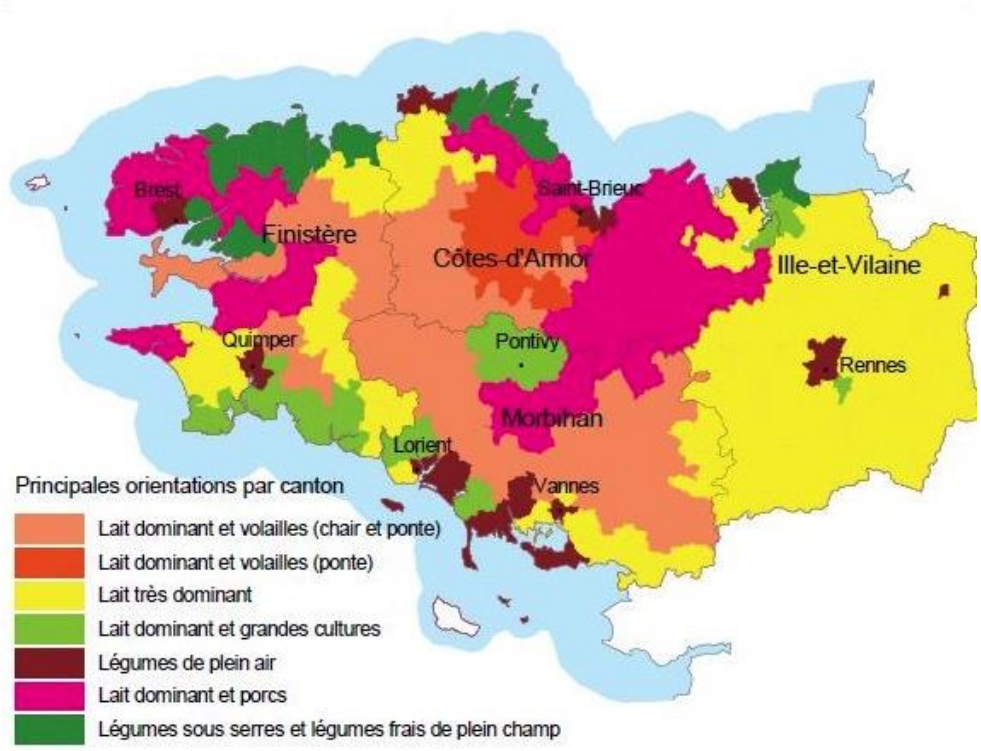


Figure 27: Specialisation of farm holdings in Brittany (source Agreste, 2015)

In Finistère 2934 farms are specialised in dairy production. They contribute for 23% to the entire Breton milk production with 1.18 billion litres produced in 2015 and an average reference of 402 400 litres per farm. 2% of the entire production only is organic, below the 3% national average. Between 2000 and 2010 the region witnessed a loss of 32% dairy farms. A process of restructuration of the dairy landscape is on. Dairy production is concentrating and specialising. As a result even though Dairy farms are equally spread across Finistère, some territories gather a bigger average reference (figure 3). This enlightens us on the diversity of dairy production systems. In the most intensive parts of Finistère are settled dairy farms producing an important reference volume on small Utilize Agricultural Land (UAL) by intensifying their production means. Dairy production can often be associated to other kinds of production within one farm (e.g. dairy cows and pigs). It often allows farmers to stabilize their income but it implies wider investments and different management techniques.

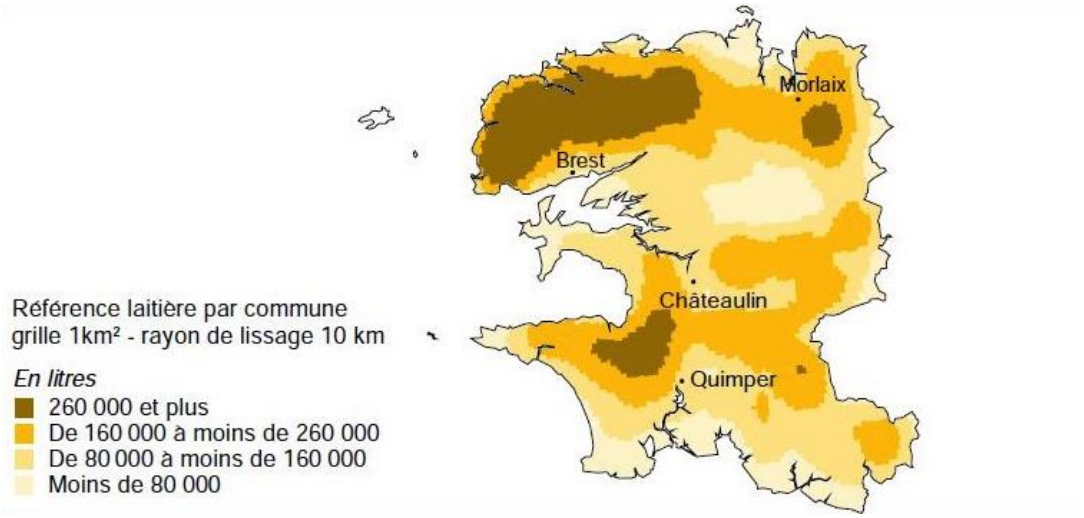


Figure 28: Distribution of the dairy reference across Finistère, on 31 March 2015 (source Agreste, 2015)

According to the Breton average a dairy farm has a 78 ha UAL (89% is leasing) with 60 lactating cows for 1.9 Agricultural Work Unit (AWU). The Prim'Holstein breed is by far the most prevalent. This average Breton dairy farm can be embodied by a standard system specialised in milk production with highly productive cows. In order to keep a high and regular production volume, part of the rotation is used for feed corn (figure 4).

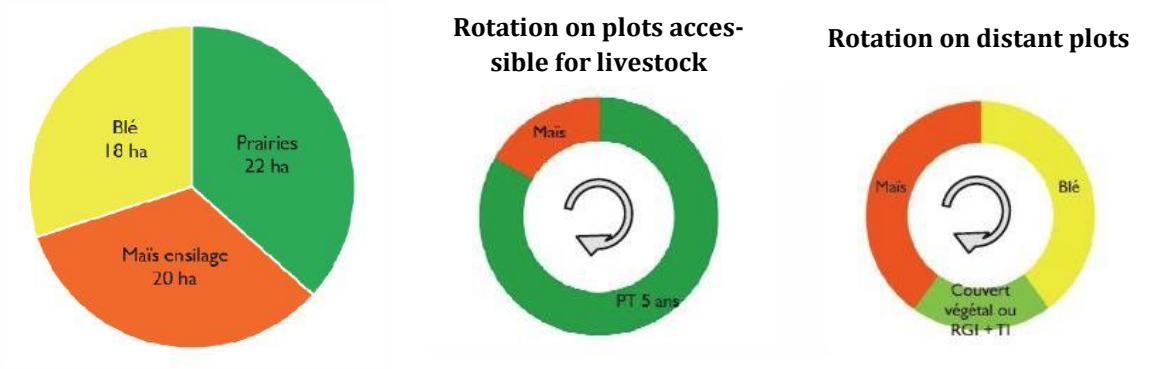


Figure 29: Standard crop rotation for a specialised dairy farm (source Inosys & Réseaux d'élevage, 2015)

With an average yield of 13 tonnes of dry matter/ha it must provide energetic feed for the whole year. Wheat is entirely sold (average yield : 78 q/ha) whereas grasslands, usually plots closest to the farms, will be used for grazing part of the year (figure 5). Grass is also regularly harvest and transformed into hay and wrapping. Crops are usually fertilised with the farm's manure. Pig manure can also be imported if necessary and mineral fertilizer (nitrogen) is only used for wheat crops. Cows are grazing almost the whole year. During autumn and winter they spend the night in the barn. So even though only a small surface area is directly accessible near the farm, cows are sent outside for a maximum of time. During part of the lactating cycle "correctors" are given to cows in order to supplement their diet. Each year each cow receives around 1000 kg of soja

(70%) and rapeseed (30%) concentrate. This mix represents an important input cost. But in general Breton dairy farms have a good input independence.

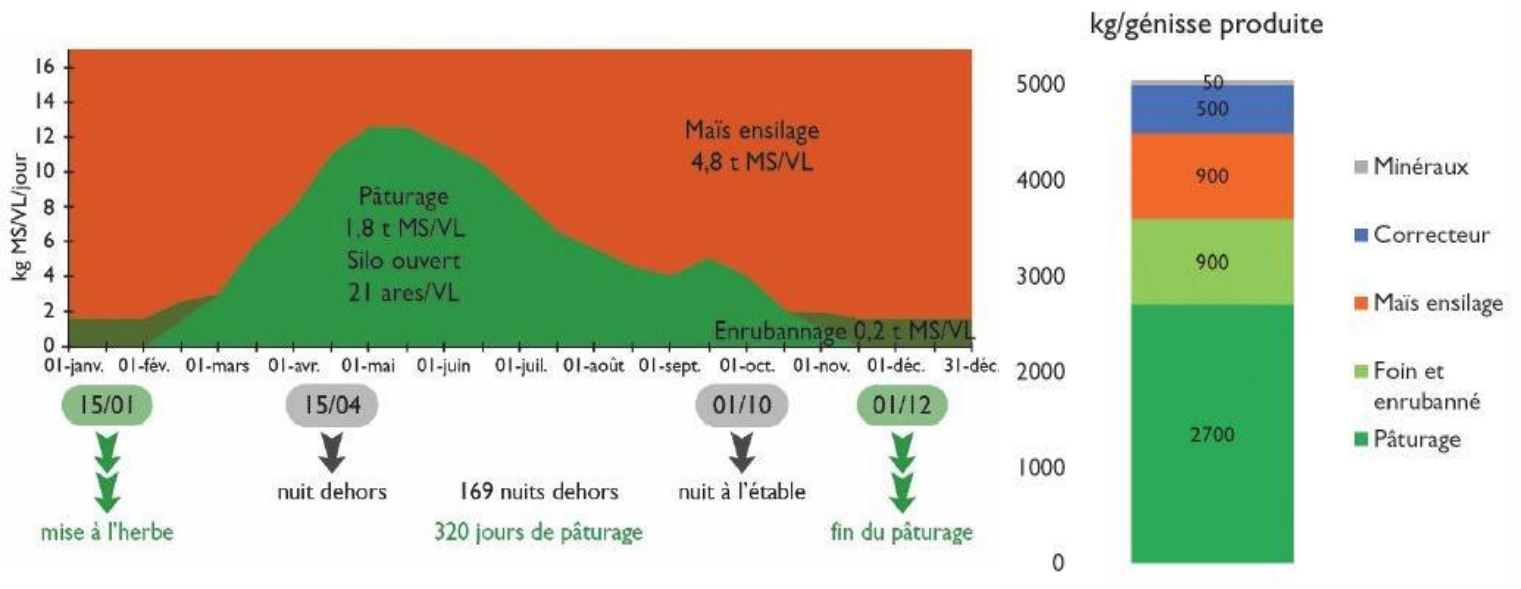


Figure 30: dairy cows' feed in the course of the year and in composition (source Inosys & Réseaux d'élevage, 2015)

This functioning system supposes high investments for livestock buildings, one for the lactating cows and the other for heifers and dry cows. The farmer has also to invest in machinery allowing a minimum of autonomy for field labour. These two kinds of investment cost depend a lot on the farmers' strategy. Renovating building is often necessary for meeting the standards but it can be optional for work comfort reasons. For field labour are existing cooperatives for the use of agricultural equipment (CUMA) as well as agricultural work companies which are undertaking some tasks (silage, hay, etc.).

Strategies for herd management can be varied. But the farmer aims at having a relatively constant milk production (Figure 30). Costs associated to feed and health depend on the farmer's choices concerning feed autonomy, production level and technical knowledge.

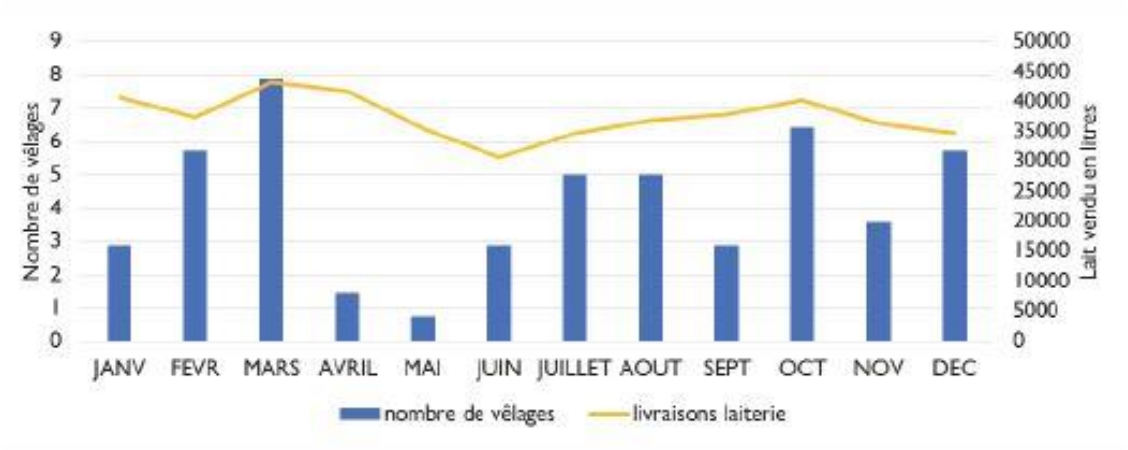


Figure 31: Number of calving and dairy deliveries in the course of the year (source Inosys & Réseaux d'élevage, 2015)

In parallel with the decrease in the number of farms is an increasing enlargement phenomenon among dairy farms. In 2000 less than 10% of farms were below 80ha while they are now more than 20%. These big farms result from the grouping within a new common form of company (GAEC or EARL which are jointly run farms). There can be several farmers within the same company managing a herd of more than 100 cows. These big farms can also combine several production workshops. Among the farmers we interviewed one was combining milk production with shallots crop, the other milk production with pig breeding. In this way incomes from one workshop can compensate the other when times are tough. This enlargement phenomenon goes often with a further intensification of the system. The enlargement of the herd can be associated with a milking robot in order to make more working time available. In accordance the crop rotation can evaluate towards an increasing share of cereals and an optimisation of the feed ration.

Farm conditions are key elements that determine the range of strategies the farmer has at his disposal in order to run his business development.

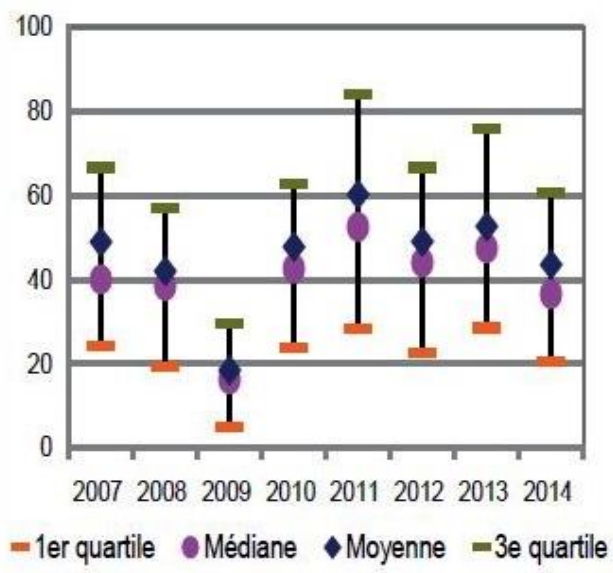


Figure 32: Spread of the dairy farmers' income before taxes in Brittany from 2007 to 2015, in thousands of euros (source Agreste, 2016a)

The income scale of dairy farmers is usually fluctuating around an average of 30 000 to 37 000 €/year (before taxes). The average available income turns around 25 000 €/year. During good years there can be a variance of 40 000 € between the 1st and 3rd quartile. During bad years this variance subsequently decreases (Figure 32). Accordingly farmers are suffering an important decrease of their internal financing capacity. This can lead very fast to an increase of the debt ratio. In 2014 the debt ratio rose by over three percentage points and reached 46%. As a result of that the debt burden rose by over 10 percentage points until 48% in one year (Agreste, 2016b). Such ratios increase correspond to a fall of approximately 10 000 € in the Gross Operating Result. More recently the Livestock Institute made some estimation for the incomes losses following the recent crisis. Incomes of specialised dairy farms in plains areas would be divided by 2 reaching an average of 16 200 € (even less than during the 2009 crisis). It entails that one quarter of dairy farmers will get negative incomes.

Hence the dairy sector in Finistère is actually facing particularly adverse circumstances which are adding to the sector's restructuration.

4.1.3 The Dairy sector in France : volumes and outlet

France is the second European milk producer. Every year, around 25 billion litres of milk is collected, which represents 20 % of the European production. This volume is produced by a herd of 3,6 million dairy cows in 65 000 dairy farms.

The processing industry is collecting and processing the milk, 54% of the operators are cooperatives while 46% are private dairies (Cniel, 2016). A few major industrial groups are processing most amounts of the collected milk into a various range of consumer goods (for the national and European market). Around 75% of the volumes processed go to private consumption; the rest is transformed into industrial products like butter, milk powder, whey powder and others. It is noticeable that 37% of the total volume is processed into cheese (figure 11). Indeed France is known for its diversity of cheese types, with in particular 50 PDO (Cniel, 2016). This diversity of milk valorisation is an asset for both the farmer and the industry by increasing the value added created out of the milk processing.

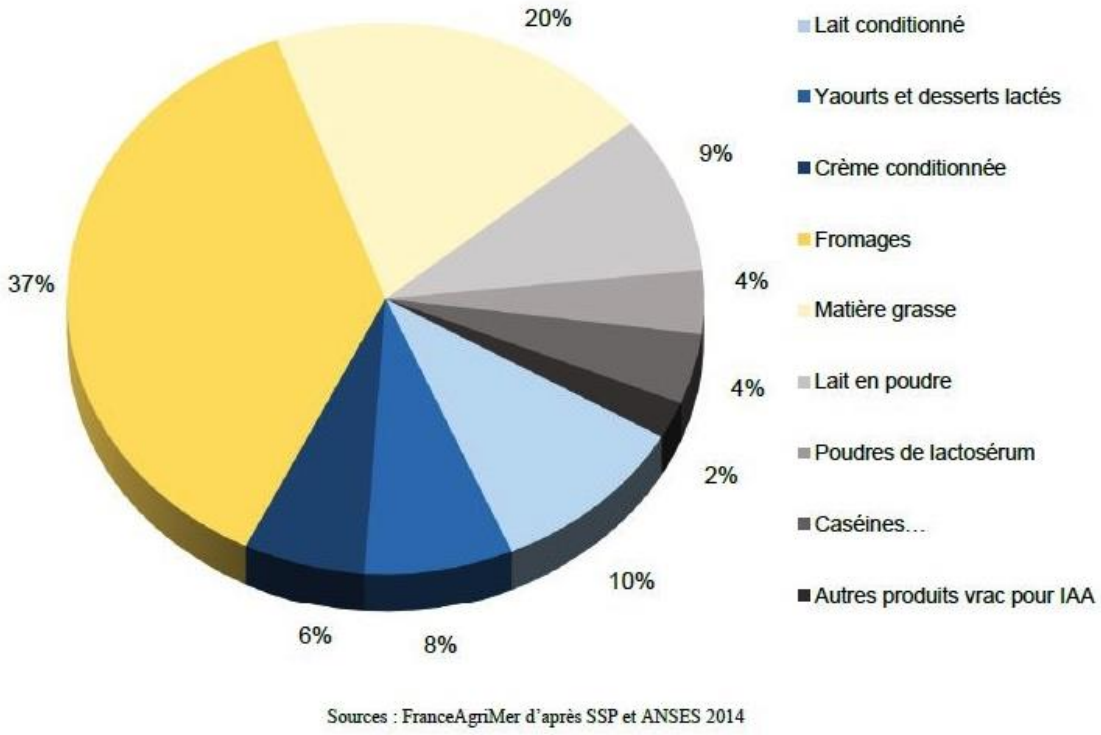


Figure 33: Shares of the different types of processed products within French dairy production

In this way milk industry forms an important sector of the French economy, achieving a turnover of 30 billion euros (Cniel, 2016). The major industrial dairy groups (Lactalis, Sodiaal, Danone,…) hold a good position on the global market.

The processing sector in Brittany counts a diversity of stakeholders from big multinationals to smaller old-settled processing factories with a more specific mix-product. This sector entered lately an important restructuration process. Several of the Finisterian processing operators have recently invested into new industrial equipment (e.g. drying towers) in order to anticipate a development towards new outlets (ChambAgri, 2016a).

Downstream of the processing sector is the retail sector. This sector is even more concentrated since only four retail groups are dividing the market between themselves (Perrot & You, 2016).

Recently in the context of a mature internal market the processing sector in Brittany has been investing a lot into production for export. Export towards the EU represent quite constant volumes and mix product (cheese, consumer goods, dry products — see Figure 34). It represents 53% of Brittany's total export value. The main European partners are Belgium and Germany (ChambAgri, 2016b). In 2013 the France export value started increasing thanks to an increasing demand from third countries (Trouvé *et al.*, 2016). Third countries contribute for 47% in the Breton export value. They mostly import cheese and dry products. China became recently an important partner followed by Algeria and Egypt. Breton exportation of dairy products generate every year a value of 668 billion euros (ChambAgri, 2016b).

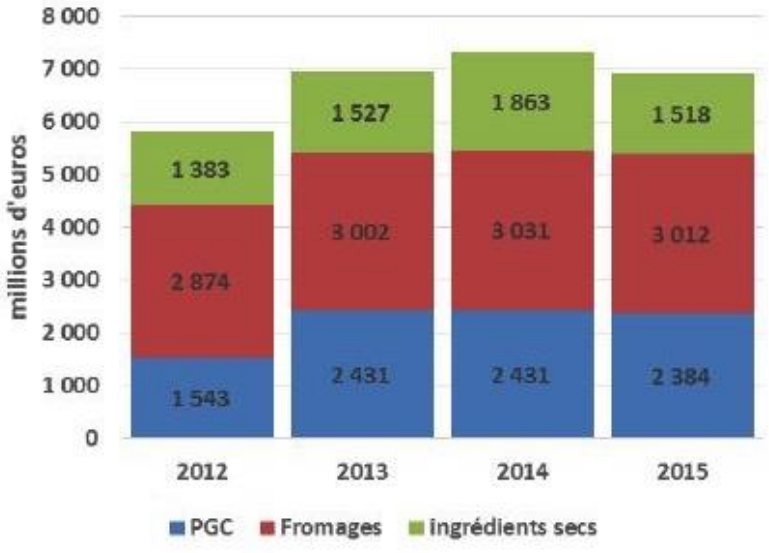


Figure 34: French exportations of dairy products per type (consumer goods, cheeses, dry products) (Perrot & You, 2016)

Western France plays a big role in the dairy sector competitiveness. Brittany has the highest concentration of dairy farms in the country. Around 14 000 dairy farms in Brittany represent 30% of the national production and the French specialized dairy farms. 55% of these farms produce an average volume above 300 000 L; these farms weight for 70% of the Breton dairy production (FAM, 2011).

Brittany and more particularly Finistère embodies the French specialised dairy farm system. A good share of the French mix product is produced in Brittany. The region is specialised since a long time into industrial production. Skim Milk Powder, Cream, Butter and milk for consumption represent a good share of the Breton production (ChambAgri, 2016b). Hence during demand fluctuations Brittany is easily responding as both its farms and processing industry are flexible facing the market conditions.

Recently during the quotas outing process Finistère and more widely Brittany increased their production (Figure 35). Of particular concern is the fact that milk prices and production volume do not behave accordingly. The alarm sounds within the sector since production keeps increasing while prices are still dropping.

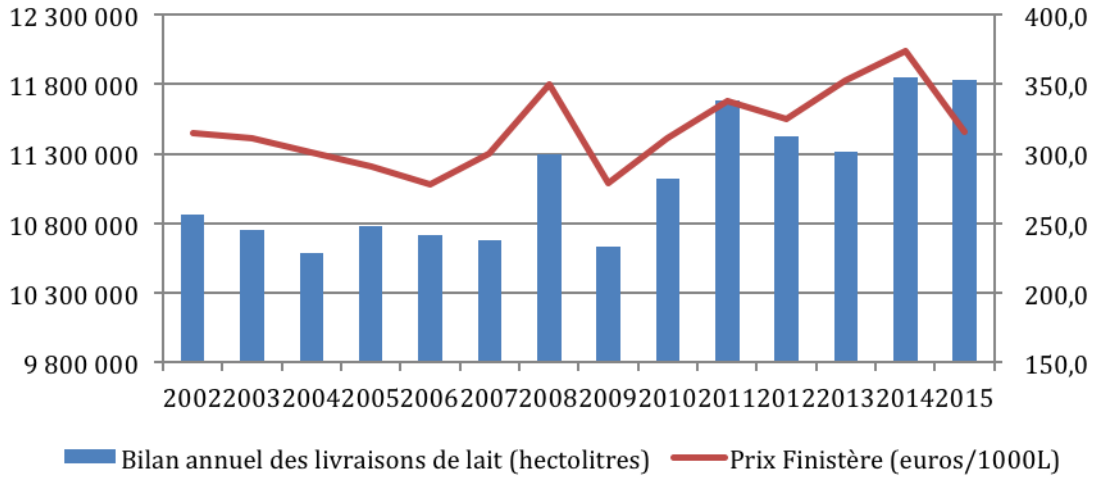


Figure 35: Evolution of milk deliveries in parallel of milk prices in Finistère (Draaf Bretagne)

After having reached high levels in 2014 milk prices are now continuously dropping and particularly in Brittany (Figure 36). Indeed the Breton dairy sector is with little segmentation and therefore more sensitive to the bad juncture.

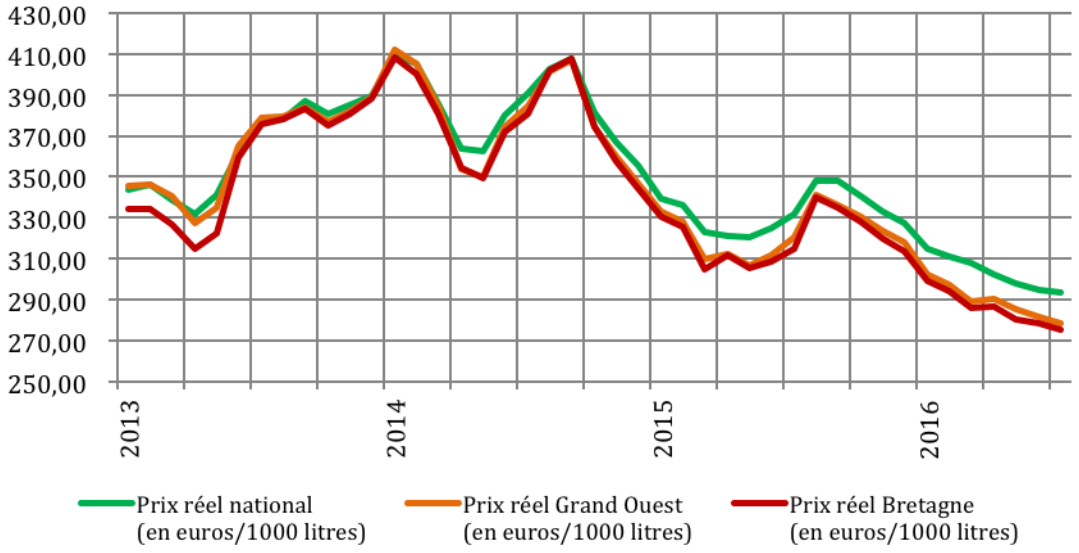


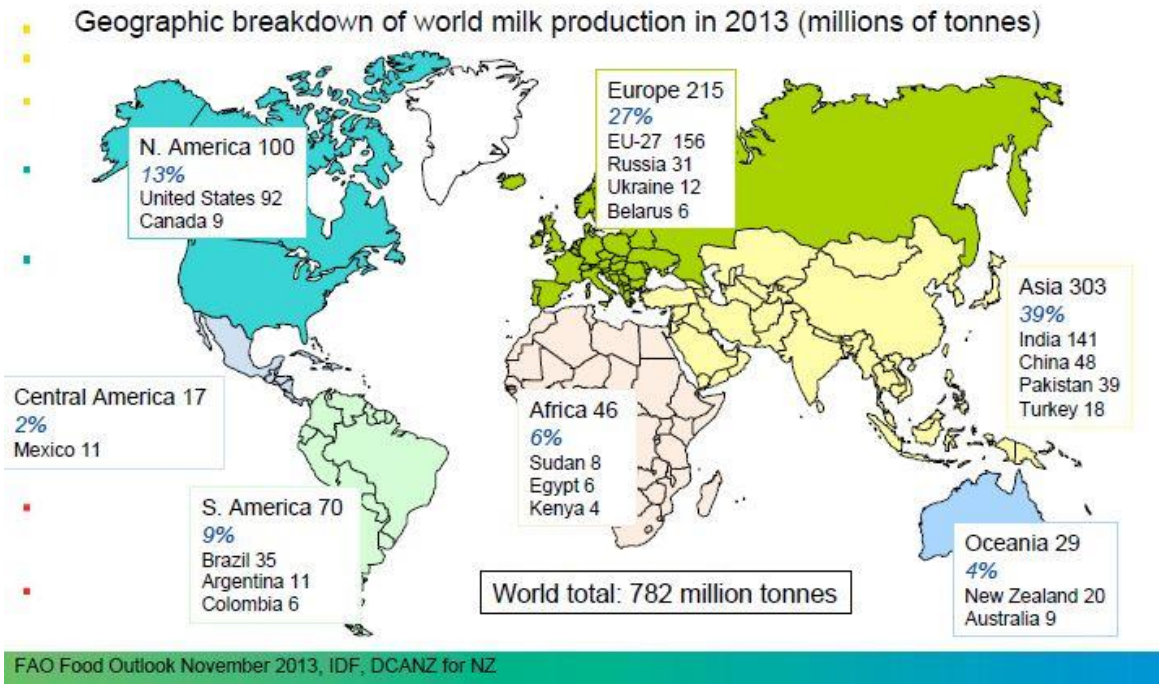
Figure 36: Comparison of the gate milk price evolution between the national average and Brittany (FranceAgriMer)

4.1.4 France and Europe on the global dairy market

In 2015, the global market for dairy products had the size of 71 Million tonnes of milk equivalent, ie. 9% of the global milk production. As shown on figure 1, despite a total of 782 Million tonnes per year produced on every continents, only a few key-actors are specialized in exportation products (Figure 37). Since 2000, the global dairy trades have steadily increased by 2% per year. They are now concerning an important range of processed dairy products (Idf, 2014).

On this global market, Europe weight for 25% of the global dairy exports, but New Zealand is still the major actor on this global market with 27% of the global market shares (Perrot *et al.*, 2016).

The dairy sector in New Zealand is dominated by the cooperative Fonterra, processing 85% of the country's milk production. Fonterra's subsidiary, Global Dairy Trade (GDT) is the major trading platform for dairy products. The milk price depends highly on the GDT index (Casalegno *et al.*, 2016). Main importing countries on the global market are China, Russia, Saudi Arabia, Algeria, Japan and Mexico.



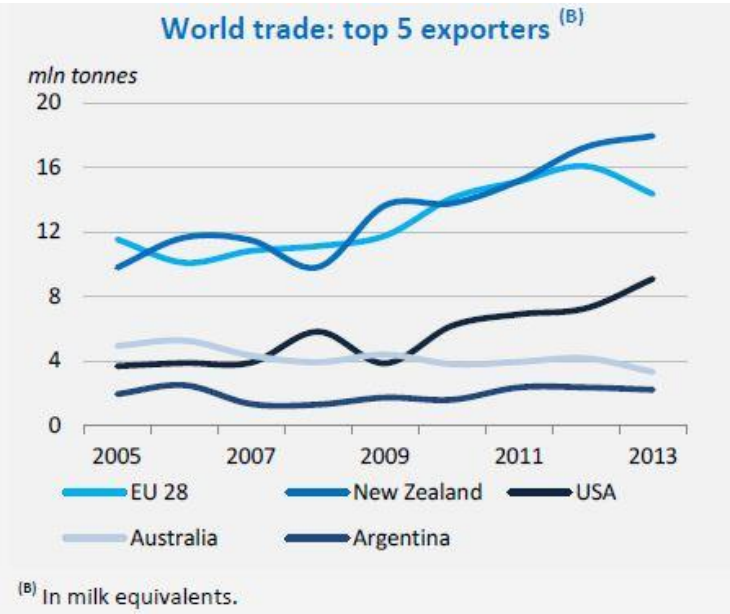


Figure 37: Global milk production and main world exporters (source Idf, 2014 ; CNIEL, 2016)

Most of the dairy products traded worldwide are commodities like Skim Milk Powder (SMP), Whole Milk Powder (WMP), Whey, Butter, and Cheddar. As countries like NZ or Australia specialized in commodity production, EU presents a more diverse range of production types.

With the progressive liberalisation of the EU dairy market, we lately witnessed a transition in the market conditions. Figure 38 shows a convergence of EU prices towards global prices. In other words, European producers are by now directly competing with dairy producers worldwide, in particular US and NZ producers.

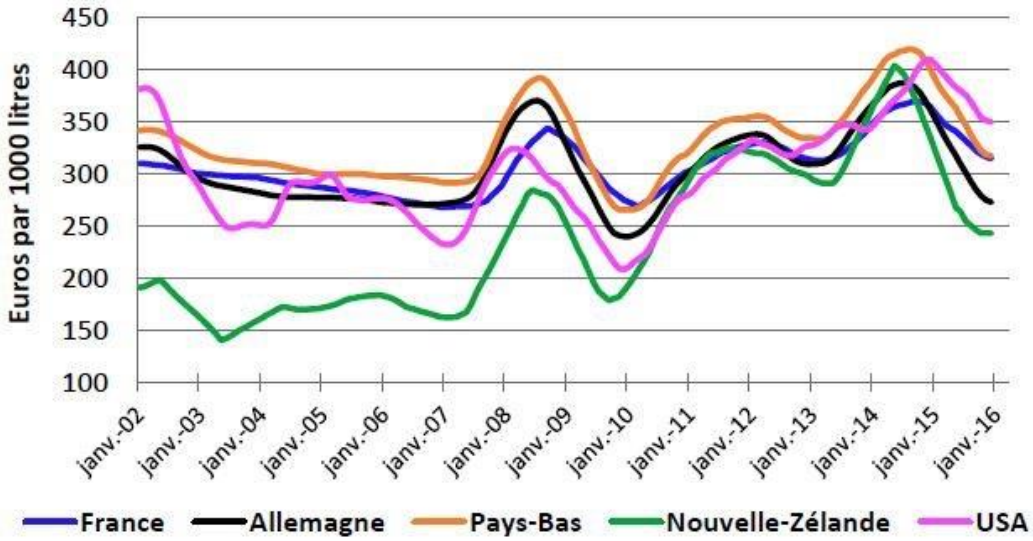


Figure 38: Progression of farmgate milk prices in France, USA, NZ for the period 2002 to 2016 (sliding average over 12 months) (CNIEL, 2016)

Following this introduction, the remainder of this case study is organized as follows. Section 4.2 will present the regulatory and public policy framework that shape / organize milk production in France and how it applies to the Finistère district. A special emphasis will be put on the CAP and its successive reform, as it has long been a major factor affecting dairy production.

4.2 Public policy and regulatory conditions

4.2.1 The successive CAP reforms and the progressive liberalization of the sector

Created by the Rome Treaty, the Common Agricultural Policy entered into force in 1962 with two main goals :

- securing national autonomy in food supplies
- Assuring low cost food products to consumers and at the same time living wages to farmers

These goals, in the context of the WW II recovery, were strongly interlinked with the ambitious European project of figuring prominently on the international economic scene. Then the CAP has been placed at the centre of the European project. At present, the CAP-footprint over the Breton farm landscape is really strong, hence the need to highlight the historical conditions that have shaped the Breton dairy sector through public policies.

4.2.2 From the first CAP to the Milk Quotas

The CAP consisted first in a protectionist policy package. High food import tariffs were set up on the border of European Community. At the same time farmers were paid support prices when the commodity prices fell too low. This policy generated supply surpluses. These surpluses' management required an important budget for either stocking them or exporting them outside the European Community. In a context where farmers had the guarantee to sell their production at a minimum price, a progressive transition could take place from subsistence farming to mechanized and more productive farming.

The implementation of the quota system in 1984 had strong effects on dairy farms. Public authorities made the decision to use the quota regime as a tool to support the French structural policy (in terms of land management and territory development) (Trouvé *et al.*, 2016). These quota measures, in other words "right to produce milk" were as follows :

- Non-marketable;
- Attached to the land;
- Co-managed by the administration and professional associations at a district (département) level.

Hence the access for farmers to extra rights to produce milk was difficult. It could only happen when property-free quotas were put at the farmers' disposal or at the business divestiture. Public authorities held a national reserve in order to award young farmers extra quotas at their installation.

Consequently, labour productivity of Breton dairy farms has not been as high as within the most intensive production areas of Northern Europe. Farmers have been allowed a very low increase of their production. At the same time the geographic concentration of the production that started during the 60s has been slow down. With these kinds of policies France retained the dairy systems diversity among its territories.

In this highly regulated context Brittany still witnessed a restructuring of production. Since 1984, 85% of the milk collecting points disappeared (Trouvé *et al.*, 2016). Farms could not grow much bigger but the farmers could diversify their production and optimize their production costs. With the advantage of having grass growing all along the year farmers coul focus their system optimisation on feed autonomy. But their production costs would not be competitive compared the European average for intensive areas.

The quota system has also had an influence on the dairy industry establishment in Brittany. A homogeneous distribution of the collection points worked in favour of the operator's multiplicity within Brittany. Dairies were forced to invest at closest to their producers.

This long quota period established the "Breton model", also known as the "French dairy conventional intensive farming". But out of this model emerged a generation of farmers feeling hindered by this policy of quotas. These criticisms met the liberalisation discourses which came from Northern Europe during the 2000s (Casalegno *et al.*, 2016).

1.1.1.1 The progressive opening to liberalization and global market forces

The 1992 and then the 1999 CAP reforms mark the beginning of the liberalisation process of the European agricultural policies. This market liberalisation has been gradually implemented through a decrease in market intervention as soon as the non-renewal of the quota regime was decided.

As a consequence Brittany witnessed an accelerating restructuration of its farm system from the 2006/2007 dairy campaign. This restructuration started from an evolution within the quota legislation. Public authorities gave the possibility for farmers to obtain quotas out of any property transfer. The milk reference quantities management has been transferred from districts to "dairy basins" (9 within France).

An extension dynamic of dairy farms spread quickly after these policy inflexions within Western France. In the Brittany basin containing 32 % of French dairy farms, around 70 % of business holdings increased their milk reference quantities, only 10 % kept their reference stable while the 20 % left operated a decrease in their production (Trouvé *et al.*, 2016). This phenomenon is embodied in some agricultural business which grew bigger by transforming their legal status into a societal form. This business' type is remarkable for growing beyond the 100-cows herd. It means that they are increasing their capital which can stem from family members, new worker-members or even be external to the farms surroundings. This kind of restructuration also supposes changes in the production system : there is a shift from grazing to more energizing fodder. These kinds of farms are not reluctant to heavy investments in buildings and milking robots.

On the other hand other kinds of farmers are going after the de-intensification of their system, increasing their pasture surface and evolving towards fodder autonomy.

These two types of profiles are recognizable among the farmers we interviewed. Each one having a particular conception of "business development".

The interviews gave us a glimpse of the different ways for farmers to develop their business.

Such competitiveness adaptations according to the sector's mutation entail important investment cost.

During this same period restructuration of the dairy industry has been accompanying the dairy farms' restructuration. To the dairy concentration and farm growth responded increasing investments from the processing operators. Newcomers settled with new processing factories or purchased already-settled ones. From now on investments are also preferentially made towards achieving added value and new outlets on the external markets, meaning that the recent investments structure has totally changed.[18]

4.2.2.1 Reforms of the Milk Package

Over the last decade, when stating the increasing concerns towards deregulation, European authorities created a set of measures to accompany the phasing out of the quotas:

[18] These elements will be developped in the Market conditions chapter with concrete cases.

— A High Level Group (HLG) of experts has been created in 2010
— The Milk Package has been issued in 2012
— A new Single CMO regulation has been issued in 2013
— The European Commission launched the Market Observatory for Milk in 2014 in order to enhance the dairy market transparency by making data and analyses on markets available

Out of a significant importance is the fact that French authorities preceded Brussel in implementing measures on contractualisation, POs and the Inter-branch organisation's new roles. Indeed since the transition years towards liberalisation of the European market, public authorities have had to renew their usual politic leverages.

Via the inter-branch organisation created in 1972 the French state used to delegate a lot of their powers on price and quantities negotiations[19]. But in 2008 some of these negotiation practices have been reported as anticompetitive by the DGCCRF. As a consequence of this the state had to find a new holder to who/what they could transfer the price and quantities negotations. For such negotiations new contractual conditions have been implemented by decree of 30 December 2013. The price/volume modalities imposed for contracts in the regulation would directly transcribe the inter-branch's recommendations.

The Milk Package measures came two years later, covering the already-existing French regulation with new objectives to frame the bargain power of producers facing the industry. The Package is gathering new regulations apply specifically to the dairy sector and dairy products under the recommendations of the High Level Group. The HLG creation followed the 2009 crisis with the aim to accompany the dairy sector in its way out of the quotas. As such the set of measures applying to the sector has been re-thought. In 2010 already the HLG established a set of new proposals. We will look further into the content of these new proposal in order to compare it with the 2010 decree France implemented.

The 9 december 2010 a proposal for a Regulation counts several dispositions for a new legal frame applying to Inter-branch organisations, Producers Organisations and milk delivery contracts. The most interesting points can be summarised as follows (ChambAgri, 2011):

— Inter-branch organisations : they are gathering professional representatives for the production, processing and trade of milk. They are subjected to recognition by Member States. They should feed the information flow around production and markets knowledge, to help the coordination around marketing of dairy products, research and development as well as milk products promotion. Finally they can set a frame for the now compulsory written contracts. Inter-branch organisations are granted an exemption to allow concerted practices that may change trading conditions. But are still forbidden practices that may lead to the partitioning of markets (on a national basis) or competitive distortion. Any agreement which may result in a price fixing is also strictly forbidden.

[19] The inter-branch organisation odyssey and roles are to be explained futher in the market conditions chapter

— Every acknowledged Producers Organisation can, on behalf of the producers members, negotiate milk delivery contracts between producers and collecting/processing operators. The milk ownership does not necessarily have to be transferred to the PO. In order to comply with the competition regulatory requirements, the total volume to be negotiate cannot exceed : 3,5% of the EU's total production ; 33% of the national production. PO's Associations can also be acknowledged.
— Milk delivery contracts between producers and collecting/processing operators is made compulsory according to the decision of public authorities. Any eventual ownership transfer has to be covered by a contract as well. These contracts shall be written and concluded before the delivery. A contract must include indications on price (calculations rules assorted to quality, volume and market indicators), volume (quantity and schedule) and duration (with termination clauses). In the case of the dairy being a cooperative, a contract is not compulsory as soon as the cooperative's statutes include the corresponding dispositions.

As explained further up the French state decided to state on a regulation before the EU through the 2010 bill on the Modernisation of Agriculture for the competitiveness of French agriculture (article 12). Through this act, contractualisation is made compulsory for a minimum duration of 5 years. A decree implemented the act on 30 December 2010. It has been made compulsory for the dairies to propose written contracts to their producers before the 1st April 2011. The contract's content is framed by compulsory clauses.

The price/volumes negotiation are at the core of the French dairy sector functioning. Since the French state could not have a grip on these negotiations anymore due to the DGCCRF warning it was urgent to find further solutions. The French inter-branch organisation reached a last agreement on 3 June 2009 (Trouvé *et al.*, 2016). The inter-branch could still produce references concerning milk quality and seasonal index but the whole milk price had to be indexed on industrial milk products scorings. Therefore public authorities saw contracts as a tool for guarantying a stable level of collection and still having a grip on prices.

When the contracts have been made compulsory in 2011, major farmers' union FNPL published contractual recommendations and provided legal advice. But in the facts it is mostly the processing operator which formulated the contracts before presenting them to their producers for signature. At that moment, the industry had the power balance widely to its advantage. The POs did not exist yet. Despite a few protests farmers felt obliged to accept the contracts.

Once the Milk Package has been implemented at the European level French authorities have had to complete their legislation on contracts adding to it the regulation on POs, and take note on the new inter-branch roles. New debates took place among the stakeholders. The processing operators would differentially improve their contractual offer while FNPL would keep issuing recommendations. Beside that the public authorities tried to take ownership of the new European regulation as the new mediation tool replacing some of the Inter-branch roles.

Contractualisation has been established very quickly at the regional level. Already in 2012 almost every farmer had signed a written contract. The discussion around the elaboration of collective agreements has started but for the moment "framework contracts" have no juridical value.

The clauses on price and volumes were converging toward the inter-branch frames so that farmers should have visibility over their revenues. In the facts farmers would only get a poor feedback from their dairies. The latter are only providing blurry information concerning conditions for the determination of price and references to quality payment scales.

Furthermore several types of clauses have not been fully discussed yet : safeguard clause, renegotiation clause, exclusivity clause. On this field despite the DGCCRF recommendations it appears to be difficult for farmers representatives and public authorities to implement modalities in favour of the producer.

It appears that these dispositive did not re-shuffle the bargain leverages in the business relationship between production and transformation. This business environment has remained an oligopsony. It appears that farmers are still taking on the price risk[20], though aids coming from the first pillar in the form of direct payment still make up a great amount of their total income.

4.2.3 The current CAP shapes the dairy sector's organisation through the first pillar

4.2.3.1 The new direct payments for farmers

The CAP successive reforms have led to the transformation of coupled and decoupled payment into new direct payments which still falls under the first pillar subsidies. Those payments are deemed to help farmers covering their production expenses and support their competitiveness on the global market. Since 2013 in Finistère, every eligible farm has received 302€/SPE, meaning an average SPE (Single Payment Entitlement) of 18 500€ per farm.

With the 2013 reform, France chose to re-introduce coupled payments for dairy production in order to specifically help dairy farmers. The Breton farmers, according to their location outside disadvantaged area, receive 34€ per dairy cow (for the first 40 cows), meaning that they can receive up to 1360€/year.

According to the choice of French public authorities, farmers meeting certain requirements (like young or small farmers) can receive extra subsidies. Young farmers get a grant for their business' installation, of an average €12 500. Brittany's choice has been towards a reinforced support to young farmers. Adding to the Young Farmer Grant, they get an increase by 30% of their direct payments, they are allowed free extra quota shares and a subsidised short-term loan.

These amounts have yet to be compared to the farmers' average income. Figure 39 shows that the amount of subsidies rather compensate the initially low incomes farmers get out of their business activity. The figure also shows how, year after year, the milk revenue without subsidies barely meets the production costs. In some difficult years, the balance can even be negative, meaning that without this direct support dairy farmers could not make a living out of their business.

[20] To be further developped in « market conditions »

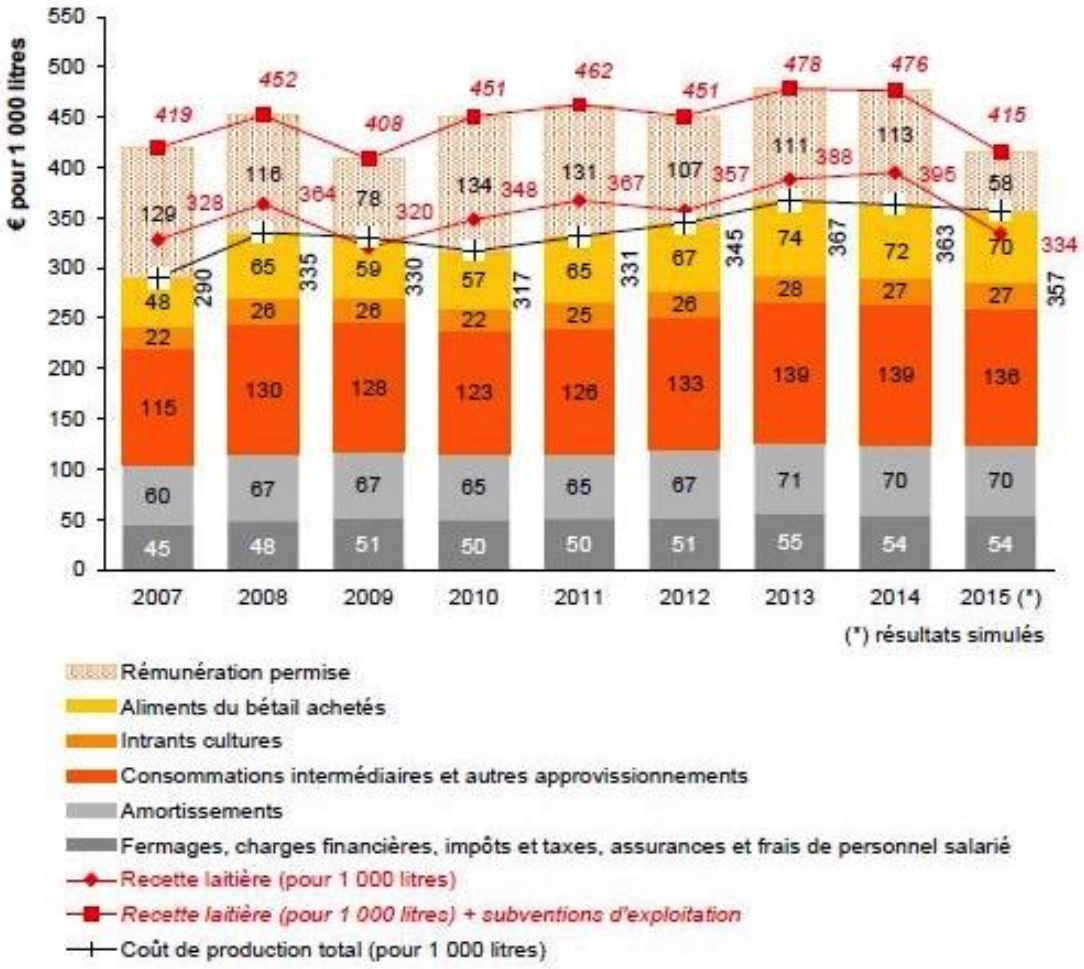


Figure 39: Average milk cost production in French specialised dairy farms (OFPM, 2016)

4.2.3.2 Single CMO and safety net tools for crisis situation

Several amendments have been introduced to the single CMO to improve the orientation of EU market agriculture. In a context of increased competition on world markets assorted with risks of disruption, it is interesting to take a further look into the content of these amendments in order to understand to what extent they could help Finistère farmers to cope with price instability.

We should first take a further look into the way these market regulation leverages have been introduced into the Single CMO. In the words of the European Commission, *"market intervention has become a safety net tool for times of crisis"* (EC, 2013). By 2013, export refunds and intervention purchases' budget has dropped to 5% of the CAP budget while the direct payments are the major source of support to farmers on a regular basis. The new measures in question are for their part support to deal with "potential threats of market disturbances" (EC, 2013). They are exceptional measures and would be implemented on an exceptional basis.

As the single CMO's text evokes the threats of market disturbances or imbalances, the actual situation should raise a bigger concern. Dairy farmers as a whole had to endure two successive major crisis (2009 and 2015) which undeniable led to the erosion of their economic capacities and resilience. Furthermore the crisis hit differentially the diverse types of farmers. It is important to stress that the young farmers are among the most vulnerable profiles (Casalegno *et al.*, 2016). There is at the moment a high rate of bankruptcy among farmers with irreversible

consequences on the dairy farms landscape. Hence the outcome of EU "safety net" mechanism will definitely participate in re-shaping primary producers' landscape.

As defined in Trouvé et al. (2016), "An economic crisis results from a temporary divergence between the supply and demand (of milk in this case). The result is a downward fluctuation in the price of dairy products which affects how dairy farmers generate an income". The current situation is an overproduction while Europe is on its way out of the quota system. Brittany holds an important responsibility to this situation since it is the French region which is the fastest to respond to the increasing demand on the market (FAM, 2011).

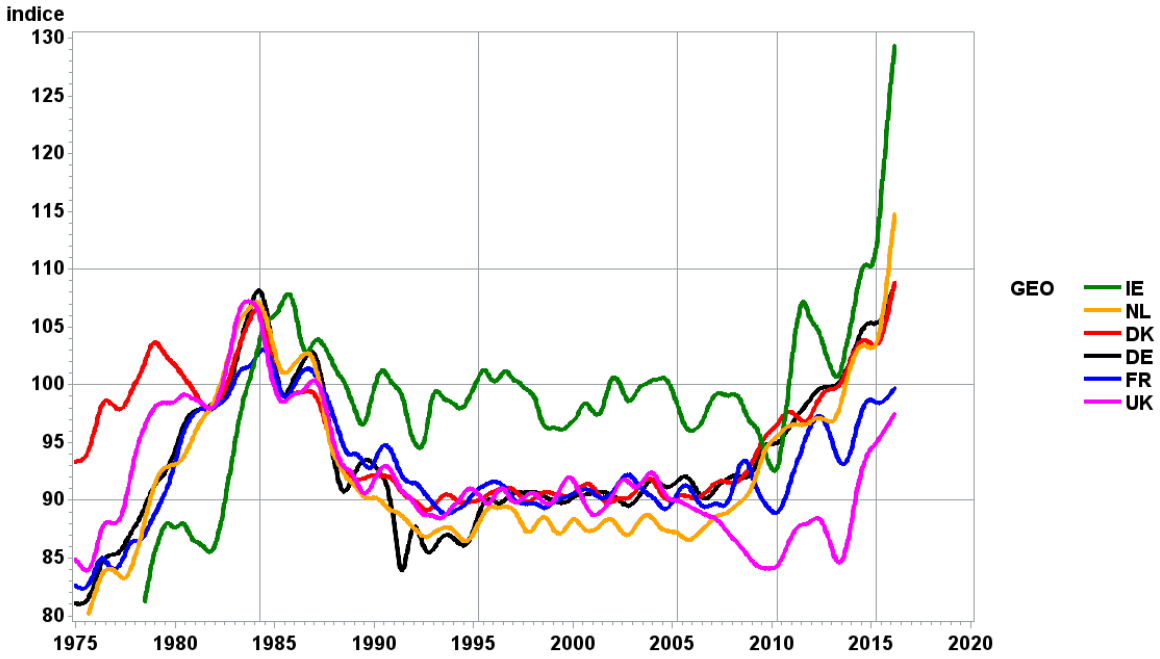


Figure 40: Sum of the milk deliveries over 12 months (index 100 = 1st national quota 1984/85) (Perrot *et al.*, 2016)

The possibility for potential public storage persists as a safety net but its level of activation has dropped since 2009, adding to it open periods and yearly ceilings. It is now equivalent to a farm gate milk price generally estimated at 220 €/tonne — not enough to cover production costs in the Finistère context (see Figure 39). In addition to public support, the single CMO allows an aid to private storage for companies. But the latter can only be activated in case of economic difficulties within the sector. Despite the activation of public intervention both in 2009 and 2015 and private aid since 2014, it has not been enough to meet the amplitude of the overproduction (ChambAgri, 2016b). Moreover these measures do not seem to be incentive enough for the industry. Facing low public redemption prices, dairies prefer to look for better price opportunities on the external market.

Articles 219 to 222 of the Single CMO for their part regulate other crisis management measures. Some of them can provide extra range of measures, some other can release extra aid envelopes for emergency support of the farmers. Not all these articles have been activated. The last to be activated was Article 222 (March 2016), allowing POs and Inter-branch organisations the means

to proceed with a series of measures that diverge from competition law. In addition to that the crisis reserve (Article 226 of the Single CMO) has been activated facing the unsolved situation. But its amount "appears insufficient to overcome an unforeseen situation on agricultural markets, due in particular to the fact that it cannot be accumulated year after year" (Trouvé *et al.*, 2016). These amounts are actually drained on direct payment to farmers. Several stakeholders we interviewed confirmed that these amounts were whatever too low for really helping them facing the crisis. More precisely these amounts would be out of no help facing a chronic indebtedness.

Given its lack of effectiveness in this activation process, an amendment to the single CMO was introduced in 2013 to the European Parliament, introducing the idea of a bonus/malus system (Trouvé *et al.*, 2016).

At a lower level, the FNPL denounces that main measures to cope with the crisis are an aid to voluntary decrease of production volumes and an the aid for discontinuing activity. The latter has been systematically used all along the last decades in France and was aiming to help old farmers close to retirement to smoothly cease their business. According to some stakeholders it would be of no help facing the actual juncture. Concerning the emergency aid for the decrease in production volumes, its subscription has been open in Brittany between the 9th and 21st of September 2016. This measure is aiming a decrease in the production for the next 3 months. As a result, 2 420 dairy farmers over 11 500 in the whole Brittany (21%) have asked for this support. It should correspond to a volume of 32,3 million litres and a drop of 2,4% in the milk production compared to the last quarter of 2015 (Agreste, 2016b).

A way to cope with such difficult situations often put forth by a variety of actors in the debate lies in the development of saving mechanisms and counter cyclical measures. We briefly present the state of the discussion on that topic in the next section.

4.2.4 Saving mechanisms and investment systems

4.2.4.1 Poor support to saving mechanisms

During crisis years, farmers have only a small margin (if not nothing left) on their operating result for making themselves a monthly income. To that is added the monthly debit for taxes and agricultural social mutual (MSA). On the other hand famers use the fact that they don't want to have the same working and living conditions than their parents'. As such, for many farmers, living costs are not compressible and are just covered by their income.

In this context, saving mechanisms proposed by a 2002 law have not been that much adopted, as it would have supposed the existence of substantial surpluses. In other words public authorities have no control over farmers' savings mechanisms. Farmers are bearing the risk associated to their own accounting management decisions. This is particularly tricky in the agricultural sector where investment is highly promoted (genetics technology, material and machinery, etc.).

4.2.4.2 Weaknesses of the insurance system

Public authorities are used to provide support for farmers in case of unpredictable risks. A system of compensation in case of sanitary or climate disaster exists. A procedure has to be followed in order to be eligible to support. In most of the cases the amount of support does not entirely cover the loss. Public authorities have worked with insurance operators to an insurance tool for harvest risks. The development of these tools is progressing especially since insurance systems have been introduced into the 2013 European regulation. One thing is that harvest insurance tools are mostly used by cereals farmers rather than dairy farmers.

Under the decision of the European Commission budget enveloped can be released during crisis situation. Such a dispositive has been activated through the Article 226 of the single CMO. Several stakeholders we interviewed agree on the fact that these envelopes are not big enough for covering such high risks associated to the price volatility.

One could not further ague that public authorities play an occasional insurance role. However recent discussions around incomes insurance systems among administration services prove that insurance systems will be a major issue to be discussed in the coming years.

4.2.4.3 Towards counter-cyclical systems ?

European Milk Board has recently presented counter-cyclical systems as a potential functioning dispositive against market volatility. The regional council has commissioned an assessment report of this dispositive. However cooperative dairies are already conscious upon the fact the farmers won't bear the price volatility by themselves for long. They are already thinking the transfer of the volatility within the value chain looking for mechanisms for absorbing price fluctuations (Trouvé *et al.*, 2016).

In the same idea POs are thinking about creating solidarity funds. The latter would have the same function of absorbing price fluctuations.

These reflexions around insurances against price fluctuation directly hits on of the major issue of this case study since farmers can lose a lot of their resilient capacities when they cannot get regular incomes.

While the economic situation of most dairy farmers is thus highly critical, they also have to comply with various environmental regulations. The next section present them in more details.

4.2.5 Environmental policies seen as constraints and a weakened societal support

The 2003 Luxembourg Agreement marked the beginning of the integration of the environmental issue as a whole within the CAP. Decoupled payments are created and at the same time cross-compliance is created. This constitutes an important turning point into the environmental concern. But that supposes for farmers a questioning into their agricultural practices.

4.2.5.1 Technical management and environmental impact

Over the years of its agricultural development, Brittany witnessed several environmental crises. Hence the environmental issue became an important priority for the politics. Examples of such environmental crisis is the "green tides" phenomenon, which appeared in the 70s. The scientific

studies at that time reported that this proliferation of green algae in Breton bays was due to an excess of nitrogen spreading in the soils due to agricultural activities. This triggered an environmental alert.

Following similar problems across Europe, a series of directives on environment has been implemented by the Commission from 1976 onwards. They were responding to pollution observation which started quite early during the 70s. These directives concern groundwater quality (1976), nitrogen in groundwater (1991), crop protection products (1991), protection of natural areas (1992). In relation to these directives, France implemented several action programs, the most famous being the Nitrogen Plan and the Ecophyto Plan (described above in section 3.2.4.4).

With the Luxembourg accord and the conditionality, farmers have had to conform more strictly to these plans than what was in use in past times. The CAP 2nd pillar development then created bridges between voluntary commitment and regulatory requirements. In the words of public authorities, farmers are facing a growing number of environmental standards. We will try to assess the extent to which they affect farmers' strategies.

Within the frame of cross-compliance, the attribution of farmers' subsidies is now conditioned to the respect of 19 environmental directives and regulations (Le Gall *et al.*, 2005):

- 6 European directives on environment
- The good agricultural and environmental condition
- Maintenance of permanent grasslands surface areas (reference : 2013)

More specifically, the Britanny dairy sector is strongly linked to the nitrates Directive action plans. One of the big concern is the fact that Brittany has been entirely classified as "nitrates sensitive Zone". In 2003 most Breton farms which were combining dairy farming with pig or poultry production were likely to present a moderate excess of nitrogen – between 2000 and 3000 nitrogen kg per farm (Le Gall *et al.*, 2005). Intensive dairy farms with an important milk volume produced on a small surface are in this same situation and have thus to reduce their nitrogen effluents. In order to conform to the directive's requirements, farmers have thus to develop strategies for the management of mineral and organic nitrogen inflows, stock and outflow of the extra quantities. A program has been launched by the public authorities in the 2000s to help them to comply with such requirements. The Breton farmers have been the first to meet this program's requirements with a cost of compliance averaging 850€/cow. In parallel a modernisation scheme for livestock buildings has been launched. Most interviewed farmers insisted on these important costs.

After several decades of environmental policies, it is difficult to assess the general results of the nitrates Plan. The Finistère presents an average nitrogen balance of 51 kg/ha which is high compared to the average in Brittany (35 kg/ha). This is linked to the fact that the district has a high stocking density on its territory. Figure 41 however shows that environmental policies have had quite an impact on the average nitrogen concentration in Brittany.

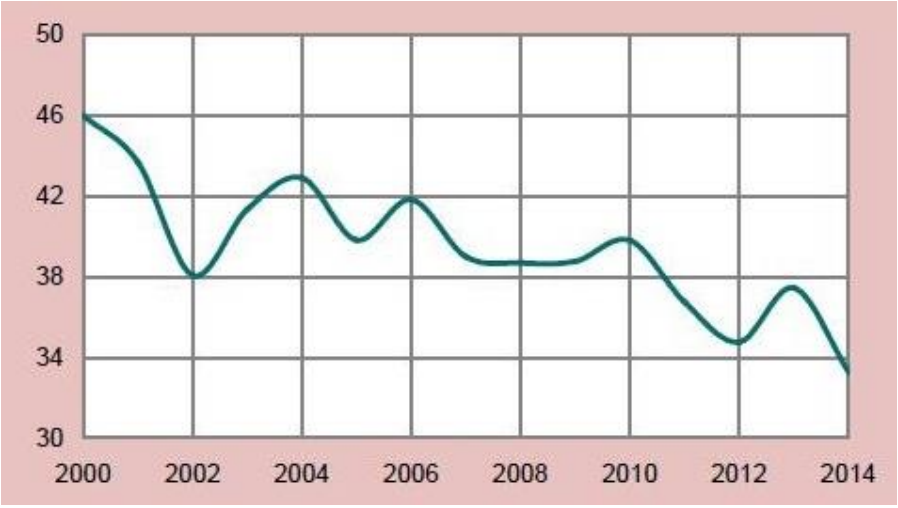


Figure 41: Evolution of the nitrogen concentration within the Breton rivers, in mg/liter (source Agreste, 2015)

Environmental association we interviewed underlined the observation of less pollution peaks with the years, meaning a slight improvement of the situation. As for farmers the biggest challenge is to conform to the nitrates directive and the standards of livestock well-being (Le Gall *et al.*, 2005). Some farmers even consider that they already overcome the challenge to conform to these cross-compliance standards. They include these standards as part of their savoir-faire.

However, main environmental concerns still remain. Among priority concerns set through the agri-environmental measures still lay the nitrogen and pesticides issue (Figure 42). As such the water quality is still a major issue in four bays in Finistère.

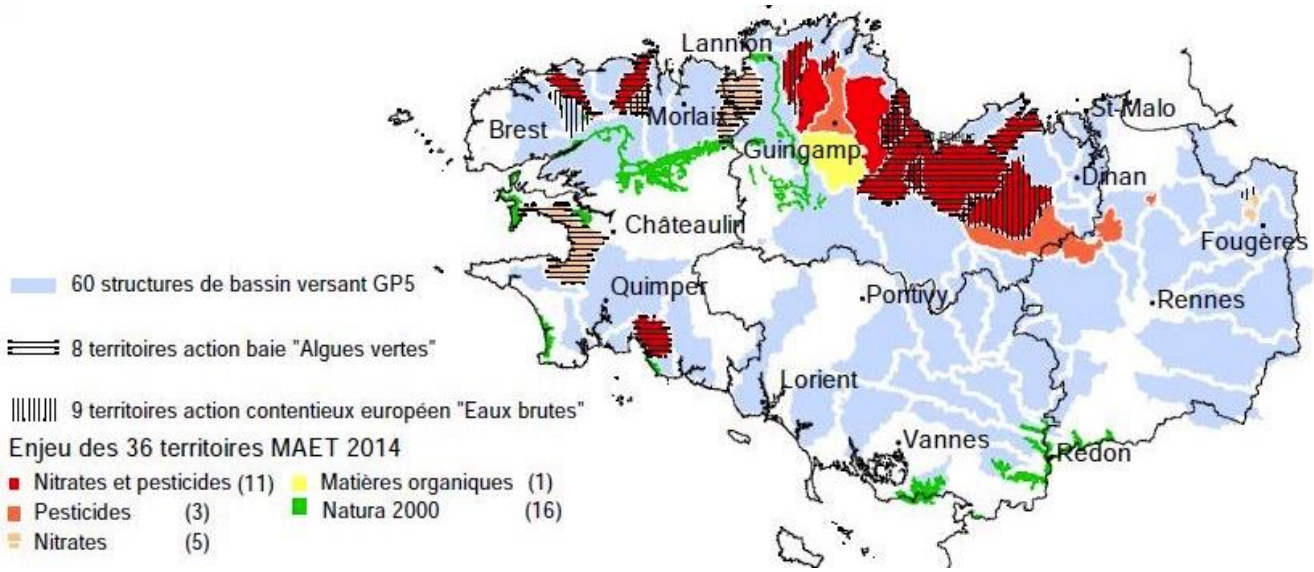


Figure 42: Territorially-based agri-environmental measures in Brittany, priority concerns on 36 territories (Agreste, 2015)

4.2.5.2 A Controversial impact of the 2nd Pillar environmental measures

Brittany is traditionally a pasture land. Finistère itself is gathering a diversity of pasture types. The soil in northern Finistère is fertile enough for growing corn as well as temporary pastures.

However pastures in mid-Finistère are often laying near/on bogs, wetland or heathlands. Farming systems in these zones are then less intensive but still adapted to the type of soil.

As a result of this landscape diversity Finistère has been a pioneer region in creating the second first Natural Regional Park (NRP) in France. The NRP authorities play an active role in proposing AEM adapted to pasture systems since the creation of the parc. Since the 70s there seems to be an awareness of the AEM issue among some farmers; in the same way that farmers are now aware of the interest of hedges for their farming ecosystems. Though these AEM recall the actual farmers skills linked to farming practices on disadvantaged land areas.

More recently, the 2nd pillar competencies have been handing over to regions and the Breton public authorities had to define its policy in terms of environmental management. The Regional council included these environmental lines in its Plan for Competitiveness and Adaptation for Breton Farms. The fact that regional authorities award a special support to material investments for agri-environment standards underlines the fact that adapting to the requirements is still an actual issue. It also went through the enlargement of the eligible area for agri-environment measures (AEM).

In 2015, a new wave of AEM contracts started. Through call for agri-environmental projects territorial collectivities have to choose the specific issue they want to work on and then select the appropriate AEM. It is then to the farmer to subscribe to the AEM. When signing an AEM contract the farmer signs up for five years. During these years he commits either to lead his system toward practices more respectful of the environement or to maintzin already existing practices (ChambAgri, 2016a).

The support for environmental measures is more and more significant, though it is balancing the loss in the first pillar. The farmers who are leading their farm system towards less intensive practices are for some of them ready to grab it as an opportunity to value their system, balancing the loss of first pillar subsidies.

Despite the enlargement of the eligible area for agri-environment measures, farmers are also aware of them bringing a control surplus. AEM are then seen as an opportunity only for those who are already and deliberately engaged in a de-intensification of their system or a conversion to organic farming.

4.2.5.3 Some success for the organic market

In 2015 organic conversion support has been included in the AEM budget. According to the Breton public authorities one third of AEM contracts are dedicated to conversion to organic agriculture. We will comment in more details market opportunities for organic production in the next section dedicated to market conditions.

4.3 Market conditions: farmers as price takers on a market highly structured by public policies

The Common Market Organisation for milk (Single CMO) came into force in 1968 as a regulation for the dairy products market within Europe. To every major adjustment of this regulation correspond reforms in the milk market functioning. Until 2007, the Single CMO included strong regulation tools for market intervention. Hence the EU policies were bearing the risk associated to overproduction. One could then say that the European dairy sector grew and developed under this “intervention umbrella”, as discussed in the previous section.

One of the specificity of the French case lies in the important role of corporatism that has literally shaped the sector's functioning. Federations of professionals are the state's privileged interlocutors in the policy and regulations design, and have largely contributed to create the institutional arrangements shaping farmers' access to market.

4.3.1 Access to markets: between historic and contractualization conditions

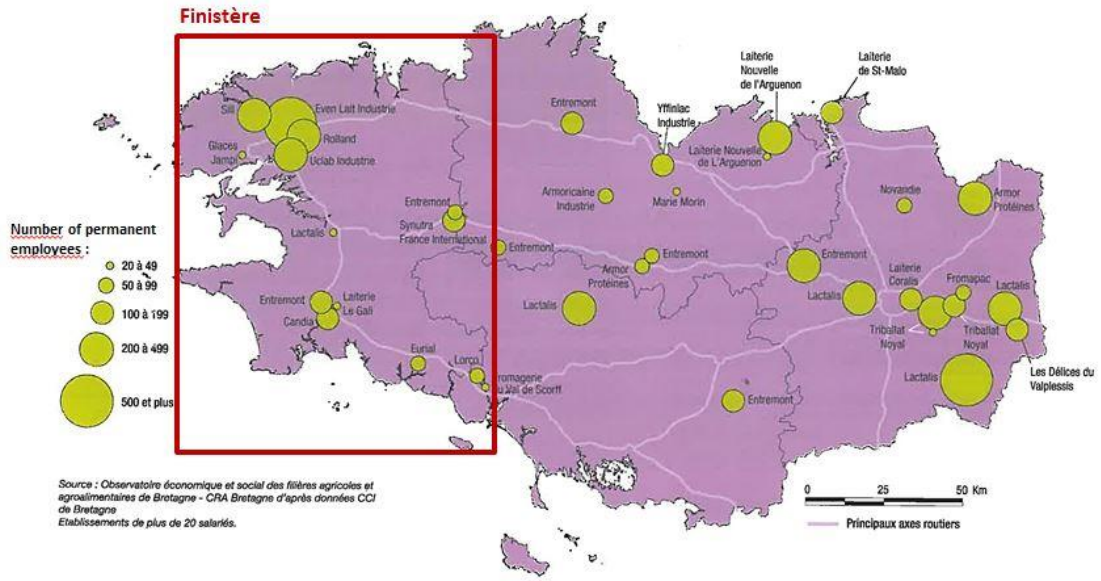


Figure 43: Main collecting operators in Brittany according to the size of the processing site {ChambAgri, 2016 #5651}

The milk farmers can deliver their production through two main channels: the cooperative dairies or the private dairies. Both are collecting and processing operators. A diversity of these actors is established in Brittany and more particularly in Finistère (Figure 43). We will first try to describe this range of operators and the way they operate on their collection area.

In the European Commission words, a collecting operators can be considered as a "significant buyer" when it collects more than 5% of the volumes produced in a given area. While such "significant buyers" collect 75% of total French milk volume, they are only responsible for 53% of the total Breton volume collection (FAM, 2011), meaning that Brittany still holds a wide range of regional / small scale collecting operators. Nonetheless, major French leaders of the dairy sector are present in Finistère: Lactalis, Sodiaal, Eurial. They collect and process significant volumes in one to several subsidiaries/sites (e.g. Sodiaal owns different subsidiaries in Finistère: Entremont, Candia, Synutra). Among these significant buyers, Lactalis is the world leader of the dairy sector, valorising 20% of the French production (equally with Sodiaal).

For a little more than a half, these large operators are cooperative dairies: Laïta (Even+Triskalia), Sodiaal, Eurial. The rest are private dairies : Lactalis, Sill, Laiterie Le Gall, Rolland. We count now more cooperatives than private dairies because Sodiaal (leader of the French dairy cooperatives) recently bought Entremont Alliance through a merger and acquisition deal. For a better insight into the processing operator's landscape, it is interesting to notice that Entremont Alliance was a private dairy specialised into the process of milk into industrial products and one special kind

of cheese (emmental). Entremont Alliance has been created through a merge of Entremont (private dairy) with Unicopa (cooperative dairy). When Entremont Alliance bankrupted in 2010, it has been transformed back into a cooperative, Sodiaal Ouest (being the western branch of Sodiaal Union). Shortly after, Sodiaal signed a cooperation contract with Synutra, a chinese multinational producing infantile milk powder. Synutra inaugurated its factory for infantile milk powder in 28 September 2016. The company aims to produce 100 000 tonnes of milk powder every year for China. This represents for Sodiaal a delivery contract of 290 million litres every year produced by 800 dairy farmers (Agreste, 2016b).

This is just but an example of a more general phenomenon within the region: the multiple operators historically-settled in Finistère (either private or cooperative) have been progressively bought by others operators (private or cooperative) either local (in the case of Laïta and Sill) or historically-settled outside Brittany (in the case of Lactalis, Sodiaal, Eurial)[21]. Laïta is a particular case. It is a recently created company which gathered three historically local cooperatives: Triskalia, Even and Terrena. This made Laïta reaching one billion collected litre exclusively in Brittany.

4.3.1.1 Farmers selling to a cooperative dairy

A cooperative is a collective organisation of farmers who gathered themselves in order to create a legal and economic structure able to collect process and commercialize their production. Farmers can obtain a membership by taking over social shares. The modalities of the social shares takeover are defined in the cooperative's status.

When a producer is selling to a cooperative dairy, he is tight to the latter by a cooperative contract. The farmer signs an adhesion contract in which he is committed to use the cooperative's range of services. The modalities and duration of this engagement are set in the cooperative's statutes. Within our case study, the statutes are establishing a five years engagement contract. The terms of contract are supplemented by the cooperative's rules of procedure. The administration board, within its ability, can make decisions which could complement some rules of procedures related to contracts for specific juncture cases (ChambAgri, 2011).

Hence the farmer and the cooperative dairy are linked on equal terms through the contract. On one hand, the dairy engages itself to collect all the milk the farmer has to offer. On the other hand, the farmer is required to deliver his milk according to the quality and health standards set on the contract. Because processing factories are working on a just-in-time basis, farmers engage to deliver constant volumes as much as possible all along the year. Among its roles, a cooperative is also an equipment provider. Depending on their historical conditions, farmers can be supplied with animal feeds, agricultural machinery and so on. When a renovation of the buildings up to standards or an expansion plan of the activity is needed, the cooperative can furnish all the equipment. As such, in some cases some farmers can contract debts with their own cooperative, thus defining themselves as "tight" to their cooperative.

Our attention can already be drawn on the fact that the farmer/cooperative relationship is manifold. Each cooperative has its specific providing offer. With the operator's restructuring within the region, it happens that some farmers have still a providing contract with Triskalia, a historically-settled cooperative, while they are delivering their milk to the newcomer Sodiaal.

[21] Such historical details will be key elements when going through the analysis of the processing sector's governance.

4.3.1.2 Farmers selling to a private dairy

Compared to cooperatives, private dairies have no general interest among their objectives. Farmers delivering to a private dairy do not have the possibility to interfere in the business management in any way. The accordance on prices with the dairy is made through negotiations. The milk delivery agreement between farmers and private dairies used to be through a verbal contract for an unspecified period of time. The content of the contract usually reflects the business relationship the farmer used to develop with his dairy. As the dairy's truck comes and collects regularly the milk, the farmer gets his pay slip in return. These documents are attesting the contractual relationship. The dairy used to collect the whole volume the farmer had to offer (during the quota system) and the pay slip could attest to the modality of collection and the price is determined. The modalities are usually the ones stated within the inter-branch organisation's agreements.

If the farmer wants to put an end to the contract, it is customary for him to respect a period of notice proportional to the time spent within his dairy.

Upon all of this came recently the new Milk Package regulation (see section 4.2.2.1), which made compulsory for dairies to translate every verbal contract into a written contract. Hence the contractual relationship between the farmer and the dairy has been transcribed into a legal document. A wave of contracts were signed in 2011. Since then, farmers are paid according to the modalities of these contracts.

4.3.1.3 Historical conditions behind contractualization conditions

Brittany and more particularly Finistère have by far one of the highest density of dairy farms within their territories (compared to the other regions in France). This is combined with a rather large amount of collecting operators. For such reasons, Brittany has a comparative advantage of low milk collection costs within France. But these low collection costs are also the consequence of the collection organisation.

The collection organisation has to be seen in a historical context. When a farmer installs his business activity, he acquires the business from either a family member or an acquaintance with who he got to negotiate the take-back conditions beforehand. The buyer then inherits the contractual conditions from his predecessor. He of course has to re-negotiate his predecessor's contract with the dairy. A young farmer is usually given an extra volume allowance. On that occasion the dairy can provide advice for the new installation plan. The new farmer can also go and approach other dairies. As a matter of fact, during the quota period, the number of farmers changing their dairy would not exceed 10%. This enforced by the fact that the period of notice the farmers have to respect are often quite long due to the long contractual relationship they are used to have with their dairy. Furthermore, when contracting with a cooperative, the waiting period for getting the social shares back is long when not at the ceasing of activity.

It is noticeable that we are facing a special kind of contractual relationship, which is between farmers and dairies. Due to historical and social reasons, a farmer is not free to rely on competition rules if he is not satisfied by the dairy's contractual conditions.

The present situation is even more frozen since the sector exited the quotas. It is now to the dairies to take over responsibilities for the volumes management. At the same time in order to make the collection organisation even more convenient, the dairies signed "collection agreements" in which they agreed on a common organisation. The collection trucks are now each

assigned to one precise sector, meaning that any truck from any dairy can collect any farmer delivering to any dairy. Then many farmers think that while signing “collection agreements”, dairies signed non-competition agreements as well. They all report that they cannot change dairy anymore.

4.3.1.4 Troubles within the contracts’ wording

As explained further up, all the farmers delivering to private dairies have signed written contracts for milk deliveries on 1 April 2011 according to the corresponding decree. In 2012 was implemented the new European regulation on contracts and cooperative dairies benefited from a derogation. This means that the juridical value of the cooperative contract is recognised under the condition that the cooperative adapts its statutes as required by the European legislation.

We could then assume that since then the French dairy sector witnessed a whole new deal concerning contracts conditions. Facing large and sudden reforms the dairy sector had no other solution than answering smoothly with progressive steps. While the state was trying to maintain the situation under control, other stakeholders would try to gain more influence through the contracts wording.

Contracts have been written by either the private dairies or the cooperatives. From 2011 it did not entail significant changes compared to the already existing contractual relationship. According to the decree around contractualisation, the state set the volume/price clauses according to the last inter-branch agreements. Though there are been real changes in the contractual relationship which principle was aiming to group producers in order to build communal negotiations structures (Figure 44).

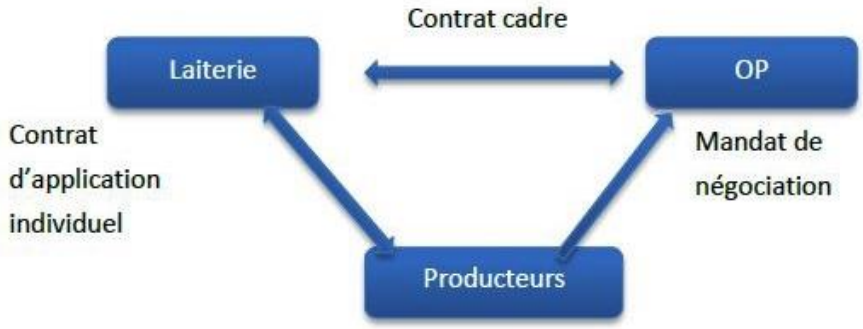


Figure 44: Individual and collective dimensions of contractual relationships (source Trouvé *et al.*, 2016)

For that reason producer organisations (POs) can be considered as a real innovation. According to the European regulation, member states have to officially recognise the POs’ legal status when created. It is defined by the EC as an association of producers with particular marketing roles, defined as as follows (Trouvé et al., 2016):

- The board can program the production according to quality and quantity criteria and can adapt it to demand
- Concentring the members’ offer and sell collectively their production
- Optimise production costs and stabilize farmgate milk price

In the same vein cooperative's status has been adapted to this collective aspect of the negotiations. This renewal process entailed new discussions on certain closes, which have been evocated further. From that moment the management of rights to produce milk was the dairy's responsibility and some used this clause in an abusive way (Lactalis). The inter-branch discussions about a re-negotiation clause did not lead to any compromise, leaving farmers without any re-negotiation possibility on contracts which had been signed for five years. The exclusivity clause tight the farmers to their dairy and would not let them any bargain space in contradiction with the principle of a collective bargain.

Out of primary importance lays also the fact that the production volume raised more smoothly than it appears. Quantities linked to the rights to produce milk (farmers' individual references) were progressively increased during the quota's last years, combined with a higher distribution flexibility at the regional level. When the quota regime stopped in 2015, only a few dairies would allow their farmers to produce higher volumes that their former quota reference. It was particularly the cooperatives which were engaged within their status to collect the whole volume produced by the farmer.

On the other hand when Brittany exited the quotas, the new contracts system triggered controversy among farmers and was partly made responsible for enhancing the bad juncture. One could think that these decisive reforms around contracts opened a space for re-shuffling the power leverages between producers and dairies. The dairies used their asset to their advantage in a context of instable markets and restructuring. Facing the dairies farmers are not that organised and they have been surprised by the whole new situation.

Yet farmers' union are building their discourse around prices negotiation in order to gain further leverages and try to balance the power balance on their advantage.

4.3.2 Price negotiations

For a long time farmgate milk prices have been pretty stable due to the influence of the quota system. But between 2004 and 2007, European authorities gradually decrease the public intervention prices. Accordingly the volatility hit the milk prices (Figure 45).

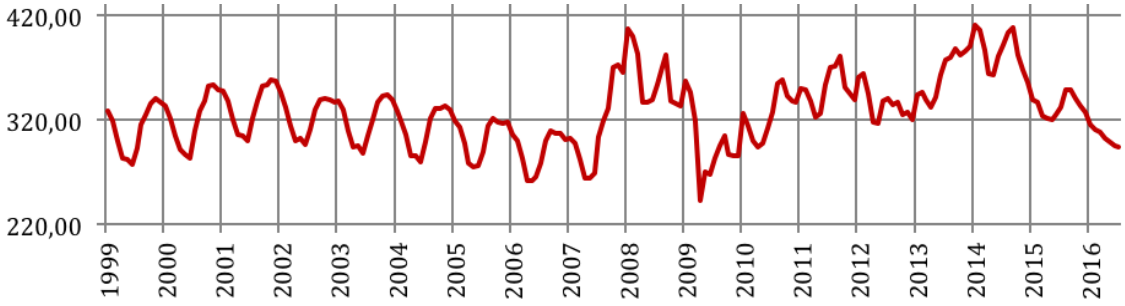


Figure 45: Variations of the farm gate milk price in France between 1999 and 2016

Of particular concern is the fact that a chronicle overproduction seems to settle in. A discourse encouraging farmers to increase their production was spreading within Brittany (Casalegno *et al.*, 2016). The milk industry was encouraging farmers to produce. At that time it was a hearable discourse for two reasons. First Breton farmers were waiting since 1984 and the end of quota to develop their business towards bigger livestock. Secondly as Northern countries like Denmark or Netherlands were crazily increasing their production capacity, France was afraid to lose market shares on the European market.

The fact remains, however, that farmers have now to deal with variations of the milk price that directly affect their income as they have never seen before (Figure 46).

Figure 46: Progression of the average milk price and farmers' earnings (APCA, 2015)

4.3.2.1 Price negotiations on a territory level

France has been a precursor when creating the Inter-branch organisation in the early seventies. It followed the request of farmers willing to negotiate a minimum guaranteed price for milk. It has been quickly set among the inter-branch organisation's roles that it would frame the milk price negotiations. Since then prices have been regularly negotiated at a territorial level through the territorial inter-branch's declination (CRIEL). Thereafter milk prices used to be discussed within the inter-branch organisation. Appropriate indicators would be published regularly. When prices would drop too low discussions between the inter-branch stakeholders would allow to reach an agreement on how to collectively sustain the prices.

This process was providing a certain maintenance of social peace within the dairy sector. A web of local associations has also been created around regulating issue. Prices were regular and farmers felt like they were sitting at the table of negotiations.

But during that time the actual power balance was already set. Geographical monopolies among the dairies were already set and one could already point out defaults concerning the proper allocation of added value within the chain. In particular, farmers have no individual bargaining power when it comes to price negotiation. They often have no view on the contract's content and have no copy of it. Their only material proof is their pay statement which does not contain all the information on the price calculation system. Their only regular contact with the dairy is through the dairy's technician. But this relationship is often ambiguous since the technician is providing technical advice ans selling inputs and material at the same time.

Bargain power left to farmers would be through their representatives, the administrators. Their role is subject to controversy. The administrators could make a difference in the dairy's orientation of governance if they would be able to negotiate within good conditions while being able to face their colleagues of the executive board. Some farmers witness on the administrator's elections being under low participation rates. In some dairies the economic information they receive is not sufficient in order for them to discuss on the development strategies (Kerglonou, 2016).

As such farmers are not able to individually negotiate the price, though they are supposed to have a grip on governance structures they created themselves. With the renewal of contracts regulation cooperative dairies have opened discussion about their governance structure and

they invited all of their members to come and participate to the debate. Concerning the POs, they have been created often out of the ancient local association web. They also need the contribution of the FNPL providing them with juridical advice during their building process.

Farmers seem to be entitled to negotiate within the conventional frame.

4.3.2.2 Farmers have the weakest bargaining position within the value chain

Farmers only have a grip on price negotiations through collective associations. At the national level is the milk branch of the major union, FNPL (National Federation of Milk Producers). Its declinations at a regional/district scale are the FDSEA (Departemental Federation of Farmers Unions). In Finistère, a district with important union footprint, tare are also two "minor" unions: Confédération Paysanne and Coordination Rurale. These unions also have a national representation for dairy farmers: the OPL (Milk Producers Organisation) for the Coordination Rurale and the Milk Commission for the Confédération Paysanne. All these organisations at their own level are carrying producers' concerns and claims through their representatives. They take lobbying actions at several levels. At the moment the FNPL has an attentive hearing given by the Minister of Agriculture so that it could influence some bills (Boëssé, 2016).

The power balance that unions are able to maintain facing other stakeholders of the sector plays surely a big role in the quality of price negotiations. However the power balance the farmers suffer rely a lot on conditions they do not have leverage on.

Farmers directly face the prices volatility

Indexation of French milk prices is set out since the last inter-branch agreement of 2010 as follows. The milk price is calculated on the basis of the previous year price called the base price. The calculation formula uses three indexes: butter/SMP (20%), exported consumer goods (20%), French consumer goods (60%). The farm gate milk price is calculated by applying these indexes on the base price. In other words French milk price is partially indexed on world rates. Whereas the French consumer goods index is supposed to be kept stable since the valorisation of consumer goods on the "mature" French market is supposed to be stable.

Figure 47 shows the tendency of French milk price to follow the international index and the EU prices. However variation specificities of the French price can be explained by many other facts if we focus first on how the price calculation is set among the collective contracts (POs and cooperative) and then on the way dairies adapt their calculation formula according to their territorial conditions.

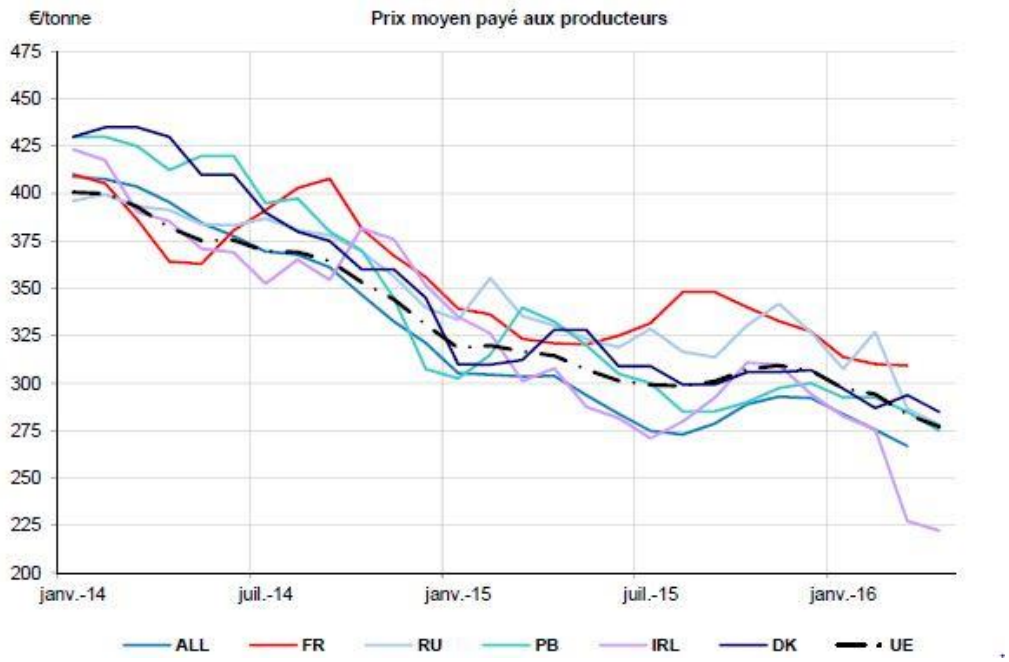


Figure 47: World market prices for dairy products (FranceAgriMer, 2016a)

The clauses of the 2010 Inter-branch agreement have been directly translated in the contracts of producers delivering to private dairies. In this way private dairies are aiming an homogenous competitive environment if every private operator comply with the inter-branch recommendations. They are also aiming at guarantying a certain social peace since inter-branch recommendations come from a common compromise.

The cooperative case is particularly revealing of the extent to which producers are subject to price volatility. Since the new regulation implementation Sodiaal has taken the "double price" approach for farm gate milk price calculation.

The A volume is a fraction of the farmer's reference volume which is set each year by the administration board. This fraction is set according to the amount of milk processed into consumer good and sold on the French market (Trouvé *et al.*, 2016). These A volumes are paid an A price to the farmer. The A price is to remain as stable as possible. But according to the inter-branch recommendations this A price is not made out of any indicator of French consumer goods valorisation. The A price is made out of indicators for industrial goods (SMP/butter), exported consumer goods, industrial goods valorisation, competitiveness with Germany.

The B volume correspond to the "development volume", in other words an extra volume taken by the producer for either saturating his production capacity or developing his business activity. The farmers are then allowed to increase their reference volume but they are paid a B price. The B price directly correspond to the industrial goods valorisation of the cooperative. B price is mostly less than A price.

Finally the C volume has been created more recently in order to penalize overproduction. C price correspond to the average milk price minus the community penalty. Each cooperative dairy has adapted its own calculation modalities out of this "double price" model. For example Laïta pays its members with limited development capacities. In other words each cooperative adapts this system to their own conditions concerning specialisation, mix-product and their territorial anchorage. Hence a farmer situated in a region with good potential for production increases would be more flexible towards price conditions.

Beyond this conditions issue, cooperative dairies set also their price according to the inter-branch recommendations. But the tendency persists of regularly reviewing indicators and price objectives. The cooperative's administrations are also progressively creating ranges of differentiation indicators adapted to all of their specific conditions (Trouvé et al., 2016).

Farmers are protesting against this increasing complexity of the price calculation which is blurring their understanding. But a cooperative has still a democratic governance structure. As a last negotiation resort it is to the board to arbitrate between interest; it has to prioritize either the milk valorisation allowed by the markets, or the farmers expectations or the cooperative's needs. The fact is that farmers are facing a totally new situation comparing to the quota period when public authorities and the inter-branch organisation were deeply shaping the sector regulation.

An inter-branch organisation loosing of its influence

The French Inter-branch organisation for the dairy sector (Cniel) is gathering three professional organisations in three collegiums : the Federation of Cooperatives (FNCL), the Federation of Private Dairies (FNIL) and the Federations of Milk Producers (FNPL). It has been created in 1974 following the farmers' request. An inter-branch organisation is an institution under private law which is not under the rule of the state but receive a delegation authority from the administration for "professional agreements". When the Ministries of economy and agriculture "extend" an inter-branch agreement it becomes then compulsory to the entire sector's professionals (Trouvé et al., 2016). Among the inter-branch missions are the milk quality management, representability, branding and animation. But the inter-branch's structure is mostly shaped for framing the milk price negotiation. For a long time prices have been negotiated within its regional declinations (CRIEL). Through these negotiations it was cared not to offer farmers too low prices. When prices would fall too low it was asked to the mass retail to compensate some of the drop. But the 1997 crisis lead to the signature of an inter-branch agreement and fixed the milk price.

From 1997 and after started the era of the milk price fixing through the inter-branch organisation. This fixing system was favourable to a lot of dairies which had extended their activity over several French regions. At the same time the transaction costs dropped. The CRIELs would still keep on discussing quality and seasonality. Within this scheme industries only had a minimal role. Beyond the inter-branch frame they could only negotiate premium payments with their producers.

That era was considered as the golden age of the inter-branch organisation. There was an easy and good discussion among all the members and consensus were easy to find (Casalegno *et al.*, 2016). But during the 2000s the inter-branch's recommendations progressively turned into indicators. Negotiations would thus turn around indicators. Calculation methods were adapted according to the sector's mutations with the objective of allowing a price setting which would follow the markets and guaranty the French dairy sector's competitiveness. The indicators have been segmented into more specific ones for industrial products, commercial goods export and French commercial goods. But the French commercial goods index was not negotiated accordingly. The DGCCRF reported this practice as anticompetitive in 2008. As a consequence the French inter-branch lost one of its most important leverages.

Since 2008, the inter-branch organisation cannot discuss anymore on the price at the expense of the farmers. The processing sector's stakeholders (both cooperative and private dairies) are lining up against the producers' representatives. This was disabling during the contracts reforms because the inter-branch could not use of its whole arbitrage power.

A restructuring processing sector struggling with the market forces

Given the overproduction crisis and the fight for market shares it is in general difficult for the processing operators to keep up the development level they activated in before the crisis. Among their priorities is to protect margins. Industrials are actually engaged in double fight with on one side the producers and on the other side the mass retailers. The retailing sector is a highly concentrated one, whereas farmers are not organised enough to be able to concentrate their offer. As such it is a usual strategy for dairies when prices are high to pay a lower price compared to the recommendations so that they can preserve their margins when prices are low (Casalegno *et al.*, 2016).

Several stakeholders also denounce a governance problem within the boards of the dairies. Compromises on price are often found out giving to the dairy needs a priority. In that sense Sodiaal's governance has been pointed out.

Private dairies are also growing and have to shape their strategies within the frame of a highly competitive sector on world markets. Lactalis embodies this process. Already one of the sector's leader within France Lactalis recently purchased several milk processing companies in several foreign countries, the most recent purchase being Parmalat (one of the sector's leader in Italy). The turnover of Lactalis' French factories is made exclusively within France (Le Doaré, 2016). As such it is not out of Lactalis' interest to increase its milk collection volume. It follows from the above that Lactalis farmers dispose of very few bargain leverages facing their dairy. The negotiations are stuck concerning prices and volumes, meaning that farmers delivering to Lactalis cannot increase their delivered volume without such they would not be collected. Concerning the price, being the world leader Lactalis is free to set its price with distance to the recommendations. Within this power balance the POs seem to be out of no bargain use. Accordingly the power balance between Lactalis and its farmers is always frontal and violent. As an example several demonstrations took place this summer when farmers blocked roads near Lactalis' headquarters in order to ask for better milk prices.

For cooperative dairies the issue is different. French cooperatives historically developed their activities with a mix-product highly based on industrial processed products (powder and butter). With the drop of intervention prices combined with market volatility they had to be more innovative into high added value products. Several other elements contributed to weaken their business. According to its statutes a cooperative is committed to collect all the milk the cooperative members produced. Despite the A/B calculation price system which has been recently implemented finding outlets for these extra volumes requires high investments. Recently these investments have been carried on external markets which is subjected to a higher degree of risk (interviewee n°1).

Another element lays in the governance of the cooperatives. Such as for Sodiaal cooperative have become holdings with the purchase of several subsidiaries in order to enrich their mix-product. We have seen that the range of cooperative actors is particularly complex in Finistère. It is then easy for farmers to feel absorbed by the cooperative's governance structure. An administrator we interviewed witness of poor information being communicated by the executives about the economic parameters of the cooperative's activity. For a good functioning of the cooperative it is also very important that the board of administrators and the board of executives are on the same wavelength {Casalegno, 2016 #5677}. If not the case coordination within the decision making would break and decisions might be taken which are not in the best interests of the cooperative members.

4.3.3 The difficulty of Brittany's dairy sector to differentiate its production

4.3.3.1 The Breton Model is above all an ultra-specialized production system

The historical context made Brittany really quickly engage towards the specialisation of its agricultural production. Several generations of farmers underwent this process. A mass production implies also to comply with health and environmental standards. When a farmer adapts to such a system it implies long terms loans to meet the standards. Once these investments are made it is difficult to step back. Farmers we interview underline that if they would have wanted to engage in a differentiation process they would have had to decide it when they took the farm back from their parents.

Several processing actors in Finistère developed thanks to solid brands. Lactalis or Triskalia are known for their solid brands. Branding in this case is increasing the valorisation of products through the process. Therefore branding is an asset for the Breton processing sector.

In parallel to the branding valorisation Brittany managed to promote a good image on Breton farming in association with pasture. The Breton dairy sector also benefited of the numerous promotion campaigns for dairy products hold by the inter-branch organisation.

4.3.3.2 Why aren't they any PDO/PGI on milk products in Brittany ?

Brittany is known for some typical food products. Back in time Breton farmers used to produce a big range of butter varieties. But with the development of the sector the image of the Breton butter has been more used for branding than for quality differentiation as we saw further up. Even though farmers identify butter as being an appropriate product for price differentiation, such an action did not emerge in Brittany.

A Protected Designation of Origin (PDO) or Protected Geographical Indication (PGI) promote and protect the name of quality agricultural products and foodstuffs. Creating a PDO entails the implication of a wide range of stakeholder on a given territory. It is a way for farmers to sell their milk at a better price. It would also allow them a better bargain power for price negotiations.

In Brittany no such action emerged. However dairy farmers expressed a will for differentiating their production through the "organic agriculture" certification. Despite having been a request for many years none of the regional dairies were wanting to take the step. Later came Biolait a collecting cooperative which engaged into collecting every farmer who would step in the project. This has been the start of a differentiation action in Brittany.

4.3.3.3 Conversion to organic farming as an opportunity

As we can see on the figure 28, the organic sector did not experience any crisis compared to the conventional sector. As a consequence of the price being attractive the organic sector is also currently very attractive for farmers. Furthermore the demand for organic products is increasing accordingly. Hence Brittany experience an increasing rate of farmers converting to organic.

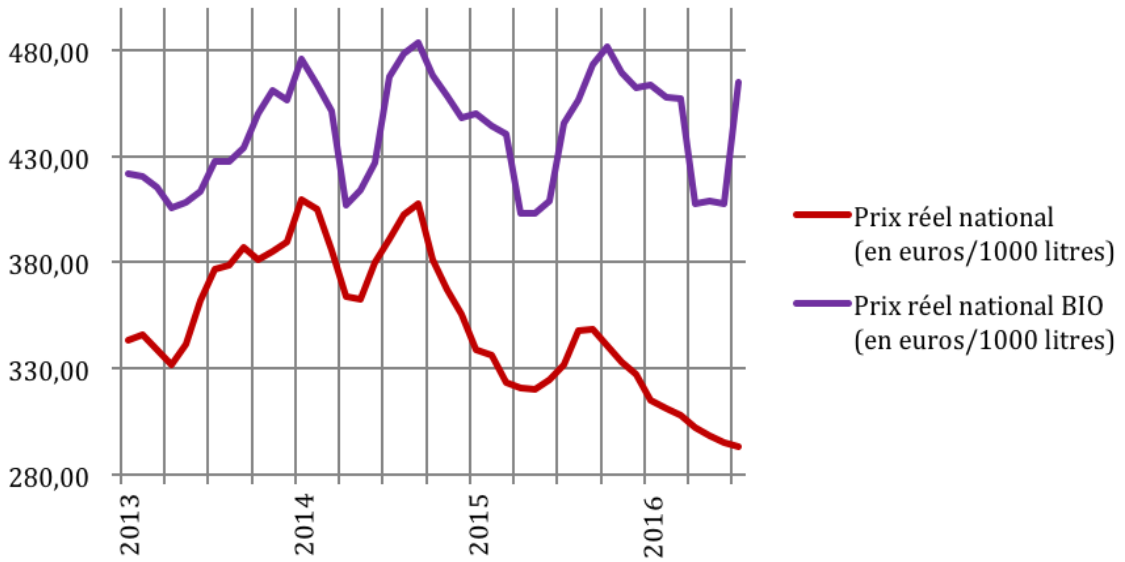


Figure 48: Farmgate Milk Price for conventional and organic (FranceAgriMer)

After the arrival of Biolait came Eurial with an industrial unit for organic milk. But farmers are aiming to increase the organic outlets and they are pressing Sodiaal for developing an organic branch. After reiteration of the demand the project Is still evolving. It is interesting to notice that in other French region important dairies have developed their strategies on differentiate products. The question remain why Finistère do not seem to be an attractive region for organic differentiation.

At a farm level a conversion to organic supposes good technical skills, getting out of the conventional societal system and to rely on the weather. It could be seen as a continuous process after a progressive de-intensification of the farm system. But a lot of farmers having a de-intensified system are not ready to take the step.

4.4 Key issues related to conditions affecting farmers' strategies from the literature and key informants interviews

The analysis of regulatory and market conditions through literature review and stakeholder interviews for large scale cereal farmers in IdF has identified a list of key issues that are briefly summarised through a SWOT analysis (Table 4). The key issues mentioned will inform future discussions with producers and other supply chain representatives as part of Task 2.3.

Table 4: SWOT analysis for the dariy sector in Finistère

Strengths	**Weaknesses**
Good agro-ecological conditions for livestock: important share of temporary pastures among crop rotations and good grass growth Well established technical knowledge associated to livestock in the region (fodder autonomy) Presence of a multiplicity of historically-settled processing operators in the region and an investment region for newcomers A territory with a strong dairy identity which has been skilled at promoting a good image A region with a defined food patrimony	Price volatility inciting farmers to build more specialized and intensive systems to meet the competitive requirements Price volatility is weakening farms' treasuries High machinery and agricultural buildings cost per head of livestock Mutations in the agricultural population : an important share of ageing farmers, a young generation not ready to live under the same constraints at work Entry to the industry and succession are submitted to a growing number of conditions : land availability, access to loan, access to production volumes ; implying higher costs Increasing costs triggered by a multiplicity of standards, and a complexifying administrative management of the farm Farmers tight to their dairies Production systems strongly dependent on energetic complement for fodder (soja) with a stronc societal and environmental footprint No action for promoting the region's dairy food patrimony so far (no PDO attached to dairy products)
Opportunities	**Threats**
Producers Organisations (within cooperatives and POs) measuring their role in avoiding that the price risk might be directly affecting them A dairy farms diversity which may develop thanks to a greater flexibility (with the exit of milk quotas) France holds a good rank on european markets thanks to a differentiated offer Innovation within price calculation (double price A/B) still partly framed by the inter-branch organisation	Continued oversupply hardly restrained by public policies Processing operators investing on the global market with heightened risk taking A contractual system which is not well established yet, leaving farmers under risk exposure POs lacking bargain leverages when facing their dairy A struggling cooperative sector transfering extra pressure on farmers Environmental pressure of dairy farming remains high and might increase with the intensification enhancement

4.5 Dairy production in Finistère: key insights from focus groups and participatory workshop

4.5.1 Introduction

To explore further how farmers develop strategies to face the complex business environment above described, two focus groups (FG) and one participatory workshop (PW) were organised over the period between March 2017 and May 2017. FGs and the PW were recorded and fully transcripted to allow for a careful analysis.

Taking stock of previous analysis, the two focus groups gathered farmers running contrasted farming systems: in the first FG, we convened intensive farmers using mainly maize and soybean cake to feed their cows, while in the second one were invited farmers whose feed strategy was based on pasturelands / meadows. Each FG gathered six farmers and lasted 2h30 (from 10 a.m. to 12.30) and were followed by a lunch during which discussions went on (details on participants are given in appendix 1). Each FG was organised the same way: after a short presentation of the context of the study, the main results of the market and regulatory inventory for the case study were put into perspective with the results obtained in other SUFISA case studies of the same commodity cluster. The presentation ended with a sort of framework through which each farmer was invited to briefly describe his / her farm during 8-10 minutes (date of creation, structure of the farm in terms of areas and heads, number of working person on the farm, other types of production than milk / dairy products, main commercialisation channels, main problems encountered over the last 5 to 10 years). After this first round the table, the discussions unfolded following two main axis:

— farmers were invited to discuss each other's strategies to face similar changes in their business environment: what have been keen factors to account for successful / failed strategies?

— they were then invited to discuss about their respective overarching goals and / or the main determinants of their strategic decisions over the last 5 to 10 years.

The FGs ended up with a discussion on future perspective regarding (i) the ongoing CAP reform process and (ii) the evolution of the world, regional and national dairy markets.

On the other hand, the PW gathered twelve participants, including farmers' representatives, local governments, value chain actors, a banker, and civil society organisations. It lasted 2h30 and was also followed by a lunch gathering all participants. The discussion was introduced by a quick presentation of the main findings of the focus groups and the market and regulatory inventory. The participants were asked to react through post-it following four main lines of analysis, namely:

(i) commentaries or propositions to add to the proposed diagnosis;

(ii) what do they see as the main driving forces of the sector over the next 5 to 10 years? Which changes are likely to happen that are beyond their reach but will impact upon them?

(iii) what projects do they currently have or do they plan to develop to face those possible evolutions (i.e. to take advantage of any opportunities or to avoid too negative constraints)?

(iv) what sort of actions/ decisions do they think other actors (than them) should take to foster the sustainability of the sector, to contribute to the establishment of what kind of institutional arrangements?

The data collected during the two FGs and the PW were analysed following four axis of reasoning, which form the main headlines of this section of the report. A first axis relates to the way in which farmers *frame* / think about the conditions under which they farm. While the market and regulatory inventory allowed for a formal analysis of those conditions, FGs in particular allowed to understand how farmers *subjectively interpret* them with respect to their personal *stakes* in the sector. The three other axis of analysis relate to the kind of strategies farmers develop to face the conditions perceived as *problematic.* Those strategies can be roughly clustered in three categories that are, of course, interlinked: strategies at the *farm* level, at the *value chain* level and at the *territorial and collective* level. As we will show below, those strategies can translate into the creation of (or attempt to create) specific institutional arrangements aiming at modifying the framework in which the farmer is embedded. As we will see, for each condition deemed problematic, one or several strategies are developed by farmers at one or several levels.

4.5.2 How farmers frame / interpret the conditions affecting their business

4.5.2.1 Why farmers farm, or what is at stakes in farming?

For all farmers who attended the FGs, farming is more than "just" a work: it's most of the time a *vocation* which they wish to exert with *passion*. As such, personal feelings and emotions are part of all decision making processes, which can in turn not be considered from a pure rationalist perspective.

Besides this very broad perspective, shared by all participants, farmers mentioned three key issues which affect how they make decisions. One relates to their *quality of life*. By this, farmers refer to (i) the wish to have free time either for their family, their friends or their personal / political commitments; (ii) the wish to be able to transmit their farm and not to work until their last days; and (iii) the wish to run their farms as *entrepreneurs*, that is to be able to make independent choices / investments to keep their business evolving.

An other important aspect for farmers is – obviously – to be able to generate a *decent income* from their business. This includes, inter-alia, to have their work recognized by the society through remunerating prices (and not only subsidies); to be able to capitalize during their professional life in view of their retirement; and (again) to maintain enough investment capacity to make autonomous decisions regarding their technical orientations.

Last but not least, most farmers underlined the importance for them of *working with natural elements*: understanding the needs of their cows, the evolution of their pasture, how they can make the best use of it, etc. While this aspect translates into different strategies / technical orientations depending on the context in which the farm operates, it has been pointed out by all.

Taken together, those elements outline the contour of what can be seen as an *ethos* of the dairy farmer (Bourdieu, 2003 [1997]), or a *professional identity* (Strauss, 1992) that shape their individual as well as collective behaviour (as a group).

4.5.2.2 Main challenges of the contemporary conditions for Finistère farmers

Five main challenges the contemporary conditions emerged from FGs and the PW. Each of them is described below in more details.

The end of the quotas and the subsequent increase in price volatility

As was already clear from the desk based study presented above, the end of the quotas and the consequences it has had on price volatility is a core concern for all dairy farmers in Finistère. This is all the more true that the most common development pathway of dairy farms in Finistère has been based on

the maximisation of the physical productivity of work to produce undifferentiated raw milk, then sold to processors (both private and cooperative) in charge of its valorisation. Contrary to the milk used for the fabrication of quality products – such as cheese sold under a quality or Protected Designation of Origin label (e.g. Comté, Roquefort…) – farm gate price of such undifferentiated raw milk is indeed highly indexed on international market prices. When they go down, so does farmer income. The sharp increase in price volatility has then translated into a growing instability for farmers' businesses with three main consequences:

(i) their margin of error in the management of the farm has reduced close to zero: any error can now have dramatic and immediate consequences on the farm's economic equilibrium;
(ii) from a very technical point of view, farmers are now required to be able to fine tune their production level to adapt to price instability and to strictly control their production costs;
(iii) last but not least, farmers need to develop skills that go well beyond their traditional "domain of competencies" (agronomy, zoology, farm management) to develop new ones in the field of economics and business / management if they want to survive in this changing environment.

Further concentration in food / milk value chains and its consequences

Over the last ten years, food value chains in general, and milk ones in particular, have continued to concentrate unabated – at least in France. At the regional level, it has led to the progressive absorption of any small to medium dairies by one of the "big five", which are either cooperatives or private dairies (Sodiaal, Even, Triskalia for cooperatives; Sill and Lactalis for private dairies). All those dairies operate at national or even international level, with a large part of their production destined to export markets under the form of poorly differentiated products. According to farmers, there are two main consequences for them. The first one is that they feel "trapped" in an unfavourable contractual relationship with their buyers, one that do not remunerate them enough but from which they can not escape easily:

> I sell conventional milk to Lactalis. I'm part of a producer organisation, the PNBL, because I'm fed up with being skewed by the dairy. And the problem is that if you want to leave for an other dairy, either you can't find an other dairy – nobody needs milk – or they don't let you leave. And that's the problem.

The other one – closely related – is that the value added is mostly created downstream the chain by dairies and cooperatives in an opaque manner, without "trickle-up" effect which would allow them to get part of this value back to the farm.

Growing demands from the part of consumers regarding the environment and animal welfare

An other challenge that dairy farmers have had to cope with more acuity over the last 5 to 10 years relates to the growing demands expressed by consumers for healthy, fair, green, etc, food. The relatively new issue (in France) of animal welfare is of particular concern to most of them, as it has gained prominence in the media and on social networks. Farmers feel particularly vulnerable to such demands for at least three reasons. One is the fact that they lack the skills, networks and resources to better control their image in the media and towards the public. As put it by this farmer:

> I think people are highly concerned by what they eat. […] And the image of the profession is really negative, and it's difficult to counter that.

An other difficulty farmers face relates to the increasing pressure such demands exert on their farm, notably through the issuance of new regulations. The obligation made to farmers to comply to such regulations is considered as a barrier to their entrepreneur liberty, in a context where this liberty is considered a cornerstone of their professional identity (see section 4.5.2.1):

> Environmental regulations are there, and it impacts upon our liberty: we are not anymore master at home! We have our liberty, but it's highly limited by existing regulations and controls.

what they call the "consumer schizophrenia", by which consumers want always better products but don't want to pay for it. This, according to farmers, leaves few opportunities to develop alternative lines of products by which the value added generated at farm level could be higher.

Increase in farm size and problems of transmission

In Finistère – like in many regions of Europe, but unlike other French areas where milk is valorised through high quality cheese produced under stringent specifications, such as Comté (Bowen, 2010) – the "natural" modernization pathway of most dairy farms over the last two decades has been to increase in size, productivity and, all in all, capital intensity. The consequence of this is that farms transmission is more and more difficult, with two main options. One requires that new entrants in the system invest massive amount of capital to start their activity, yet with a high level of indebtedness which impacts upon their financial capacity for years. The other one is the development of shareholding systems, through which farmers do not own anymore their production system but only shares of it. Both poses several problems to farmers when they want to retire.

The difficult access to pastureland and need to reduce production costs

One of the key characteristic of the Finistère area – and of Britanny as a whole – is the highly favourable climate for grass production / productivity. As such, any farmers who has sufficient access to pasturelands (30 acres / cow is already a good amount) can valorise them and limit its recourse to protein / concentrated feed, and in turn its production costs. In a context where price volatility commands farmer to cut their cost down, (re)developing the use of pasture is increasingly considered by farmers and extension services as a part of the solution. Yet, the problem is precisely that of access to pastureland. In many cases, land shortage, but also land organisation, prevent many farmers from acquiring pastureland that are easily accessible to their cows – that is, close enough to the milking shed. Exchanges of plots of land could theoretically solve such problems, but they are difficult to organise. Mutual agreements between farmers are not that frequent, and public intervention is often needed.

4.5.2.3 Intermediary conclusions on contemporary conditions

Taken together, contemporary conditions have brought farmers towards what they consider as a slight reduction in their autonomy and hence an increasing level of dependency vis-à-vis external actors / factors. They indeed consider that their dependence to the following four factors has been growing over the past 10 to 20 years:

— to feed, fuel, and various inputs with the search for increased productivity – regarding feed this is well illustrated by various studies such as (Posseme & Seuret, 2011);

— to access to credit and non-agricultural capital with the increasing level of capital per worker;

— to their buyers, as dairies tend to secure their supply as well as their outlets and thus constrain / prevent farmers from changing;

— and finally to external labour, as farm size grows and family labour becomes scarce. Yet, the recourse to external labour is costly from many points of view.

This trend towards less autonomy has been pointed out as a key determinant of most strategic choices. However, as will be shown below, farmers can react to this evolving context by adopting different strategies at various levels, depending – partly – on the relative weight they give to the four main stakes outlined above (quality of life, level of income, importance of working with natural elements).

4.5.3 Multi-level strategies to cope with contemporary conditions

Results from FGs and the PW reveal that farmers – alone or in partnership with other key actors of the sector – have developed (or tried to develop) strategies at three different levels to cope with contemporary conditions: at the farm level, at a collective level (targeting either policy makers or other value chain actors), and at the territorial level. Those three levels are by no means exclusive to each other, though some strategies of course better combine with others.

4.5.3.1 Farm level strategies: the choice between two broad technical orientations

At the farm level and in the Finistère context, one can distinguish between two broad technical (and also economical) strategic orientations: either the farmer maximises the physical productivity of work (that is, the production system is designed to maximise the amount of milk produced per unit of labour); or he / she can maximise the economic productivity of work (that is, the production system is designed to maximise the economic return per unit of labour). We now turn to a description of each of those systems.

Intensive systems: maximising the physical productivity of work

While no official figures are available, it is estimated that at least 70 % of Finistère dairy farms are engaged in such systems. Over the last 10 years, farmers who have chosen this orientation have tended to increase their production volumes. The main rationale has been to *saturate* the production system and maximize its physical productivity, that is to harmonize the production capacity of all production factors at the farm level (land, capital, labour, quotas). It has led to farms whose functioning is highly reliant on external resources, most notably energy crops and proteins for feed, with a key consequence on their economic equilibrium: income is generated on the basis of high volume produced at a – relatively – high cost. The margin per litre of milk is low but is compensated by the volume, as expressed by this farmer:

> Et avec mon système, je sais que je suis piégé avec un coût alimentaire un peu plus élevé, mais là où je gagne, c'est que je fais du volume ! Je fais du volume par UTH et je fais du volume dans ma structure.

The outing of the quota and its consequences on price instability has severely hit them. Different coping strategies have been explored by farmers. A first one is financial: all investments have been frozen and debts have been as much as possible staggered.

A second one has been to continuously increase production volumes, with the hope that it could compensate prices drop (implying that cutbacks in investments need not to hamper the increase in production):

> Farmer 1 : On sait qu'il y a beaucoup d'exploitants qui ont/vont arrêter. Or, il y a besoin de lait partout dans le monde…enfin moi c'est ma vision ptêt globale mais…En tout cas je me suis dit là-dessus on peut y aller
>
> Farmer 2: Mais ce qu'il y a c'est qu'ils veulent nous faire produire du lait, mais ils veulent pas nous payer… !
>
> Farmer 1: Mais justement, le fait de faire plus de volume, ça nous permet de faire face aussi à cette baisse du prix du lait.

A third approach focuses on the control of production costs, most notably feed costs and mechanisation costs. Obviously, minimizing feed costs while maximizing production poses sever challenges for farmers. New rotations have been experimented at the plot level, with the introduction of new crops (mix of protein crops / fodders and cereals in temporary meadows in alternately with ensilage maize,

introduction of mangold) and the adoption of conservation agriculture practices – said to reduce production costs:

> "j'ai commencé à incorporer de la betterave pour essayer d'augmenter les taux – valoriser au mieux le lait – et après de l'ensilage d'herbe pour essayer de diminuer mes coûts de concentré. J'ai préféré partir sur l'ensilage d'herbe plutôt que sur l'affouragement en vert où t'as tous les jours à aller les chercher." (A farmer, FG n° 1).

The question of mechanisation (and its associated costs) is a heated debate amongst Britanny farmers, especially when coming to milking robots. A milking robot is a significant investment that weigh on the farm economic equilibrium for a long period. Most farmers who adopted it justify their choice by (i) the fact that it frees them much time and (ii) it's an excellent alternative to hiring people when the parents or farm partners retire:

> j'ai un associé qui a 54 ans aussi, et justement nous on prendra le robot lorsque l'on aura deux associés qui partiront. Et ya de fortes chances qu'ils ne soient pas remplacés, ce seront les robots qui les remplaceront.

Autonomous pasturing systems: maximizing the economic productivity of work

This type of systems, which tends to rely more on pasturelands, is deemed to represent 10 to 30 % of all farms in the Finistère. One can date the "origin" of such systems to the publication of André Pochon's book on autonomous / efficient systems in 1981 (Pochon, 1981). Their overall strategy is to minimise costs and maximise the economic return per unit of work. It follows that such systems tends to rely more on pastureland and less on energy crops, leading to (i) a much lower level of dependency on external resources for both the livestock (protein / energy feed) and the cropping system (fertilizers and seeds); (ii) a lower physical productivity per cow (6 000-7 000 Litres / cow instead à 9 000-12 000) and per hectare; but (iii) an equivalent economic productivity per hectare (AgroParisTech *et al.*, 2016). While the physical accessibility to pastureland determine the capacity for farmers to take up such an orientation, all participants to the second FG reported the intense reflection they carried out before turning to it. This indeed goes contrary to the specialization / intensification pathway that has been promoted and adopted in the whole region over the last four decades. To depart from it means to counter the "natural" evolution, which requires the farmer to stop, take a step back and accept to rethink its whole system – something which is much easier when farmers are part of a social network in which such farms already exist. This is well expressed by two farmers:

> Moi je me suis installé en 82. J'ai fait un certain temps dans un système intensif […]. Au bout de vingt ans je me suis dit que donc c'était assez dangereux de suivre le discours des gens [qui sont aux responsabilités]. Et donc j'ai fait une première vie qui s'est achevée à 43 ans dans ce système-là – je faisais 9000 L de lait avec du concentré et j'étais très docile, mais quand même observateur en fait. A 43 ans j'ai fait un premier bilan et je me suis rendu compte que je n'avais pas envie de passer toute ma carrière comme ça. Donc on a décidé de changer de système, c'est-à-dire désintensifier, c'est-à-dire la première chose : arrêter d'investir. Pour gagner de l'autonomie puisque le maître-mot c'est l'autonomie. Il faut commencer par arrêter d'investir pour regagner de la liberté de mouvement. On est parti à l'herbe, on a diminué la production par vache, etc etc. On avait déjà 100ha à l'époque. Et depuis, on a passé différentes étapes : on est passé en Bio et on est passé de 2 UTH à 5 UTH sur la même surface. Et ça a conforté un projet politique en fait.

A first consequence of this is that all pasturing and autonomous / semi autonomous systems today result from a de-intensification movement on which farmers have deliberately chosen to embark as part of a medium to long term strategy. There are of course gradients between fully autonomous systems, that do not rely anymore on feedstock, energy or protein feed, and semi-autonomous system,

that still include energy / protein crops such as maize in their rotations to constitute stocks, "in case of". What is however crucial is the fact that all those systems have put pasturelands and grass at the heart of the feeding strategy.

From a technical point of view, relying more or exclusively on grass / pasturelands implies to accept both a greater variability and an overall decrease in milk productivity / cow. From this follows a second important consequence, from a technical point of view: the fact that most farmers now rely on a mix of bovine species / races to compose their herd rather that a mono-specific and milk-maximising herd.

The third key characteristic of those systems, already expressed in the quote above, is to avoid as much as possible heavy investments or to amortize them over a long-term.

What clearly emerged from both focus groups and the participatory workshop is that the choice to embark on an intensive or a more extensive system is not only individual. It also highly depends on how farmers are themselves *embedded* in social, political and territorial dynamics, which, in turn, also affects the way in which they possibly engage in collective strategies / dynamics. We now turn to this second set of strategies.

4.5.3.2 Collective level strategies:

During FGs and the PW, participants insisted on four types of collective strategies: changing the regulation framework by targeting policy / decision makers; reversing power imbalance in the milk value chain by changing its governance; minimising costs by mutualising the use of production tools; improve skills / build capacity through the involvement in collaborative learning processes. All those strategies are briefly described below before we turn to a conclusion.

Advocacy and political work: struggling to change the policy framework

The Finistère district is well known for being a land of strong political mobilisation and resistance, especially in the field of agriculture and farming. Local farmers' unions are amongst the most vocal at the national and even European level to defend what is often called the "Breton modèle" when some regulations are deemed to threaten it. Over the past 5 years, farmers' political mobilisation in the dairy sector has remained high, targeting either French policy makers or European ones. For some participants around the table, such mobilisation are considered as an integral part of their overall strategy. They dedicate important resources to it – mostly time resources – with no immediate return (except in few cases where politicians have proven to be highly reactive, notably because of the magnitude of the mobilisation). This well illustrates the fact that farmers' decision making processes do not only take into account economic aspects but encompasses much broader issues, as already discussed in section 4.5.2.1.

One must however notice that the type of demands brought to politicians greatly varies depending on the political side on the farmer union considered – which makes a big difference with northern Europe situations. Three main unions are active in the Finistère and more broadly in the French dairy sector: the majority union, the FNSEA / FNPL; and two unions that have more or less the same political weight: the Coordination Rurale (CR) and its specialize body for dairy, the Organisation des Producteurs de Lait (OPL); and the Confédération Paysanne. Despite important differences, all unions tend to converge on the need to better remunerate farmers and to increase milk price at farm gate, though the policy tools they propose for that greatly vary.

Increase farmers' position in the milk value chain

Farmers however not only rest on policy makers to get better prices; they also try to *change* value chain organisation and the market organisation. There are two strategies here. One focuses on strengthening farmers' *bargaining capacity* in the milk value chain through the development and the reinforcement of producer organisations (to sell to private dairies) or the improvement of cooperative governance. The other one focuses on upstream market segmentation, to ensure a better remuneration for farmers.

Improving farmers' bargaining capacity

Regarding farmers' bargaining capacity in the milk value chain, we mentioned above the fact that they tend to feel "trapped" in their commercial relationship with dairies, be they cooperatives or private dairies (see paragraph 0). To reverse this situation, some farmers invest in collective action / strategies. Some of those selling to private dairies have, on the one hand, put much effort in the development of producer organisations (POs). Most POs are currently unable to weigh on dairies and improve the situations of their farmers-members, for at least two reasons. One is that they are all attached to one dairy instead of being able to negotiate with several of them; an other one is that they are too small and don't represent significant volumes to truly negotiate with dairies. That is why some farmers try to convince others to adhere to existing POs and even to federate POs in one single regional federation for the whole Western part of France. Though most farmers don't place too much hope in this, some do believe that if cooperatives would join the PO federation, that would constitute a determinant lever to increase the bargaining power of farmers and get more remunerating prices.

Upstream market segmentation

An other option being developed by farmers is that of upstream market segmentation. In the current situation, only a small fraction of the milk is sold through short chains or as differentiated milk (especially organic one). The bulk of the milk is sold undifferentiated to dairies who, in turn, transform it into basic products: butter, "simple" cheese (with no PDO / PGI), milk, cream, yogurt, skimmed milk and infantile milk powder (probably the most complex product produced in Finistère – only for the Chinese / export market). On all these products, the value added is realised and captured down the value chain by dairies and supermarkets (for a detailed analysis of the French market see OFPM, 2016). To counter this trend and allow farmers to get a greater share of the value added – even for those running an intensive or semi-intensive system – the idea of segmenting markets at the production level has been widely discussed during the two focus groups and the participatory workshop. The idea is by no means new but until recently, the main farmer union was reluctant to consider it, considering that "milk is milk and it's white". But it gained resonance when Finistère farmers discovered that their Dutch, German or Danish counterparts were getting a "grazing premium" for farm that apply grazing for at least six hours / day during 120 days. This duration is indeed well below the average grazing time in Finistère and, more broadly, Britanny, thanks to the excellent agro-ecological conditions that allow to grow grass all year round. On that basis, what was discussed was a threefold strategy:

(i) to continue when possible to develop "local" short milk value chain in which the farmer gets a greater share of the value added thanks to the limited number of intermediary. While it has been said that this will probably remain a "niche markets", there are opportunities to develop them – thanks notably to the help of local governments – and derive greater profit for farmers.

(ii) to develop “medium range” milk chains (~ max 1000 km from production to end consumption) in which farmers have more power than in the existing chains, thanks notably to the development of specific products that allow to valorise niches;

(iii) to better valorise what is currently sold as undifferentiated milk by emphasising the specificity of Finistère dairy systems in terms of animal welfare and grazing time. The development of a specific quality standard based on principles, criteria and indicators fit to the specificity of the Finistère (or Britannt) has been discussed at length and is currently under development (“hay milk”).

On top of that, the development of organic production has been considered during workshops as a particularly promising possibility at all levels. Organic milk is indeed well remunerated by the market, with a premium up to 20-25 %. Besides that, organic producers are organised through a specific PO that sells to all private dairies, Biolait, that gives it a real bargaining power compared to other POs.

Minimise production costs through mutualisation

As discussed above, a cornerstone of farm-level strategies – be it in intensive or extensive systems – is the minimisation of production costs, and most particularly those related to mechanisation and labour. While there are ways for farmers to control such costs based on individual choices, some also invest in collective action through two types of structure / institutional arrangements: the CUMA – cooperative of agricultural machines utilisation – and the ETA – enterprises for agricultural labour. Both allow for reducing production costs or working time in different ways.

— the CUMA aim at sharing machines between a group of farmers and thus at reducing the investment level of each farmer. Depending on the number of farmers involved in the CUMA and on the efficacy of the system, it can greatly help to reduce the cost.

— the ETA is a collective system that proposes different services to farmers (mowing, ensiling, sowing) at costs that are often more competitive than if farmers would have invest its own resources to do the same thing.

Certain farmers chose to invest themselves quite a lot in the governance of ETA or CUMA as they see it as an efficient collective strategy, as this farmer:

> moi je suis un peu atypique, je suis président de CUMA. Je suis dans le réseau CUMA à bloc. Là on est une CUMA de 30 adhérents. On a un salarié, voire un et demi parce qu’on travaille en prestataire de service. Et ça veut dire que moi, au niveau de mon exploitation – au contraire de Véronique – je n’ai qu’un tracteur de 125 chevaux, point c’est tout. […] tout le reste c’est CUMA, excepté le matériel de récolte. …tout sauf la récolte, la récolte c’est l’ETA. Donc je suis un converti au système CUMA.

Others, on the contrary, find it too constraining, especially because relying on CUMA for certain machines, or on ETA for specific tasks, reduce their reaction capacity (they have to wait for ETA’s workers or CUMA’s machines to be available for something to be done on the farm), and hence their decisional autonomy. They prefer to support a higher indebtedness but to be “free” to do what they think needs to be done at the moment they want to do it.

Farmers’ capacity building through their involvement in collaborative learning processes

Last but not least, all farmers have mentioned the importance of collaborative learning processes to improve the efficiency of their system or even to give them ideas to rethink it. Collaborative learning processes are organised through working groups which are most often animated by a technician or an

engineer from public extension services. The importance of such groups is particularly underlined by farmers having extensive systems. It is presented a way to share innovations that would not have reached them through "conventional" extension services:

> Farmer 1 : moi aujourd'hui quand je côtoie des gens qui sont en Bio ou pas en Bio, j'apprends toujours quelque chose. Et c'est cette richesse des rencontres ! Et à la rigueur un conseiller agricole, au-delà de la technique ou de son rôle, son savoir sur l'économie, c'est cette capacité qu'il a à faire rencontrer des gens pour s'enrichir. Ça s'appelle un animateur de groupe. Et quelque part, s'il a un minimum de communication et un minimum de savoir-être et de savoir-faire, eh ben il fera très bien son métier. Et son premier rôle, c'est de faire parler les gens entre eux. Et lui, à la rigueur, de parler le moins possible.
>
> Farmer 2 […] L'idée nouvelle, elle est presque toujours venue d'éleveurs, de gens qui sont dans les cultures,… Si je prends l'exemple de notre groupe qui a beaucoup travaillé sur les systèmes laitiers pâturants et autonomes, ce sont deux leaders qui à un moment donné ont eu une idée qui nous a semblée au départ un peu farfelue. On a voulu voir quand-même derrière les tenants et aboutissants et …les premiers chiffres arrivent, on a un peu plus de recul sur la voie qu'a pris la personne en question, donc on peut juger. Puis on va voir ailleurs, on va voir à l'étranger, et puis voilà, c'est un peu comme ça que germe l'idée ! Le rôle de l'ingénieur ou du technicien là-dedans, c'est un rôle de catalyseur.

Besides collaborative learning processes, an other key variable to allow for the development of alternative strategies relate to territorial organisation. Which implies to develop territorial strategies, in particular to improve access to pasture land and to develop short milk chains. We now turn to those strategies.

4.5.3.3 Territorial-level strategies

Territorial level strategies are those strategies that need to be endorsed and supported by a broad set of actors, beyond the sole agricultural profession. The role of public authorities, civil society organisations and businesses is, in particular, crucial. Such strategies are key in two respects: to develop farmers' accessibility to pastureland (an important variable to transition towards low-input systems, whose performances on the economic, social and environmental dimension are clearly superior); and to develop the demand for higher quality products at the territorial level, in a context where the whole territorial agricultural production system (ranging from input suppliers to dairies) has been designed to optimise the production of undifferentiated milk whose valorisation could be done downstream the value chain. This latter strategy is undertaken jointly by local NGOs, local governments and some groups of farmers. They have invested various resources to develop local demand for organic products and hence encourage conversion of local farmers to organic. At this stage, it is however acknowledged by all that it would not become a driving force of farming systems transformation in a near future. The former strategy dedicated to the improvement of land accessibility deserves further attention.

As discussed above, the physical accessibility of lactating cows to pasturelands is a key variable that determine to a large extent the type of technico-economical options available to farmers. Having little grass accessible for cows means, for a farmer, that he has to feed them most of the time which, in turn, implies to develop stocking capacity for feedstock and, depending on the cases, to produce or to buy this feedstock. On the contrary, a greater access to grass decreases his level of dependency and hence increase his economic resilience. Yet, over the last 30 years, the quota policy has had tremendous effects on land organisation. As quotas were allocated on the basis of land, farmers who wanted to increase their production capacity had bought land irrespective of the possible impacts on land fragmentation. Many farms have been split between several buyers / tenants when a farmer retired.

This has resulted in a high level of land fragmentation which now limits the physical accessibility of cows to grass / pasturelands.

To counter this trend, farmers need to collectively work together with public authorities to facilitate land exchanges and land reallocation towards a more coherent landscape. While this is currently an important aspect of local public policies, more efforts probably need to put in it, as mentioned by this farmer:

> Alors les contraintes de demain c'est le pâturage – moi aujourd'hui j'aimerais bien pâturer plus mais je peux pas. Donc les échanges de terres j'arrive pas donc ma contrainte elle est là.

4.5.4 Conclusion

Following what's above, one of the key conclusion that can be derived from data collected during focus groups and participatory workshop can be phrased as follows: while as of today, farmers' margins of manoeuvre to increase the economic resilience and the sustainability of their farms rests on individual decisions – as they don't feel they have enough power to change the broader context in which they operate – a larger scale transition, in which semi-extensive and pasture-based systems would gain prominence, could only happen if collective and territorially-based strategies are implemented and succeed. This conclusion leads, however, to a subsequent remark: the fact that to some extent, the development of intensive systems and extensive / pasture-based ones in recent years has progressively led to the emergence of two quite distinct socio-political networks and community of practices which function in relative isolation to each other (Fouilleux & Ansaloni, 2006). While most – if not all – actors recognize that pasture-based systems are more resilient and more sustainable (even those embarked in more intensive systems), this situation is most likely to impede a true agricultural transition at the district / regional level.

4.6 Key insights from producer surveys Finistère

4.6.1 Introduction: key questions and sample presentation

The aim of this section is to analyse the results of a survey led with a hundred farmers involved in dairy production in Finistère. As for the wheat producers, the questions asked to the farmers, beyond the specificities of their farm (total area, herd, etc.), were relative to their sales channels and the characteristics of their sales agreements, their ability to answer sustainability issues, the factors they were sensitive to concerning their future strategies and the future strategies they effectively planned.

As explained in this report, two dairy production models co-exist in Finistère:

- one being fairly intensive and inducing higher yields of milk production per cow (usually over 9000 L per cow), in which feed strategies rely mainly on maize and soybean cake (and therefore highly reliant on external resources);

- and another one in which feed strategies rely predominantly on grassland (with lower level of dependency on external resources for both the livestock and the cropping system), inducing lower yields (usually under 7000 L per cow).

These two strategies induce two different strategies at the farm level: one maximising the physical productivity of work (maximising the amount of milk produced per unit of labour) and the other one maximising the economic productivity of work (maximising the economic return per unit of labour by focusing on the margins rather than on the overall productivity). The farmers more implied in maximising the physical productivity of work will be more likely to make strong investments, especially in

milking robots, demanding large investments, while more pasturing systems will rather imply a de-intensification movement combined with a lower level of investment (and the acceptance of a stronger variability in milk yields).

The idea of this section is to confirm or nuance the strategies involved by the different types of production systems, knowing that a wide range of situations exist between these two archetypal models: consisting in mixing the feed strategies between the use of grassland and the use of maize and soybean cake, inducing various yields level per cow depending on the way these two approaches are mixed.

As also exposed in this report, two main sales channels coexist for the dairy producers, consisting in the cooperative dairies or the private dairies (both collecting and processing). The same way yields per cow will often be a factor we will cross with the answers collected in order to analyse the sensitivity or the perception of the different farmers to various factors or issues, the differences between both sales channels will be scrutinised.

The survey sample consists in a hundred farms. These farms are using an agricultural area ranging from 33 to 515 hectares, with most of them using between 50 to 100 hectares (see figure 49 below). Most of these farms are led by people aged from 50 to 65 years old (see figure 50 below). 49 farms correspond to individual farms while 46 are family farms and 5 are corporate farms. The herd size of these farms ranges from 13 to 180 cows with a production varying from 100 000 L to 1 800 000 L per year. Yields per cow are ranging from 3 000 to 13 500 L per cow (and from 3 000 to 6 000 L per cow for the 6 producers who are engaged in organic dairy production). Most of the farms have yields per cow going from 5 000 to 10 000 L (see figure 51 below). In view of the relation between livestock management systems (mainly based on grassland or mainly based on maize and soybean cakes) and cow yields, we have classified the farms in 4 categories based on their cow yields (see figure 51 below):

- a first category with yields varying from 3 000 to 5 000 L per cow, gathering farms we can consider as only relying on grassland;
- a second category with yields varying from 5 000 to 7 500 that we can consider as gathering farms that are mainly relying on grassland;
- a third category with yields varying from 7 500 to 10 000 that we can consider as gathering farms that are very shortly relying on grassland and mainly (or only) relying on maize and soybean cakes;
- a fourth category with yields over 10 000 L that we can consider as gathering farms that are only relying on maize and soybean cakes and that are strongly involved in the increase of the productivity of cows.

These categories based on yields will be important for some analysis we will lead in this section, as we will cross those categories with the perception farmers have on factors that may influence their activity the most and with the future strategies they plan to adopt, in order to understand if the crop system adopted seem to have an influence on all these aspects.

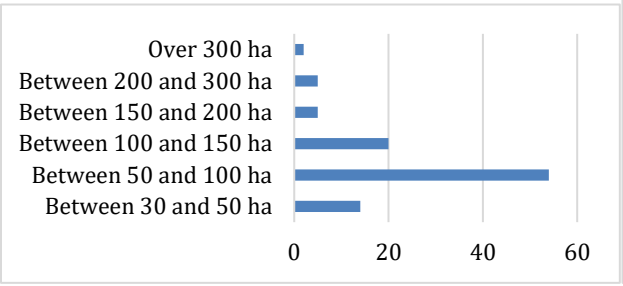


Figure 49: Number of farms by size categories

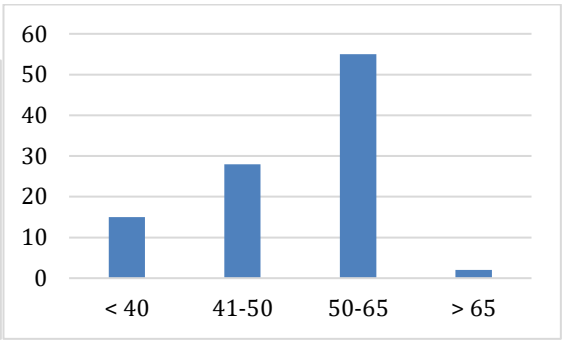


Figure 50: Number of farmers (men or women) by age categories

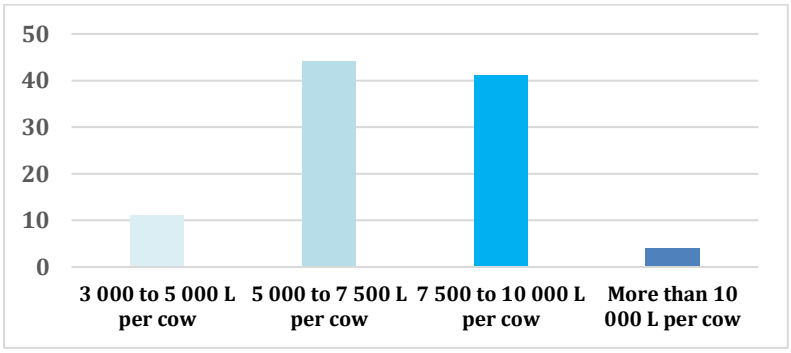


Figure 51: Number of farms by cow yield categories

4.6.2 Sales channels and sales agreements

Concerning sales channels, only two channels are used by the dairy producers of the Finistère: cooperatives and private dairies. Among the hundred farms of the sample, 82 of them sell mainly to cooperatives whereas 18 of them sell mainly to private dairy.

As shown on the figure 52 below, most of them benefit from a legal contract before or during the production and most of these contracts have a duration going from 25 months to more than 5 years (see figure 53), especially in cooperatives[22].

[22] We do not know if we have to interpret the fact that a large proportion of farmers selling to private dairies could not answer the question of the duration of the contract because there was a certain uncertainty in their ability to sell their production to the private dairies or because no possible answer satisfied them during the survey.

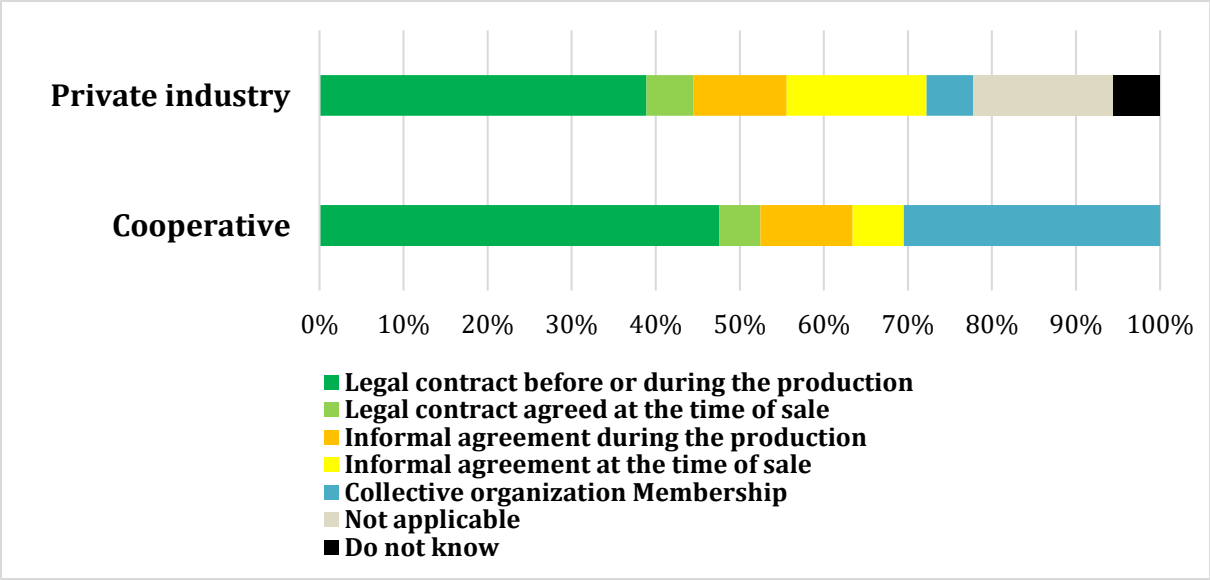


Figure 52: Types of contracts according to sales channels

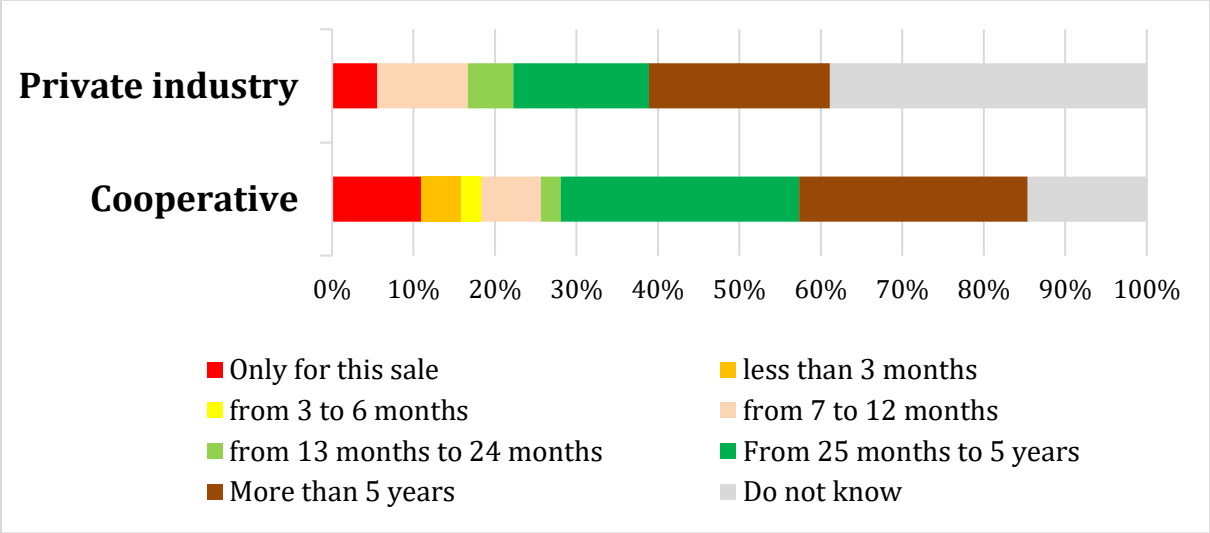


Figure 53: Durations of contracts according to sales channels

The comparison (figure 54 and 55) of services that are linked to sales agreements (assets, credit, technical assistance, etc.) shows that cooperative and private dairies seem to offer the same kind of services/agreements with the same kind of occurrence among the producers they contract with. Only managerial and technical assistance seem to be more frequently proposed in the frame of sales agreements with cooperatives.

Detailed explanations of the sales agreements categories in the figures below:

Exclusivity	100% of the product must be sold to the buyer/cooperative
Penalties	There are penalties if you are unable to deliver the agreed quantities
Safeguards	There are guarantees if the buyer does not respect the agreement
Price premiums	There are price premiums for delivering top quality products
Interests	You receive interest in the case of late payments from the buyer
Services	You receive services such as collection, storage, transportation, handling, etc.
Managerial and technical assistance	You receive technical or managerial support
Credit	You receive credit support (information about credit institutions, bank loan guarantees, etc.)
Assets	You receive assets, technologies and / or special machines
Automatic extension	There is a mechanism for automatic extension of the agreement

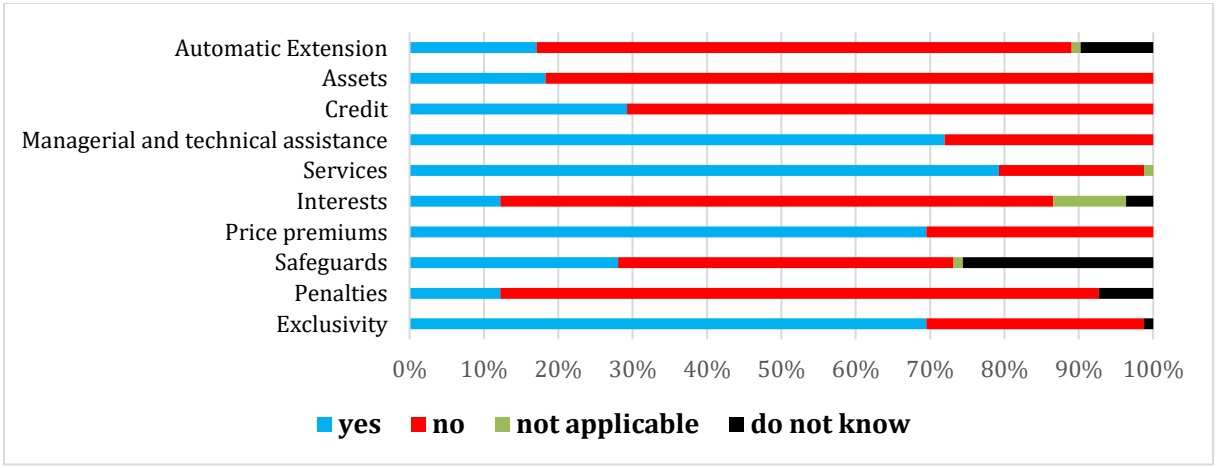


Figure 54: Types of agreements linked to the Cooperative channel

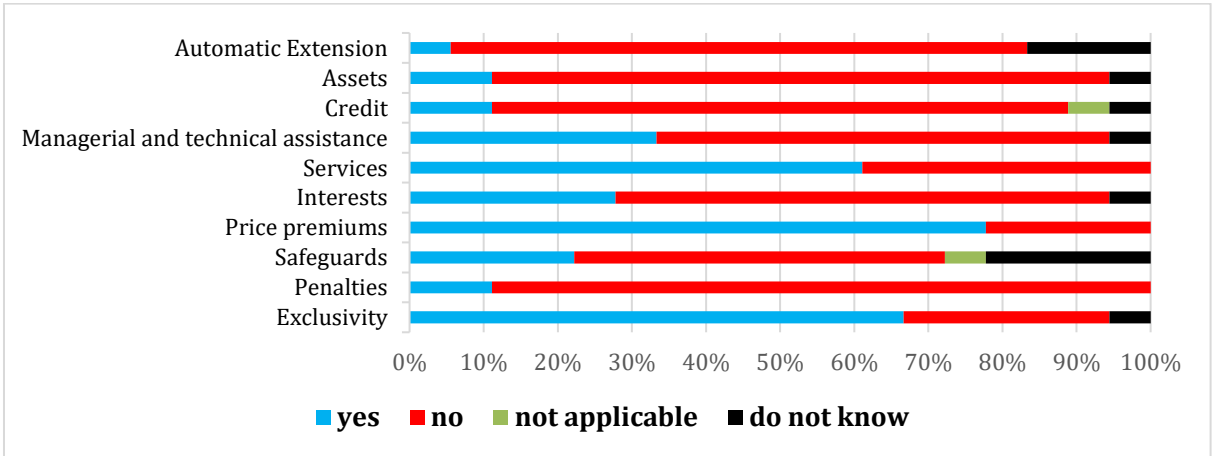


Figure 55: Types of agreements linked to the Private industry channel

Concerning the opinion of farmers on prices proposed and standards required by buyers, the differences that figure 56 are revealing can be summed up as follows:

- Private dairies appear to farmers as more restrictive on quality/production required but prices are considered to be a bit more stable
- Prices seem fairly more possible to negotiate with cooperatives
- There are no important differences among those sales channels concerning costs associated with sales agreements or payments delays, and about half of farmers consider there are alternative ways to sell their products for each type of channel (this could either be moving from one cooperative to another or one private dairy industry to another one; or moving from one type of channel - cooperative or private - to the other)

Detailed explanations of the sales conditions categories used in figure 8:

No alternative	No alternative to sell my production
Higher prices	My sale agreement proposes higher prices than other potential offers
Stable prices	I benefit from more stable prices than with other buyers
More negotiation	More negotiations are possible with this buyer
Payments delays	There are payments delays
High costs	Costs associated with this sales agreement are too high (e.g.: storage, transportation, marketing and promotion, sales commission)
Restrictive standards	The required production / quality standards are too restrictive

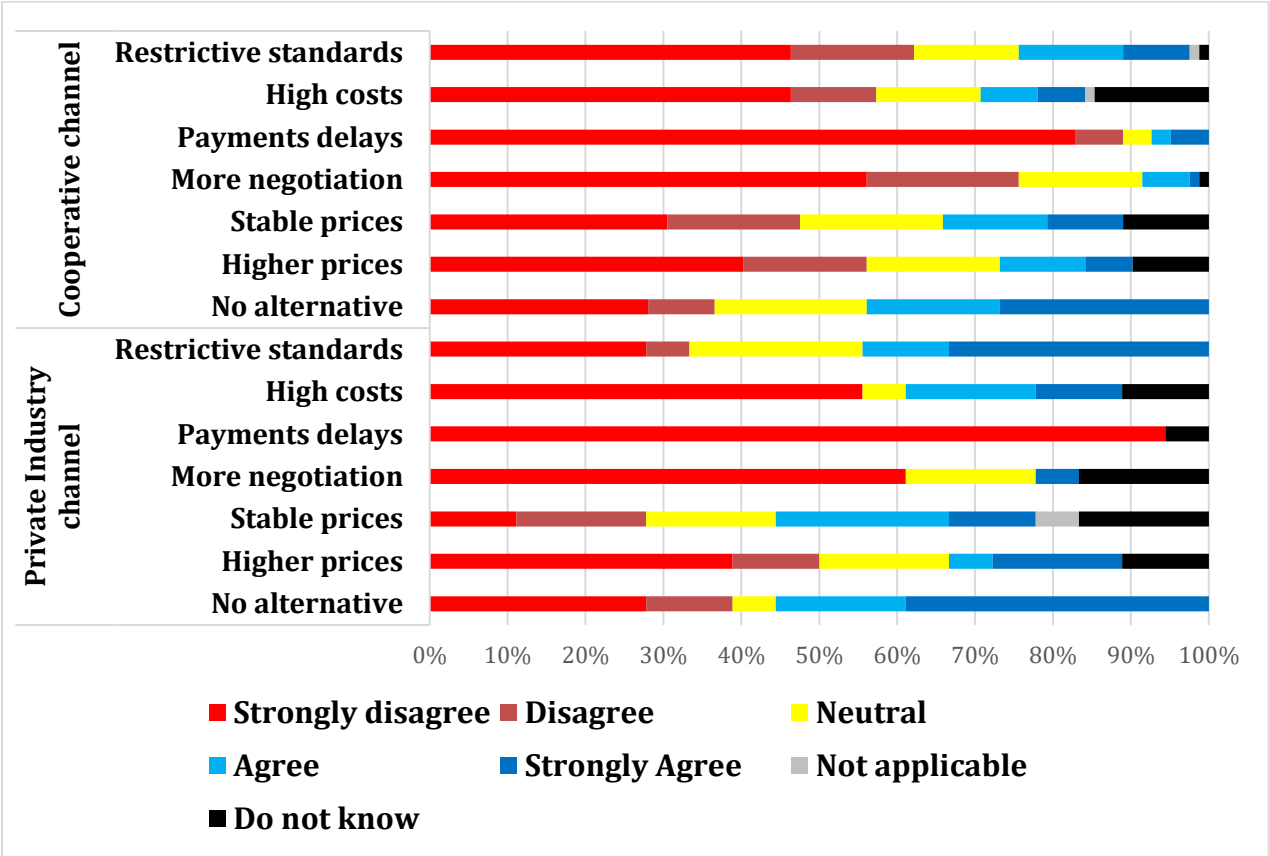


Figure 56: Opinion of farmers on sales conditions concerning prices and standards

4.6.3 Addressing sustainability issues

The question was asked to farmers if, on their opinion, the sales channels they were implied in could give them the opportunity to answer to a certain number of issues (mentioned on the figure 57 below) concerning the sustainability of their activity. If we consider all farmers, we can notice that they consider that they can more easily achieve environmental aims than economic ones. Concerning social aspects: securing successor and achieving societal recognition of farm activities are perceived as the most difficult goals to achieve.

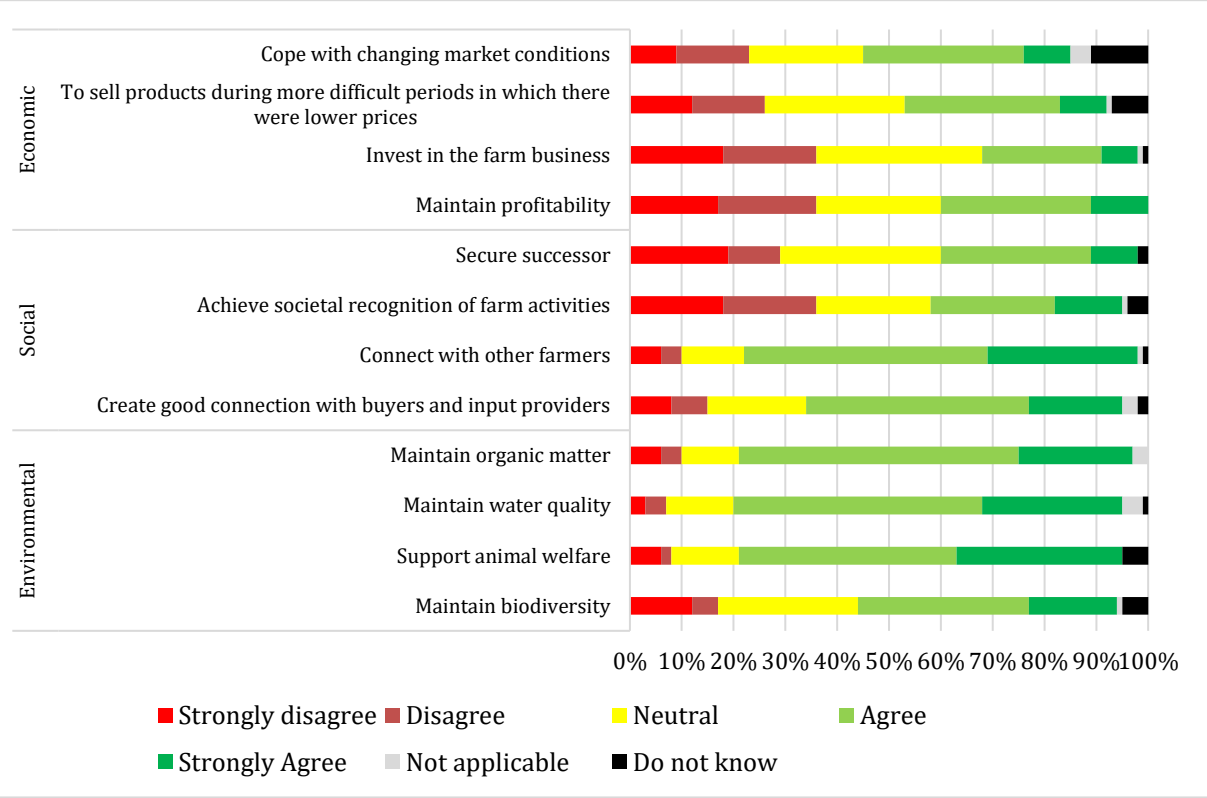


Figure 57: Perceived ability of farmers to answer sustainability issues

An analysis of the ability of farmers to answer sustainability issues according to their yield category (and their deduced crop system according to our classification), as shown on figure 58 below, shows that there are no significant differences in the statements made on some aspects, like assuring successor or achieving societal recognition for example, and that there are strong differences in other ones: especially economic issues like the ability to maintain profitability or the ability to cope with changing market conditions, which more easily achieved by farmers with either very high productivity or very low productivity per cow.

Figure 58: Perceived ability of farmers to answer sustainability issues according to yield categories

Category 1: yields < 5 000 L per cow; Category 2: yields between 5 000 and 7 500 L per cow; Category 3: yields between 7 500 and 10 000 L per cow; Category 4: yields > 10 000 L per cow.

4.6.4 Farmers' strategies

When farmers are asked the degree of influence a factor may have on their strategies, the global answers appear as shown on figure below. The factors that seem to be considered as the most influent factors are political shifts like changes in CAP or in regulations (on nitrates, water or pesticides for example), economic events like severe drop in market prices and potential adverse conditions concerning climate or pests.

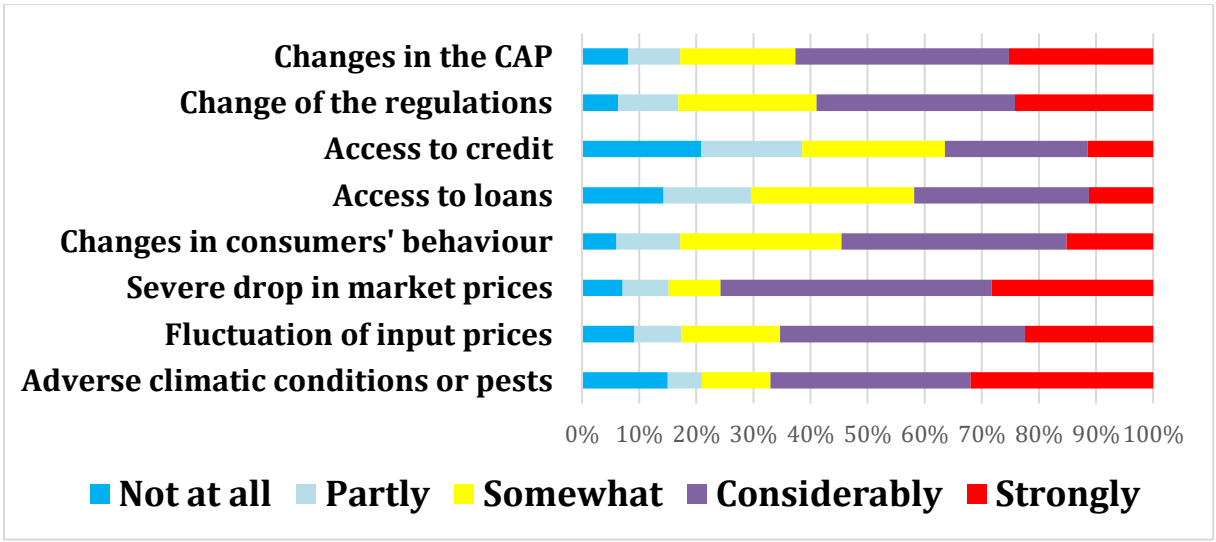


Figure 59: Sensitivity of farmers to different factors that could be leading to changes in strategies

On these aspects, crossing the answers with the different yield categories can reveal more precise elements on the perceived sensitivity to these factors by the different types of farmers. It appears that farmers more implied in production maximising consider to be more sensitive to input prices (which is a relatively intuitive statement), that producers with very high yields consider themselves as less sensitive to CAP potential reforms and that the lower yields per cow you have the less farmers consider themselves sensitive to severe drops in market prices. Knowing that farmers with lower yields per cow might experience more important inter-annual yields variations (as they will not complete the animal rations with external feed in case of lower grass productivity), it seems like extensive farming allows, to a certain extent, better resilience both on yields variations and on price variations.

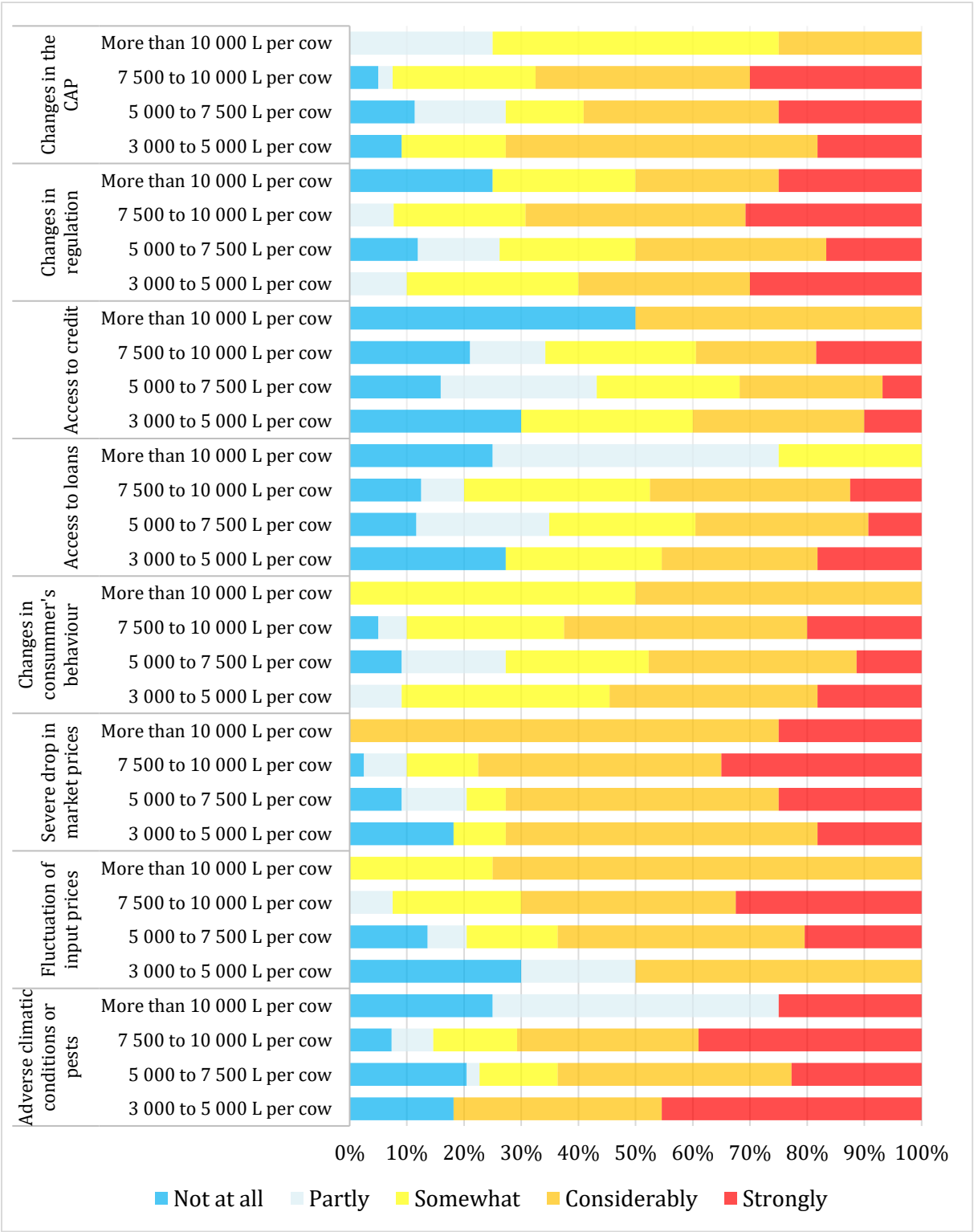


Figure 60: Sensitivity of farmers to different factors that could be leading to changes in strategies according to yields category

Dairy producers of the Finistère interviewed were asked what they planned in terms of strategy concerning the evolution of the scale of their farm in the next five years[23] (see figure 61 below). For farmers who planned to abandon farming or did not precisely know what their plan was, they have been asked what they had planned in terms of succession as reported on figure 62 below.

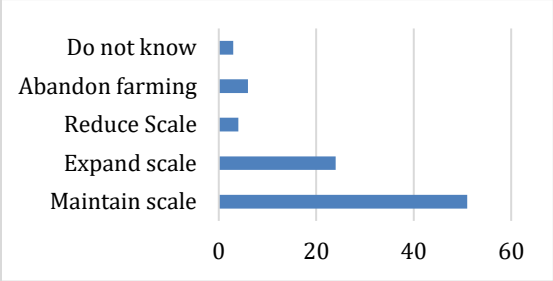


Figure 61: Strategy planned for the coming five years concerning the evolution of the size of the farm

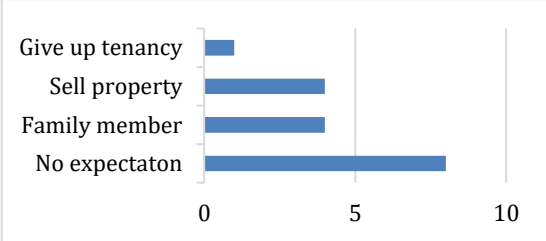


Figure 62: Type of succession planned for the farmers who planned to abandon farming or did not have any future strategies

[23] Given that farm enlargement is a sensitive and somehow taboo topic, it is worth looking at these answers with caution. It might appear that some farmers planned to expand their farm without wanting to say it to the interviewer.

Concerning strategies of expansion, concerning 24% of farmers interviewed, the distribution of these farmers among the yields categories (see figure 63 below) approximately follows the distribution of these categories among farmers (see figure 51 above).

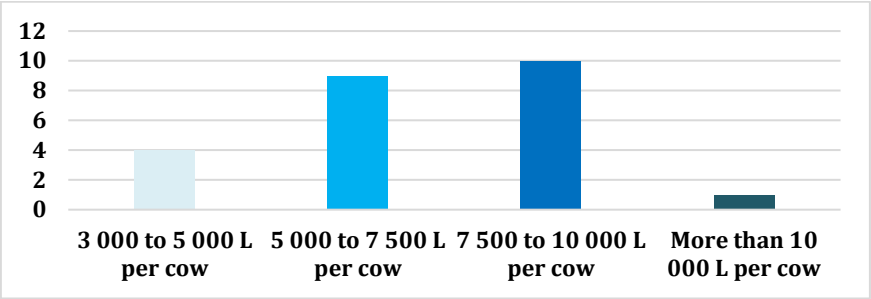


Figure 63:

Number of farmers involved in expanding the size of their farm according to yields categories

When dairy producers of Finistère are asked about their future strategies, we can make the statement that globally, dairy producers have few alternatives in terms of new market strategies, an aspect that we could interpret by the fact that they are rather captive to their sales channels. Concerning production itself, the main strategies evoked are investment and specialization.

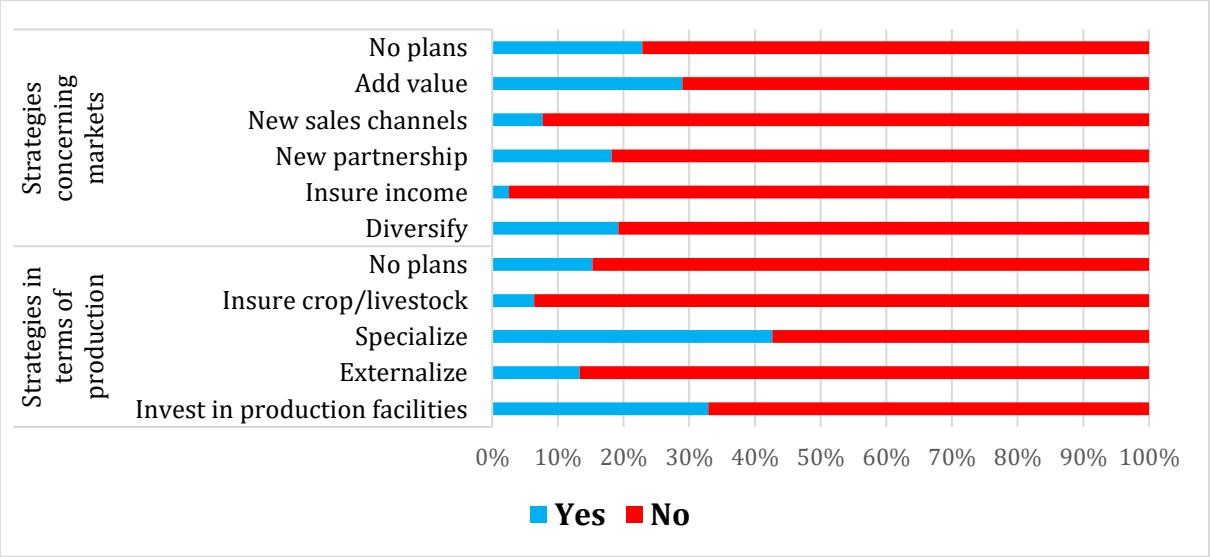


Figure 64: Future strategies in terms of production and markets

Crossing these strategies with yield categories allows to have a few other elements appearing:

- the more farmers are implied in maximising yields and the more they plan to insure livestock;
- the lower their yields are, the more they plan to specialize in dairy production.

We will also notice that farmers having yields between 5 000 to 7 500 L seem globally less tempted to invest in their production compared to other categories (high yields or very low yields).

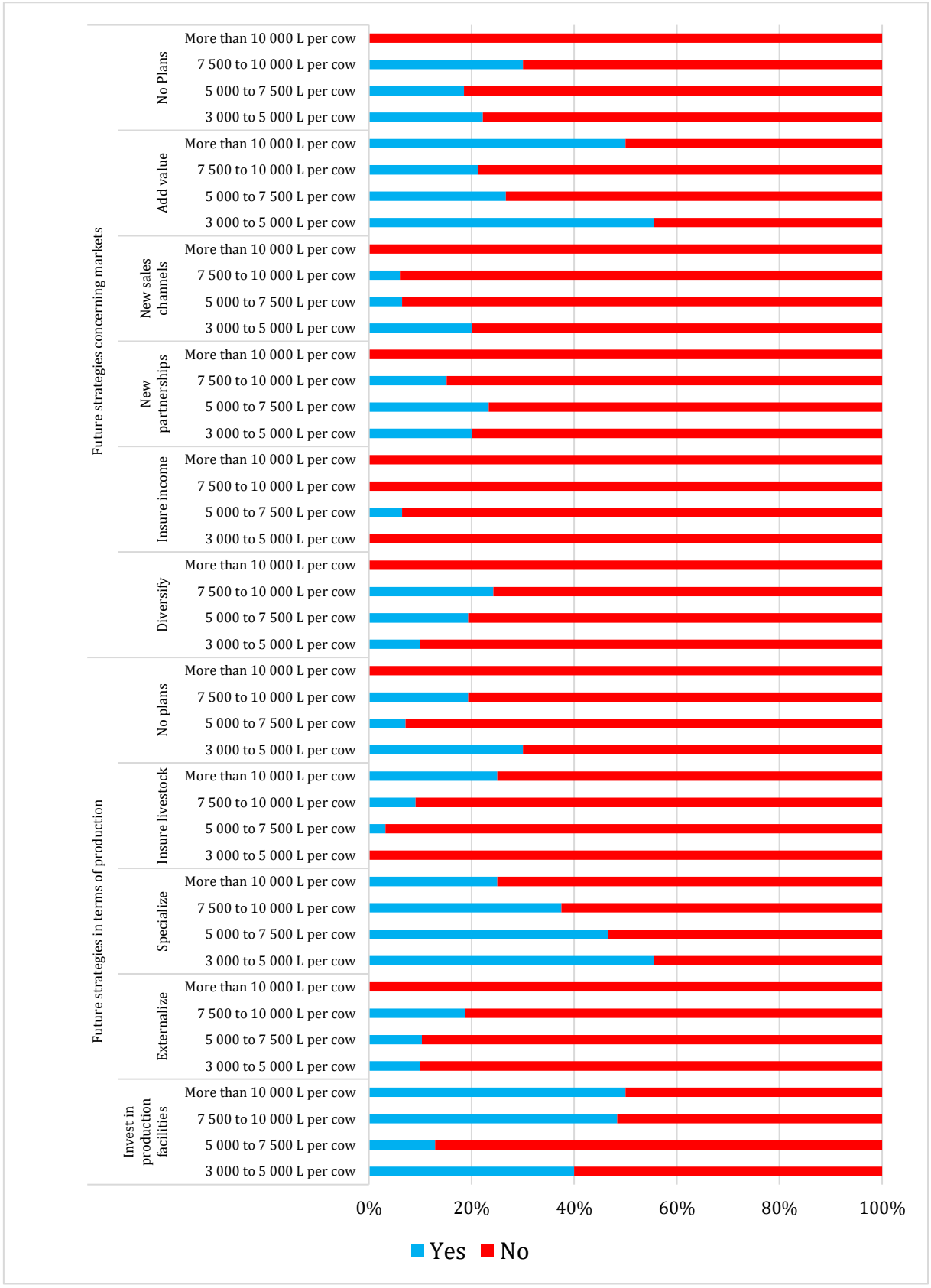


Figure 65: Future strategies in terms of production and markets according to yields categories

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6 Appendixes

6.1 Interview list for the IdF case study

Organisation	Role
Arvalis (Research institute for the grain sector)	Head of the Research & Development department
Ile de France Sud (cooperative)	Director
Valfrance (Cooperative)	Supply manager
France Export Céréales (in charge of promotion French grains abroad)	head of market analysis
Intercéréales (French interbranch organisation for the grain sector)	Director
Passion Céréales (in charge of promotion French grains on the domestic market)	In charge of the Île de France market
Agritel (French consultancy in agricultural finance instruments)	Development officer
FDSEA 77 (District branch of the French main agricultural union)	Vice president, farmers, in charge of economic affairs
AGPB (national branch of the main agricultural union for cereals)	Public affairs manager
OPG (national branch of a secondary agricultural union for grains)	Director
Unigrains (Financial instrument for the development of the French grain sector) Axéréal (Major grain cooperative) AGPB (national branch of the main agricultural union for cereals)	President Administrator General Secretary Farmer (one single interviewee…)
Terres Univia (Research institute for oilseeds and protein crops	Development officer
Terres Univia (Research institute for oilseeds and protein crops	Director
OPG (national branch of a secondary agricultural union for grains)	Local representative / farmer
Terre de Liens IdF (Association seeking to preserve agricultural land and allocate it for alternative farming projects)	Development officer
DRIAAF (Regional representation of the Ministry of Agriculture)	Head of the agricultural economics unit
DDT 77 (District representation of the State in charge of territorial development and administration)	Head of the agricultural economic unit
Ministry of agriculture	Head of office, large scale farming systems

APCA (Permanent assembly of Agricultural chambers)	In charge of european policies and large scale agriculture
TOTAL	**19 interviews**

6.2 Interview list for the Finistère case study

Organisation	Role
Sodiaal (Cooperative)	Producer and regional councilor
CNIEL (National & inter-branch council for milk and dairy economy)	Alternative agricultural union repesentative
Laïta (cooperative)	Administrator
AOP Grand Ouest - OP Rolland (producer organisation)	Président
APLI Finistère (Organisation of independantdairy producers)	Board member
FNPL (National Federation of dairy producers)	In charge of vallue chain structuration and economic analysis
Confédération Paysanne (alternative farmer union - left wing))	Responsible of the livestock unit
Coordination Rurale (alternative farmer union - right wing)	President
FDSEA Finistère (Main agricultural union, district level)	Président
JA Bretagne (Second most important agricultural union, district level)	Président
Ministry of Agriculture	Head of office, milk and dairy products
DDTM Finistère (District council in charge of territorial development and administration)	Director
DDTM Finistère (District council in charge of territorial development and administration)	Head of the agricultural economics unit
Chamber of agriculture of the Finistère district	Director
DRAAF Bretagne (Regional administrative body in charge of agricultural policies implementation)	President
Regional Council of Britanny	In charge of economic analysis
Bretagne Vivante (local organisation)	President
PNR Armorique (Natural Regional Park)	In charge of agricultural affairs

Institut de l'élevage (National research institute for the livestock sector)	Retired
AgroParisTech	Lecturer
MomAgri (Think Tank on Agricultural policies)	Head of economic analysis
TOTAL	**21 interviews**