



The economic impact of modern retail on choice and innovation in the EU food sector

Case studies report



European Commission

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1. Introduction

The case studies are an important complementary part of the study on the economic impact of modern retail on choice and innovation in the EU food sector. However, they should not be considered as independent of the study, as they are designed to bring in-depth analysis on only a few selected sectors, in order to understand and highlight results from the statistic and econometric analyses. Even though these case studies have been undertaken prior to obtaining results from the econometric and quantitative part of the study, the Consortium has proposed to share preliminary results with DG Competition. An important task ahead will be to analyse the findings in light of the results of the quantitative study tasks.

1.2. Objectives of the case studies

The objective of the case studies is primarily to provide illustrative examples in order to complete and complement the main findings of the econometric analysis, and to therefore assist in answering the key study questions outlined in the analytical framework. The case studies achieve the following key objectives:

- Broaden the scope of products in the study, to include particularly fresh food products
- Extend the analysis to three additional Member States (which brings the EU population coverage of the study to 72%)
- Enable through concrete examples to observe the reality of the trends observed from the econometric analyses, and to understand how and why certain drivers impact choice and innovation
- Investigate the impact of the context and the characteristics of the sector/supply chain on the evolution of choice and innovation
- Serve as illustrative examples to provide responses to questions that cannot be addressed quantitatively and/or assist in checking consistency with the findings of the quantitative analysis

1.3. Case study scope

As proposed in the first progress report, six case studies have been performed, comprising:

- Three non-EAN barcode product categories (non-fixed weight, non-transformed), which represent a non-negligible share of modern retail sales with specific characteristics in terms of marketing and wholesaler/producer organisations.
 - Fresh apples in France
 - Fresh tomatoes in Belgium
 - Fresh Pork in Germany
- Three EAN barcode product categories (fixed weight, transformed) which may assist in interpreting the descriptive and econometric analyses for these given categories.
 - Olive oil in Spain
 - Cheese in the Netherlands
 - Milk in Finland

1.4. Our approach

In order to understand and analyse the main characteristics of each sector and the evolution of choice and innovation and their drivers in modern retail, we:

- Conducted a literature review
- Interviewed 8 to 15 stakeholders for each case study: producers and producer organizations, suppliers and retailers (independent and integrated)
- Exploited various databases: Mintel GNPD (for new products), Euromonitor (for supplier share, market size and distribution channel data), Opus Nielsen (average number of SKU per product category per type of shop for available MS), National sector databases and statistical databases, Planet Retail for information on retailers.

For each case study, a number of hot topics were identified, and subsequently validated by DG Competition, enabling each case study to focus on key issues of importance. A workshop was held in Brussels on 7 November for the Consortium to present the preliminary findings of the case studies to DG Competition.

1.5. Points of attention

Firstly, we have been vigilant to remain focused on DG Competition's study questions. The aim of these case studies has not been to describe the complete supply chain in detail but rather to understand the characteristics and structure of the supply chain in relation to the study objectives. For that purpose, we have adopted an approach with the following characteristics:

- An approach focused on hot topics and key questions; we have identified precise hot topics for each case study that we have sought to focus on
- A complementary approach: each case study provides illustrative examples designed to complement the quantitative analysis and provide overall responses to the analytical framework questions.

Secondly, we would like to highlight that the case studies are a combination of a product category and a MS. The drivers that impact innovation and choice are closely related to a specific MS, with its national culture and local market characteristics. Thus the conclusions drawn from the proposed case studies cannot necessarily be applied to other MS or products, but will rather be an illustrative synthesis of a methodical and properly documented study of a product-MS pairing.

Thirdly, we have found that data availability varies across the case studies. Information available for fresh product categories is generally less accessible due to lack of tools and data sources. Furthermore, some information from stakeholders has not been shared due to confidentiality reasons. Finally, limited consumer studies are publicly available regarding the sectors and MS in the scope of the study. We have analysed all available consumer studies but we have not directly investigated consumer behaviour and opinions.

List of abbreviations

- BSE: Bovine Spongiform Encephalopathy
- CAP : Common Agricultural Policy
- CAGR: Compound Annual Growth Rate
- COM : Common Market Organisation
- EC : European Commission
- EU : European Union
- EU 27 / 28 : European Union with the 27/ 28 Member States
- €, EUR : Euro
- Ha : Hectare
- kg : Kilogram
- KT : Kiloton
- L : Litre
- M : Million
- M² : Square meter
- max : Maximum
- min : Minimum
- N^o : Number
- PDO : Protected Denomination of Origin
- PL : Private Label
- PO : Producer Organisation
- R&D : Research & Development
- ROI : Return On Investment
- T : Tonne
- SME : Small and Medium Enterprises
- SKU : Stock Keeping Unit
- UHT : Ultra Heat Treatment
- PTY : Päivittäistavara-kauppa ry (Finnish Grocery Trade Association)
- USDA: US Department of Agriculture
- VEZG: Vereinigung der Erzeugergemeinschaften (German Association of Producer Groups)
- VDF : Verband der Fleischwirtschaft (German Meat Association)

2. Milk in Finland

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2.1. Adopted methodology and scope

The objective of this case study is to highlight the main characteristics of the fresh milk drink sector in Finland which could impact choice and innovation. It is not, however, to undertake a common sector study, which would involve collecting comprehensive data across a number of characteristics.

We therefore present a synthesis of the main market characteristics first, followed by a more specific and detailed focus on each characteristic impacting choice and innovation, in order to provide elements to complement the quantitative components of the study.

The case study mainly focuses on milk products made from cow's milk, as these are the most widely consumed and produced in Finland. While both fresh and long-life products are considered, UHT milk does not enjoy wide popularity in Finland. Thus, the study focuses mainly on fresh cow's milk and milk products produced and consumed in Finland and for sale in modern retail.

Non-dairy alternatives such as soy, almond, hazelnut¹ and oat milk constitute a very low market share of the overall milk market. The estimated retail sales market share of these four non-dairy substitutes is approximately 1.6% of all milk beverages combined². Although, the sales of soy milk have increased in most recent years, they constitute less than 1% of overall milk sales. Similarly, the consumption of milk originating from other species such as goats and sheep is believed to be negligible³ and there is no domestic collection of goat milk in Finland⁴. Due to the low popularity of these types of milk beverages, they will not be considered as part of the case study. Other non-milk dairy products such as cheese, butter, yoghurt and quark, which are increasingly popular among Finnish consumers, are also outside of the scope of this case study.

Data presented below are based on literature reviews and interviews with experts and stakeholders. The comprehensive list of sources is presented at the end of the section. As will be explained fully in the subsequent sections, the Finnish milk market is characterised by high supply concentration. Two processors, Valio and Arla Ingman, have the largest share of the market with smaller dairies and processors competing mainly regionally. This means that it was difficult to consult smaller market players, while, at the same time, due to the long history of Valio operations in Finland, publicly available material on the company is abundant and stakeholder perceptions are entrenched. In contrast, substantially less information is available on Arla Ingman, a more recent entrant, and an interview with the company could also not be secured as part of this research. Therefore the report should be read taking into account the above research limitations.

2.2. The milk supply chain in Finland

2.2.1 Milk consumption and production in Finland

Milk is a staple beverage in Finland, consumed with most meals and a popular drink across all age groups. About 62.1% of the population is estimated to drink one or more glasses of milk daily⁵. The average milk consumption amounts to 127.2

¹ No data available on the sales value of almond and hazelnut milk.

² Euromonitor data.

³ No exact data on milk from other species is available.

⁴ Eurostat data.

⁵ National Institute for Health and Welfare. (2012). "Health Behaviour and Health among the Finnish Adult Population"

litres per capita compared to the EU27 average of 63.1 litres^{6 7}. This represents almost exclusively fresh milk, since the level of consumption of UHT milk is very low in Finland, and mostly limited to the summer months, when shelf-stable milk is bought to be used in summer houses⁸.

Finnish consumers show a strong preference for fresh milk over its UHT-processed equivalent. Consumers generally believe that fresh milk tastes better than long-life milk and also provides more health benefits⁹. In addition, Finnish consumers seek high quality in drinking milk¹⁰.

Fresh milk needs to be consumed within 7 days of collection, which imposes a limit on the time available to transport milk from the farm to its arrival in households¹¹. This has resulted in milk producers and processors enjoying a level of natural protection against imported milk from the rest of Europe. In addition, Finnish consumers tend to prefer domestically as well as locally produced milk. Milk is often dubbed the Finnish national beverage and the domestic origin of milk plays an important role in guiding consumer choice. According to a TNS Gallup survey, 85% of respondents said they always or mostly buy domestic milk¹².

Due to the significance of milk in the Finnish culinary tradition there is a wide range of milk products available on the market compared to other EU Member States¹³. In addition to the standard assortment of skimmed, semi-skimmed, whole and organic varieties there is also a range of milk products available with added flavour and nutrients, as well as so-called functional milk products.

However, in terms of packaging there is little variation, with most products available in 1L or 1.5L package sizes. Carton is the most widely used packaging material. According to interviewees, there is much less focus on packaging and branding than in other EU markets and Finnish consumers appear to be satisfied with the size, presentation, and the availability of milk packaging.

The market size of milk products grew from 2008 to 2013 by €48 million. This increase in market size was largely driven by higher milk producer prices and a growing consumer interest in premium milk products, such as functional milk drinks, which can in turn be linked to recent health trends. The Finnish milk market was also subject to the so-called "milk war" between the Valio and Arla Ingman dairies, which also had an impact on prices. The dip in the market size between 2009 and 2010 can be attributed to increasing price competition and the launch of imported milk by Arla Ingman in 2009, as well as distortions of producer prices by Valio (see section 2.2.3 for further details). 2010 to 2012 saw more limited growth in sales of milk products, which can be attributed to consumers trading down to lower priced drinking milk products as a result of the economic downturn.

⁶ According to data received in interviews Finnish consumption is mostly related to fresh milk as long-life milk is not very popular. However, there are no available figures on UHT consumption. The EU figure includes both fresh and UHT milk as this is the preferred milk in some Member States.

⁷ Dairy Co. (2011). "Insider's Guide".

⁸ Euromonitor International (2012). "Drinking milk products in Finland".

⁹ Euromonitor International (2012). "Drinking milk products in Finland".

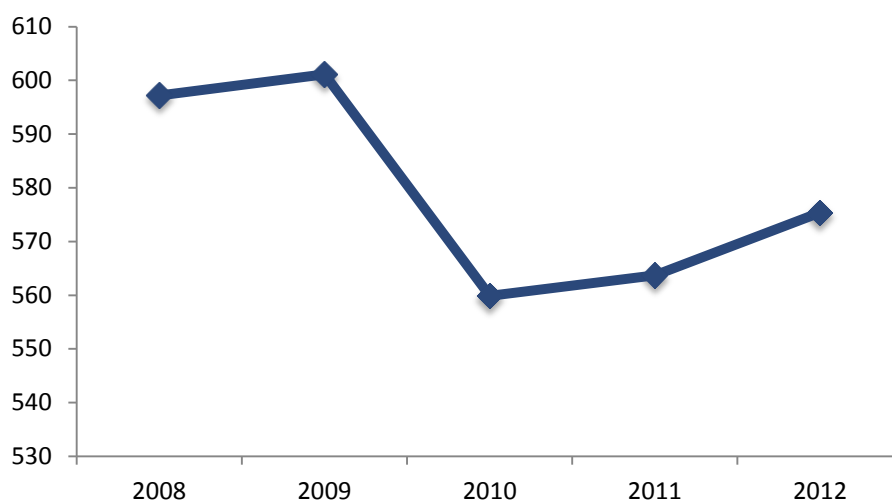
¹⁰ Euromonitor International (2012). "Drinking milk products in Finland".

¹¹ Karikallio et al. (2009). Vertical Price Formation in the Finnish Food Chain.

¹² Finnish Competition and Consumer Authorities. (2012). Market court decision on Valio.

¹³ Data obtained in interviews.

Figure 1: Drinking milk products market size at retail value (EUR million)¹⁴

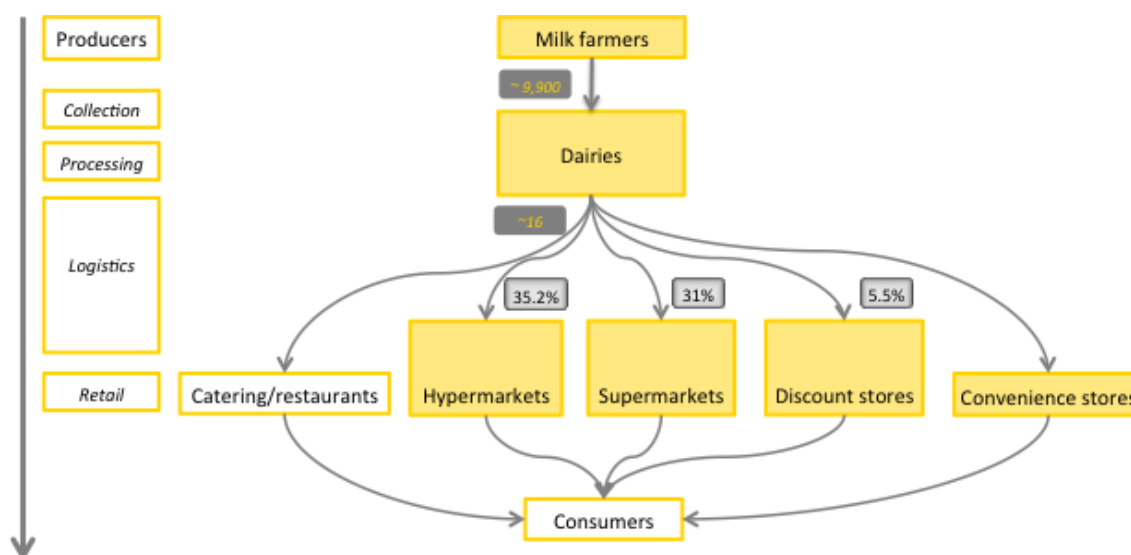


Source: Euromonitor Passport

2.2.2. Characteristics of the fresh milk supply chain in Finland

The following figure outlines the milk supply chain in Finland, including key actors.

Figure 2: Milk supply chain



Source: Arcadia International analysis

¹⁴ This figure includes standard drinking milk with varying fat content, flavoured milk drinks, powder milk, and flavoured powder drinks as well as non-dairy milk alternatives.

As can be seen in the figure above, the milk supply chain consists of 3 main stages:

- **Milk production** involving approximately 9,900 milk farmers in Finland. 8,000 of these are affiliated and co-owners of the Finnish dairy cooperative Valio. In 2012, Finnish farmers produced 2,180 million litres of milk¹⁵.
- **Processing** by dairies. In 2009, there were 16 dairy enterprises active in Finland¹⁶. The largest dairies are vertically integrated with activities encompassing collection, processing, logistics and trade directly with retailers, effectively removing wholesalers and other middle agents from the supply chain.
- **Retail** is the final stage at which milk is sold to consumers by hypermarkets, supermarkets, discount stores, convenience stores and other retail outlets. A proportion of the output is also sold to consumers via restaurants and catering. At retail level, there is also evidence of vertical integration with retailers handling centralised procurement of products, selection management and logistics.

The most evident feature of the fresh milk supply chain is the high concentration at both supply and retail level with a few big actors dominating the industry and the market. This is explained in more detail in the following sections.

Prices are set at two points of the supply chain:

- **Farmer and processor:** As milk imports are limited in Finland, overall EU prices have little impact on pricing structures¹⁷. Valio who dominates the procurement of raw milk supply is the price setter of raw milk. It pays its owners (the dairy cooperatives) on a monthly basis. Milk producers are then reimbursed from the payments made to cooperatives. The payment is calculated on criteria based on milk composition (fat and proteins) and quality criteria (bacteria and number of cells), as well as on the time of year the milk is produced (in order to even the natural production peaks¹⁸). Additional payments to milk producers are calculated based on the company's economic performance, which may also include a dividend after closing its accounts. Thus, the final price of milk is determined only after completing financial statements and delivery of retroactive payments are made¹⁹. The remaining Finnish dairy enterprises have traditionally followed Valio's criteria in their payments to milk producers and other cooperatives²⁰. However, producer prices might sometimes deviate, in particular in the case of prices paid by smaller dairy enterprises to milk producers²¹.
- **Processor and retailer:** Prices are negotiated between the supplier and retailer at specific times fixing the prices of milk for a number of months at a time. This may lead to "price stickiness", as any reduction in producer prices cannot be immediately reflected at retail level²².

¹⁵ Milk Production (2012), Information Centre of the Ministry of Agriculture and Forestry, Tike. Available on: http://www.stat.fi/til/almaidt/index_en.html

¹⁶ European Commission. (2009). Structure of the dairy market. Available: http://ec.europa.eu/agriculture/eval/rep_orts/dairy/chapter11_en.pdf

¹⁷ Csaba Jansik (2009). A Comparison of the Dairy Supply Chain in the Baltic Countries and Finland.

¹⁸ A range of factors influence the fluctuations in milk yield which includes the cow's age, number of previous lactations, breed, season and weather conditions.

¹⁹ Finnish Agricultural and Rural Industries, 2013. MTT

²⁰ European Commission, DG COMPETITION (2009). Synopsis of Member States' National Competition Authorities contributions on the Milk Supply Chain.

²¹ Csaba Jansik (2009). A Comparison of the Dairy Supply Chain in the Baltic Countries and Finland.

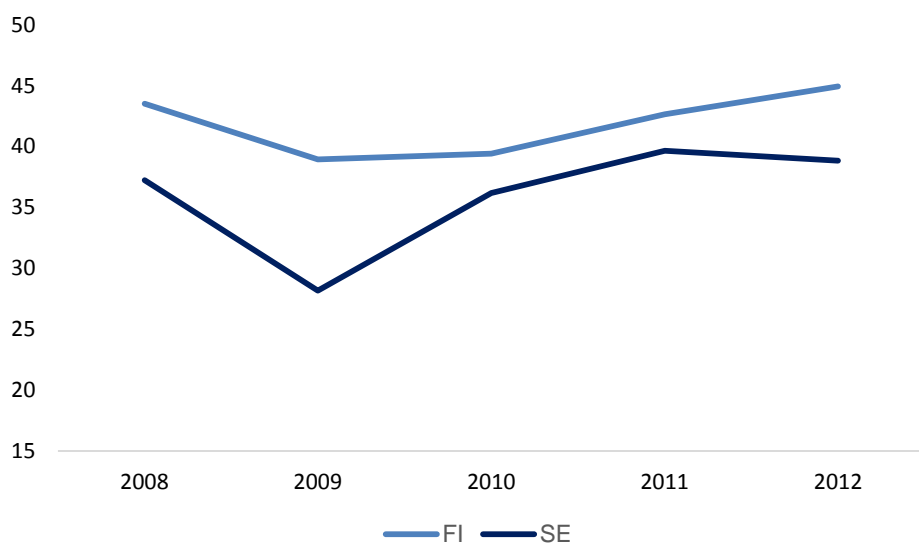
²² European Commission, DG COMPETITION (2009). Synopsis of Member States' National Competition Authorities contributions on the Milk Supply Chain.

2.2.3. Concentration of milk supply

There is a high concentration at supply level in the Finnish milk sector. Valio is the largest milk processor in Finland with a 50% share of the fresh milk market. Moreover, as noted above, Valio also controls the procurement of raw milk. 86% of total raw milk produced in Finland is supplied to Valio processing plants. Of the 9,900 milk producers in Finland some 8,000 are affiliated with the 18 dairy cooperatives who jointly own Valio²³. Valio therefore holds the dominant position in the fresh milk market and has been able to set the overall prices for raw milk²⁴. Valio was established in 1905 and has grown to its current size through a long process of mergers and acquisitions, mainly by absorbing smaller dairies.

In 2007, the Swedish–Danish global dairy processor, Arla Foods merged with the Finnish dairy Ingman, which has since attempted to increase its share of the milk market. In 2009, Arla Ingman started to import a small share of their raw milk from Sweden. This became economically viable due to the weak Swedish Krona (crown) and the price differences in raw milk between Finland and Sweden. The average price of Swedish raw milk at the time was €28.6 per kilo whereas the Finnish raw milk price was considerably more expensive at €38.94 per kilo²⁵. This made it possible for Arla Ingman to increase its market share in Finland from approximately 22% in 2008 to 25%²⁶ in 2012.

Figure 3: Producer Prices Finland and Sweden (EUR/kg)



Source: Eurostat

However, aggressive pricing practices by Valio have made it difficult for other dairies to compete. As Valio controls the majority of raw milk supply, it has been accused of creating a de facto monopoly by dumping prices below producer costs. In December 2012, the Finnish Competition and Consumer Authority (FCCA) fined the company €70

²³ Valio. (2012). Corporate Information. Available: <http://www.valio.com/responsibility/responsibility-report2012/valio-group-key-figures/#osio-1>

²⁴ Ollila, P., and P. Pyykkönen. (2009). Support for Farmers' Cooperatives; Case Study Report; Cooperative Dairy Processor Valio – structural development to its present stage.

²⁵ Eurostat: <http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&language=en&pcode=tag00070>

²⁶ Eurostat

million for distorting prices in order to foreclose on competition. It argued that Valio's dominant position had made it much more difficult for smaller operators to compete on the Finnish milk market²⁷. Furthermore, the FCCA (then Finnish Competition Authority), found evidence that Valio had been offering discounts to the retailer S-Group, a major customer of Arla Ingman²⁸, thereby forcing the latter to sell at an even lower price while incurring losses. The competition case is still pending in the market court, however interviewed stakeholders believe that the market conditions have since improved.

In addition to the two market-leading dairies there are also a number of smaller-scale operators, which together hold 10-15% of the market. However, according to information from interviews, due to the high concentration at retail level, these smaller dairies do not have the capacity to supply the large quantities requested by dominant retailers. Instead, they remain competitive by supplying restaurants and other catering outlets. They also compete in niche markets, such as organic farming²⁹, as well as supply milk for private label products of retailers with smaller market shares, such as Lidl or autonomous cooperative stores. These dairies also maintain their market shares due to long established roots in their localities and remain the preferred milk for local consumers.

The key characteristic of the Finnish milk market is Valio's control of the raw milk supply. Imports, besides exceptional situations such as in the case of Arla Ingman described above, have not been seen as a viable option for mainly two reasons. Firstly, the high costs incurred during transport and logistics from neighbouring countries make fresh milk imports costly, especially since average EU milk prices have gone up. Secondly, due to Finnish consumers' preference for domestic milk, retailers cannot justify selling imported milk for the same price as domestic milk, making it less attractive. However, in terms of overall milk production Finland is self-sufficient. Thus, the issue relates to the control of available supply, rather than absolute supply levels.

2.2.4. Retail concentration

Retail concentration is very high in Finland and is the highest in the Eurozone. The C3 share in Finland is over 88.3%³⁰, while the average equivalent concentration rate in other Eurozone countries amount to 44.2% in 2012³¹.

The domestic retailers, S-Group and K-Group, dominate the market with a combined share of 80%. They are diversified retail groups that incorporate a range of different services.

S-Group, which holds 45.6% of the grocery sales market in 2013, is a retailing cooperative comprised of the SOK Corporation and subsidiaries, together with 21 regional and 8 local cooperatives. It owns hypermarkets, supermarkets, department stores, speciality stores, hotel and restaurant services, agricultural trade, car accessory trade services, as well as convenience store and petrol sales. From 2007 to 2012, S-Group has increased its market share from a 33.5% to 45.6%.

K-Group is the second largest retail group operating in Finland. It provides services in the area of food, consumer goods, hardware, and car and machinery trade. K-Group is responsible for centralised procurement of products, selection management, logistics,

²⁷ Finnish Competition and Consumer Authorities (2012). Press Release available on: <http://www.kilpailuvirasto.fi/cgi-bin/english.cgi?luku=news-archive&sivu=news/n-2012-12-200>

²⁸ <http://www.cgsh.com/files/Publication/e042ae8c-91c8-4ef5-93fa-c1679735336a/Presentation/PublicationAttachment/cc2df9ef-17b0-459c-bcb5-c517dc679aad/National%20Competition%20Report%20Q4%202012.pdf>

²⁹ Data obtained in interviews.

³⁰ PTY. (2013). "Finnish Grocery Trade".

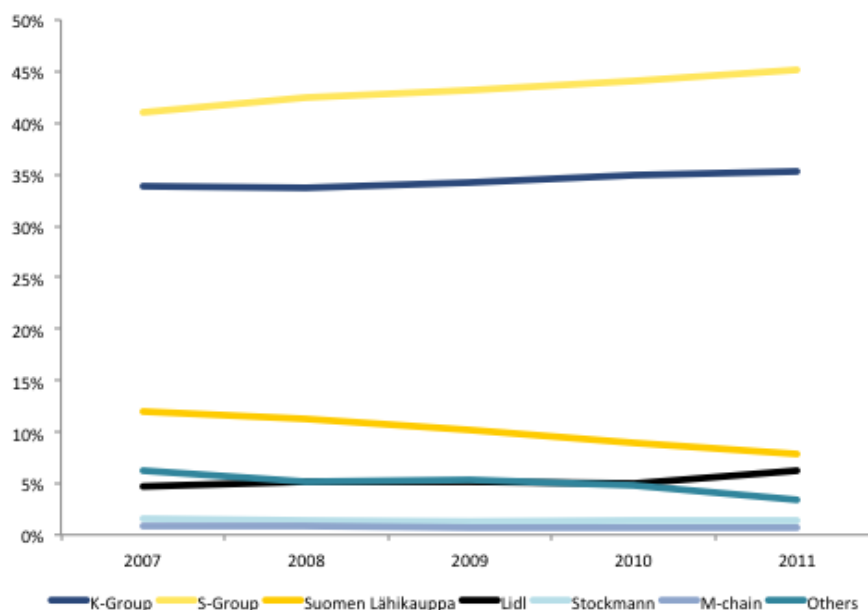
³¹ Data obtained in interviews.

as well as the K-citymarket, K-supermarket, K-market, and K-extra chain stores. In 2013, K-Group's share of the food market is 34.7%³²

There has been a trend towards higher retail concentration in Finland. Both K-Group and S-Group have increased their market share between 2007 and 2011. This was possible mainly due to smaller operators, such as the international supermarket chain Spar³³, disappearing from the market. Due to the small size of the Finnish market, there has been little interest from foreign-owned retailers to establish outlets in Finland³⁴. The only exception is the German discounter chain Lidl, which entered the market in 2002 and has since gained 6-7% of the market share. This success can mainly be explained by the absence of other hard discount stores in Finland.

One key development in the Finnish retail sector is the new legislation on grocery trade. A new provision (paragraph 4a) in the Competition Act with specific reference to the grocery trade came into force on 1 January 2014³⁵. The regulation prohibits abuse of dominant market position and is applicable to companies active in the grocery retail sector whose national market share is above 30%, meaning that it currently applies to both S-Group and K-Group. Under the new provision these businesses have to refrain from certain business practices considered abusive and ensure they treat suppliers and others in a non-discriminatory manner³⁶.

Figure 4: Evolution of market shares of main retail chains in Finland



Source: PTY (Finnish Grocery Trade Association – www.pty.fi)

In addition to the high retail concentration, there is a high degree of vertical integration in the retail sector. The Finnish grocery trade is characterised by

³² Kesko Food. Available on: <http://www.kesko.fi/en/Company/Divisions/Food-trade/>

³³ Data obtained in interviews.

³⁴ Finnish Rural and Agricultural Industries 2013. MTT.

³⁵ <http://www.kkv.fi/Page/5abb4555-6445-4e0a-8011-e7efd59ef6d3.aspx?groupId=8b466af6-1441-4cdc-907d-fc93cca74ac9&announcementId=2c43cbcd-719d-44b3-8bbd-0f9f647b7c85>

³⁶ <http://kluwercompetitionlawblog.com/2012/12/15/special-responsibility-through-clear-cut-market-share-threshold-proposed-new-assessment-criterion-for-addressing-dominance-in-finnish-grocery-retail-sector/16>

centralisation of procurement and logistics within retail chains. The major retailers operate their own wholesale, sourcing, logistics and distribution subsidiaries. For example, Inex Partners Oy is the sourcing and logistics company belonging to the S-Group, while Kesko Food is the wholesaler operating for K-Group. The vertical integration is a result of the vast geographical distances and the small population of Finland, leading to an increased need for economies of scale and high efficiency in order to secure profitability. However, there are various procurement channels giving retailers, store managers and chain directors some degree of autonomy in the procurement process and thereby create store-specific product assortments³⁷. In particular, this has been an important factor for the competitiveness and sustainability of smaller local dairies that carry milk products with long traditions in specific regions. These products are favoured by local consumers and are procured by regional or local stores.

According to interviewees, retail concentration has resulted in a relatively long lead-time for new products to enter the market. This is due to three factors: Firstly, large retailers tend to use specific "product windows" when products are launched, meaning that new products need to wait until the next window in order to enter the market. These usually occur three times annually, at the beginning of the year, before the summer and after the summer. Secondly, limited market competition means that there are fewer incentives to introduce products on the market quickly in order to gain a competitive advantage over other market players. Finally, the fact that the market is dominated by two retail groups means that the suppliers aim to sell their products through these two chains, which in turn results in long processing times prior to product launch as there are many products going through the test and launch phases. Generally, the average lead time for products varies between 4-6 months depending on the product category, which is - according to interviewees - long in comparison to other European countries. This limits the number of available channels for suppliers to get their products onto the market quickly. In the same vein, it is believed to increase the retailers' purchasing power in the selection of product assortment. In addition, product information needs to be available to retailers six months in advance of the launching period, which is believed to further increase the retailers' power. However, the effect of this on milk products is uncertain as forecasts of consumer demand may speed up purchasing processes and, as a result, product launches may occur before the average lead time. In addition, interviewees have indicated that larger dairies, in particular Valio, may benefit from getting their new products onto retail shelves as they have a well-established reputation and their marketing strategies emphasise the domestic origin of the milk which is believed to be important to Finnish consumers. This long lead time is not believed to significantly hamper innovation nor choice as supply concentration is also high in Finland and imports do not play a big role in milk products thus weakening the retailers' position.

Data from interviews indicate that there are no trial periods used in the Finnish grocery sector. However, there may be product launches in specific stores, which have been specifically designed to gauge the demand for the newly introduced products. At procurement level, volumes are initially based on demand forecasts. Prices and volumes are subsequently renegotiated a few times each year depending on demand and success of the products. With regard to the procurement of private label products, interviewed stakeholders indicated that in Finland dairy products are usually procured through a tendering procedure. These stakeholders could however not confirm that this is the case for fresh milk products specifically. This information could also not be confirmed by milk producers.

³⁷ PTY (2011). "Finnish Grocery Trade", p. 15.

2.3. Definition of choice and innovation for fresh milk products

2.3.1. Criteria of choice for fresh milk

In the context of the study, consumer choice is defined as the number of alternative products available within a product category, the number of different package sizes available, the number of alternative suppliers available, and the number of similar/identical products available at alternative prices. For milk products the criteria for choice would therefore include:

- the number of alternative milk products available (i.e. milk with different fat content);
- number of packaging options available (i.e. size of the package, or type of package);
- number of suppliers available; and
- number of prices at which similar milk products (same milk content, packaging type, and size) are available.

2.3.2. Criteria of innovation for fresh milk

The innovation definition used in the study understands innovation as introduction of new products; use of new ingredients, use of new packaging, and product range and line extensions. Applying this to fresh milk and using the choice criteria above, innovation could be understood as the introduction onto the market of:

- milk with new characteristics (such as flavouring, additional ingredients, functional characteristics);
- milk with new packaging (i.e. environmentally friendly packaging); and
- new brands, including private labels.

2.4. Trends and drivers of choice

As pointed out above, the choice of milk products available in Finland is strongly related to the location, history and consumer preferences of specific dairies. Compared to other EU Member States there is a wide range of milk products available on the Finnish market³⁸.

While no data is available for SKUs in Finland³⁹, the GNDP database (used in the study to identify the types of innovation) gives an indication of the evolution of choice between the years 2004-2012⁴⁰. During the review period, 77 products were introduced to the market. These were categorised as⁴¹:

- new product (including private labels and new product categories of brands such as flavoured milk drinks, new varieties of fat content);
- new variety/range extension (includes new varieties of existing ranges of brands and types of standard milk);
- new packaging (includes new branding, new size, new intrinsic packaging developments i.e. environmentally friendly packaging); and
- new formulation (includes new to the world products or improvements of previous products).

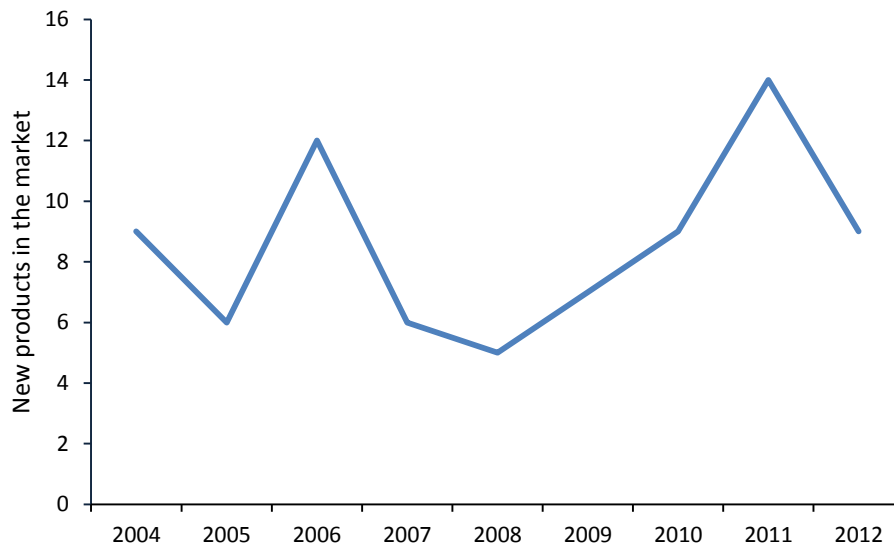
³⁸ Data obtained in interviews.

³⁹ The Nielsen dataset did not include SKUs for Finland and this data could not be obtained through interviews.

⁴⁰ Data available from June 2004 to November 2012.

⁴¹ A further discussion of the results of these categories can be found in the section 5.2

Figure 5: New product entries in Finland 2004-2012 (drinking milk products)



Source: GNDP database

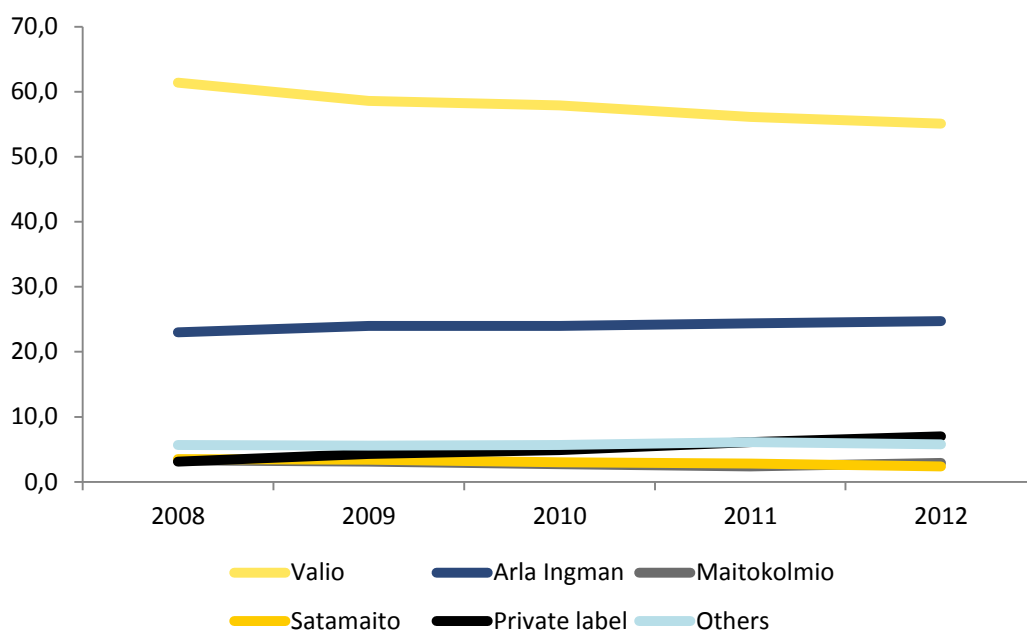
There are indications that as new products are introduced, a similar number of older products are removed from retailer assortments. This in turn suggests that the level of choice in terms of available products remains broadly stable. For example, Valio, Finland's biggest dairy, has around 70 SKUs of milk products available on the market. The company also operates a 10% renewal rate of products annually. This means that 10% new products are introduced and 10% are taken off the market. The decision on which products to remove from the product assortment is based on which products are the least successful and the volume sold. In Valio's product assortment 30% of products are basic milk products and 50% are functional milk products. In general, 50% of product launches are considered successful and the products stay on the market for a longer time.

The slight increase in the number of products entering the market in the period 2008-2011 appears to be largely driven by private label products. Therefore one key trend driving choice is the rising market share of private label milk products, which increased from 3.1% in 2008 to 11.0 % in 2012⁴². In relation to this, there is also a trend towards greater product assortment among private label products. In addition to standard milk products, private label products also include a range of organic and low-lactose or lactose free products as well as milk with varying fat content. Approximately 14% of product launches in 2004-2012 according to the GNDP database related to private labels.

One example of a private label gaining market share is the aforementioned S-Group's private label "Rainbow"⁴³. The label aims to provide a cost-friendly domestic alternative to branded milk. The price difference is around 15% between Rainbow and Valio standard milk, but the difference is slightly lower when compared to Arla Ingman milk.

⁴² Euromonitor International

⁴³ Data obtained in interviews

Figure 6: Evolution of milk brand market shares

Source: Euromonitor

As pointed out by the majority of interviewed experts, the economic crisis is the main driver behind the recent success of private label products. Finnish consumers are increasingly looking for cheaper alternatives to branded products. However, in comparison to many other EU countries, the Finnish market has, in general, been slow in the uptake of private label products for different product categories⁴⁴. In this context, there has also been a conscious push and promotion from the retail sector to increase the overall market share of private label products. Therefore there has traditionally been a gap in the market for low-priced drinking milk products, which is now being increasingly filled.

In addition to the economic downturn, the prices for basic milk have increased since March 2013 due to the competition case against Valio. The Finnish Competition and Consumer Authorities ordered Valio to raise raw milk prices to meet production costs, leading to a 30% increase in prices between February and March 2013. Some of this cost was absorbed by consumers through higher retail prices (approximately 14%⁴⁵) and this is believed to have pushed more consumers towards private label products^{46,47}. Valio's sudden price increase appears to have benefitted Arla Ingman and smaller dairies, as well as boosted the sales of private label products. However, it is still too early to link these price increases and subsequent rising market share of private label products to a long-term impact on choice. There are still many standard branded milk products sold alongside private label products and speciality/functional products.

By contrast, the increasing popularity of private labels in Denmark appears to have been accompanied by a falling market share of standard branded milk products, in

⁴⁴ Data obtained from interviews.

⁴⁵ Euromonitor (2013). "Drinking milk products in Finland"

⁴⁶ Observation made by one interviewee

⁴⁷ Euromonitor International

turn resulting in a segmentation of the market into private label and speciality products and thus potentially reducing consumer choice⁴⁸. The market polarisation in Denmark is believed to be primarily a result of Danish consumers seeking economically priced milk products⁴⁹.

This has not yet been observed in Finland and it therefore appears that these developments have not had an adverse impact on consumer choice. Instead, the rising share of private labels can be interpreted as an increase in consumer choice (at least in the short-term) if defined as the number of prices at which similar milk products are available. Overall, there have been no new entrants in the milk market in 2008-2013⁵⁰. Similarly, no market players have disappeared during the same time period. This suggests that the level of choice in terms of suppliers has remained stable at procurement level.

In general, since Arla Foods merged with Ingman in 2007, there has been an increase in market competition, as Arla Ingman is the only supplier being able to compete with the dominant Valio-branded products. However, it is not clear what impact this has on choice. For example, in 2010 HOK-Elanto, a cooperative part of S-Group⁵¹, decided to change its supplier of basic milk products from Valio to Arla Ingman. This resulted in only Valio's 'special milk products' being offered in these shops. This decision was later reversed due to media and consumer pressure and S-group affiliated shops now offer both Arla Ingman and Valio products⁵². The perception of Valio as a national institution and the importance of supporting the domestic dairy sector are believed to have influenced the decision of HOK-Elanto to continue carrying both standard and value added milk products from Valio. Thus, the effect of increased market competition on choice does not appear to have had any negative impact on assortments.

2.5. Trends and drivers for innovation

The Finnish milk market is considered by some interviewees as the most developed in the world, offering a wide range of innovative products. However, the case study did not find evidence suggesting that the level of innovation decreased or increased over the last decade.

Milk plays a central role for Finnish consumers and there is strong consumer demand for added value milk products, thus encouraging innovation⁵³. In particular, there is a varied selection of functional milk products. Functional food denotes food with additional benefits such as disease prevention or health promotion. Valio is the frontrunner in both functional and added value milk products. Its product assortment includes probiotic milk, milk with other added nutrients such as D-Vitamins or protein. Valio also produces flavoured milk products such as liquorice, strawberry and cocoa. However, other dairies such as Arla Ingman also offer flavoured milk in their assortment, but do not have the same focus on functional products as Valio. In addition, low lactose or lactose free milk is readily available in Finland. Approximately 17% of the Finnish population is lactose intolerant⁵⁴, which has prompted the development of low-lactose as well as lactose-free milk products. For example, 37% of new product launches in 2004-2012 claimed to be low, reduced or lactose-free⁵⁵.

⁴⁸ Helsing Sanomat (2010). "Arla Foods director surprised by strong reactions over selling of Swedish milk in Finnish grocery stores".

⁴⁹ <http://cms.iuf.org/sites/cms.iuf.org/files/ARLA%20FOODS.pdf>

⁵⁰ Euromonitor International.

⁵¹ <http://www.hok-elanto.fi/in-brief/>

⁵² Data obtained in interviews.

⁵³ Data obtained in interviews.

⁵⁴ Data obtained in interviews.

⁵⁵ GNDP Database Milk products.

Contemporary health and diet trends have been a major driver of innovation in milk products. These trends in turn drive product innovation. For example, in the last 2-3 years the popularity of low-carb diets have boosted the sales of full-fat products and encouraged the development of protein milk products. In 2012 both Arla Ingman and Valio also launched “old-fashioned” milk, non-homogenised milk that underwent limited processing, which was a direct response to the trend towards higher fat content milk. Another trend is the increasing popularity of organic products due to their associated health benefits and perception of purity. Overall, trends in the evolution of innovative products are closely linked to domestic consumer demand and current health trends.

Among milk product innovations launched since 2004, new products account for 49%, whereas 38.8% of innovations relates to new varieties or product extensions⁵⁶. The milk market is highly competitive and one of the most mature in the packaged food sector in Finland⁵⁷. The focus on the premium segment of the market, such as value-added and functional milk products is an effective way of generating more sales, thus encouraging innovation in the milk market. This is reflected in the product launches in the period 2004-2012, where approximately 28% of innovations related to value added milk products.

Figure 7: Proportion and number of different types of milk innovations

Launch type	Number of innovations	%
New product	38	49%
New variety/Range extension	29	38%
New packaging	9	12%
New formulation	1	1%

Source: Mintel GNPD

According to the GNPD database, 12% of innovations since 2004 related to new packaging. Looking more closely at these innovations, these relate almost exclusively to the branding or to the design of the packages e.g. limited editions of packages. According to the interviewees, packaging innovation in Finland has been limited in comparison to other European companies. Most developments relate to making packaging sustainable and environmentally friendly. It would appear that Finnish consumers are satisfied with the size of packaging of milk products, which are most commonly sold in 1L or 1.5L carton packages. There are however exceptions, such as the Rainbow 0.5L milk package, which was introduced due to demand from smaller households⁵⁸. In addition, in 2013 Valio launched a range of milk products in 0.2l to 0.5l PET bottles with resealable caps. These milk products were designed to be easier to take away (so-called RTD - ready to drink milk) or be enjoyed by smaller households. Overall, the majority of products are available in carton and only 8.3% of new products introduced were made available in plastic bottles. In general, there appears to be little innovation with regard to packaging.

⁵⁶ GNPD Database Milk products

⁵⁷ Euromonitor report (2013). “Drinking milk products in Finland”.

⁵⁸ Data obtained in interviews

Valio is the market leader in the Finnish functional and value-added milk segment⁵⁹. The company spent approximately €10 million on R&D activities in 2011. Domestic consumer demand for innovative products appears to be the main factor behind the investment in research and development activities. Corporate strategy also plays a role in the drive to pursue market opportunities by developing value added milk products. The focus on high value added milk products has made it possible for Valio to pay its owners a higher price for the milk procured compared to basic milk products. In addition, the focus on functional products is also a result of the increase in the market share of private label products and a way to ensure that Valio is able to maintain its share of the milk market. The introduction of private label products may have increased choice, but innovation still appears to be focused primarily on branded products, and particularly those produced by Valio. In addition, export is also seen as a contributing driver for innovation. Valio has concentrated on high value products in its international operations. For example, the company's lactose free milk has been exported globally⁶⁰. In addition, the income from licencing and technology sales amounted to approximately €200 million in 2011⁶¹.

It is important to note that in accordance with Regulation (EC) No 1924/2006, health claims made in relation to functional milk products require authorisation from the European Food Safety Agency's (EFSA) Panel on Dietetic Products, Nutrition and Allergies before projects can be labelled and marketed with such claims. It is unclear whether this has an effect on innovation, since functional milk products constitute only a fraction of the overall milk market. It is interesting to note that only one product launch in 2004-2012 seems to relate to a functional product (Valio Gefilus LGG Fat-Free Milk). However, this was not mentioned in the data collection as a significant barrier to innovation.

Arla Ingman, which is part of the multinational dairy processor Arla Foods, is the 5th largest dairy processor in Europe. In comparison, Valio is ranked 16th in terms of billion litres of milk processed⁶². Comparing the product assortment of Arla Ingman with the product assortment of Arla Foods in neighbouring Sweden, one can observe a greater product assortment, as well as inclusion of value-added milk products in the company's Swedish and Danish portfolios. Arla's global objective with regard to innovation is for 10% of the company's revenues to be generated by the development of new products⁶³. Similar to Valio, the Arla Group is also a cooperative with the aim of selling milk as profitably as possible to the advantage of the milk producers i.e. the owners⁶⁴. One of the reasons believed to account for Arla's focus on more standard products, and to a lesser extent value-added milk, is the difficulty the dairy has faced in making its operations profitable due to the competitive situation in the Finnish milk market. However, there is no evidence to indicate that the prevailing market conditions have decreased Arla's abilities to introduce new innovative products on the market⁶⁵.

Overall it appears that Valio's size and competitive position has enabled it to invest in R&D activities in a way that would not be possible for the smaller domestic dairies. The factors discussed above stimulating Valio to innovate (consumer demand, corporate strategy and export potential) appear to have

⁵⁹ Its licensed technologies and corresponding products include LGG®, Evolus®, Zero Lactose™, LGG® Extra taken from: Ollila, P., and P. Pyykkönen. (2009). Support for Farmers' Cooperatives; Case Study Report; Cooperative Dairy Processor Valio – structural development to its present stage.

⁶⁰ Data obtained in interviews.

⁶¹ Ollila, P., and P. Pyykkönen. (2009). Support for Farmers' Cooperatives; Case Study Report; Cooperative Dairy Processor Valio – structural development to its present stage.

⁶² <http://edepot.wur.nl/245003>

⁶³ Arla website: <http://www.arla.com/fi/Tietoa-meista/Tutkimus-ja-innovaatio/>

⁶⁴ Arla website : http://www.arla.com/Images/arla.com/PDF/annual-report/2012/ENG_2012.pdf

⁶⁵ Arla did not agree to participate in an interview.

contributed to innovation in the Finnish milk market, which is considered highly innovative in comparison to other Member States. This suggests that supply concentration may not necessarily hamper the drive to innovate.

2.6. Conclusions

The Finnish milk sector has a number of specific characteristics, which makes it challenging to compare across Members States and product categories:

- **the Finnish milk production is highly concentrated**, with a dominant role played by the Valio dairy, which holds over 50% of the fresh milk market and controls the majority of the milk supply;
- **similarly, Finland's retail sector is the most concentrated in the Eurozone**, with the market dominated by two retail groups: K-Group and S-Group; and
- **finally, Finnish consumers are particularly demanding with regard to milk products**, placing high value on domestic production, quality, and increasingly also on specialised and functional milk products.

Against this backdrop, the market has seen a number of recent developments, including competition proceedings against Valio, recent challenge from the newly formed Arla Ingman dairy, and a rising market share of private label products.

With high concentration at supply and retail level, the degree of choice is generally considered to be high in comparison to other EU Member States and seems to have increased in the past two years due to the surge in the number of private label products on the market. Private label products are sold alongside premium milk products and specialty products, which is believed to have increased choice rather than limiting it as seems to have occurred in some other Member States (i.e. Denmark). This evolution of choice is driven mainly by the economic crisis and consumers becoming more and more price sensitive. Thus, at least in the short-term, choice seems to have increased as a result of the increase in the number of private label products on the market. This said, choice appears to have always been high due to consumer demand for a diverse product selection.

With regard to innovation, Finland has traditionally been a very innovative market for milk products. The case study did not find any evidence for any decrease or increase in innovation. Instead the degree of innovation seems to remain constant with some products being recalled due to impopularity and new products entering the market depending on consumer demand. An important driver behind this is the R&D capacity and activities of Valio, which has successfully niched into the premium and functional milk markets. Innovation in milk product seeks to respond to new consumer trends and consumer demand, including in particular the recent health trends. The impact of private labels on innovation has been limited as innovation is still linked to premium products. However, Valio's strategy to focus on functional products has been an indirect response to the rise of private labels in order to maintain its market share and obtain the highest price possible for the procured milk.

Although there is no clear link between concentration and innovation, it appears that the competitive position of a company like Valio, with its dominance on the domestic market, does not inhibit an innovative drive in the market.

Bibliography

Structure or document name	Year	Author	Source
DATA			
Company shares 2008-2013	2012		Euromonitor International
Market Size, Milk and Milk Products 2008-2013	2012		Euromonitor

Structure or document name	Year	Author	Source
			International
Milk Production	2012		Eurostat
Milk production	2012		Information Centre of the Ministry of Agriculture and Forestry
Health Behaviour and Health among the Finnish Adult Population	2010		National Institute for Health and Welfare
Insider's guide	2011		DairyCo
PTY – Finnish Grocery Trade Association	2008-2013		The Finnish Grocery Trade Report
Structure of the Dairy Industry	2009		European Commission
STUDIES			
Drinking milk products in Finland	2012		Euromonitor International
Drinking milk products in Finland	2013		Euromonitor International
Synopsis of Member States' National Competition Authorities contributions on the Milk Supply Chain.	2009		European Commission
A Comparison of the Dairy Supply Chain in the Baltic Countries and Finland.	2009	Jansik, Csaba	IFAMA
Support for Farmers' Cooperatives; Case Study Report; Cooperative Dairy Processor Valio – structural development to its present stage.	2012	Ollila, P., and P. Pyykkönen	Wageningen: Wageningen UR
Study on Trade in Groceries	2012	Tom Björkroth, Heli Frosterus, Milla Akajova, Eija Palo	The Finnish Competition and Consumer Authorities
Vertical price formation in the Finnish food chain	2009	Hanna Karikallio, Kyösti Arovuori and Perttu Pyykkönen	Pellervo Economic Research Institute
OTHER			
KILPAILUVIRASTON MÄÄRÄYS LOPETTAA KILPAILURAJOITUS JA ESITYS MARKKINAOIKEUDELLE SEURAAMUSMAKSUN MÄÄRÄÄMISEKSI (Market court decision on Valio)	2012		Finnish Competition and Consumer Authority
Newspaper: Arla Foods director surprised by strong reactions over selling of Swedish milk in Finnish grocery stores.	2010		Helsing Sanomat
Press Release: Market Court: Valio must comply with Finnish Competition and Consumer Authority decision in spite of appeal	2012		Finnish Competition and Consumer Authority
Special responsibility" through clear-cut market share threshold – Proposed new assessment criterion for addressing dominance in Finnish grocery retail sector	2013		Kluwer Law Blog

Interviews

Type of structure	Structure	Role
Research institutes	Research institute 1	Researcher
	Research institute 2	Researcher
	Research institute 3	Researcher
Processors	Processor 1 Product Development and Technology	Vice- President
Retailers	Retailer 1 Grocery Trade Chain Management	Manager
Industry Associations	Industry Association 1	Secretary General
	Industry Association 2	Secretary General
	Industry Association 3	Director
Other relevant Organisations	Public authority	Manager

3. Pork in Germany

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3.1. Adopted methodology and scope

The objective of this case study is to highlight the main characteristics of the pork sector in Germany which could impact choice and innovation. It is not, however, to undertake a common sector study, which would involve collecting comprehensive data across a number of characteristics.

We therefore present a synthesis of the main market characteristics first, followed by a more specific and detailed focus on each characteristic impacting choice and innovation, in order to provide elements to complement the quantitative components of the study.

The scope of the study concerns only fresh pork, packaged or non-packaged. Fresh pork is defined as pork meat that has not undergone any processing beyond cooling or freezing, cutting, and packaging. Pork meat that is minced, battered, seasoned, or marinated is therefore not covered within the scope of the study; however, for instance, pork meat cut specifically for goulash dishes but not processed in any other way is considered fresh pork and therefore covered by the study.

Data presented below are based on a literature review and interviews with experts and stakeholders. The comprehensive list of sources is presented at the end of the section.

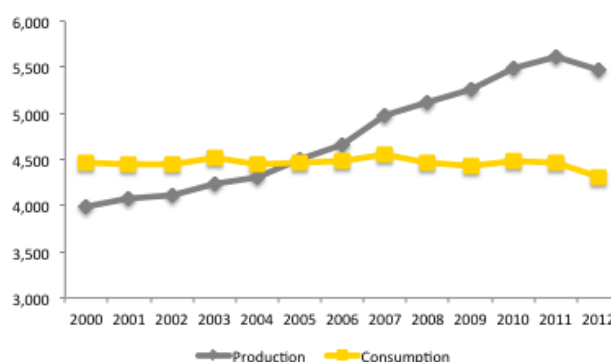
3.2. The pork supply chain in Germany

3.2.1. Germany is the main producer and consumer of pork meat in Europe

Fresh pork (packaged or non-packaged) is the most frequently consumed fresh meat product in Europe constituting 49% of fresh meat sales, i.e. twice as much as beef.

Germany is the largest producer of pork in the EU. 28,132,000 heads (individual animals) were reared in Germany in 2012⁶⁶, representing 18% of the 148.6 million heads in the EU⁶⁷ and corresponding to a total of 5,459,000 tons. The majority of the production is consumed in Germany, with an estimated 2,277,000 tons exported (1,762,000 of this to the EU) and 1,116,000 tons imported (1,110,000 of that from the EU)⁶⁸. As can be seen in the figures below, German pork production has grown significantly, with a 32% increase in volume between 2000 and 2012. This was accompanied by an even higher growth in exports, which amounted to only 584,000 tons in 2000, thus representing 290% growth in the last twelve years.

Figure 8: Production and consumption of pork meat (1 000 tons) in Germany



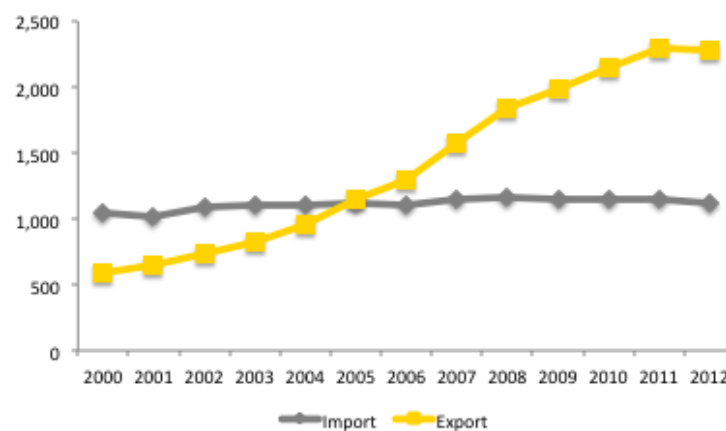
Source: VDF (German Meat Association - <http://www.v-d-f.de/>)

⁶⁶ Source: Statistischem Bundesamt, AMI

⁶⁷ Source : Eurostat

⁶⁸ VDF

Figure 9: Import and export of pork meat (1 000 tons) in Germany



Source: VDF

Germany is also the largest consumer of pork in Europe. The average consumption in Germany is estimated at 55 kg/year/consumer, compared to an EU average of 40 kg/year/consumer⁶⁹. Pork constitutes 64% of meat consumed in Germany; it is a staple ingredient of traditional German cuisine. However, as shown in the figure above, the consumption of pork meat has declined marginally in recent years in Germany, falling by 3% between 2000 and 2012. There is a general consensus among consulted stakeholders and in literature that the pork market is a mature market and it is unlikely that future pork consumption will increase from current levels⁷⁰. In fact, current trends suggest that pork consumption in Germany is likely to further decline. Some of these trends include:

- declining population;
- aging population, with older people and women statistically consuming less meat;
- increasing number of practicing Muslims living in Germany, who do not consume pork meat;
- changing lifestyles, with increased focus on diet; and
- increasing number of consumers choosing not to consume meat or consume less meat due to environmental and animal welfare concerns⁷¹.

In addition to these broader trends, recent developments, such as the “horsemeat scandal” at the beginning of 2013, as well as the earlier BSE crisis, have had a negative impact on German consumer confidence in meat products, although the impact is likely to be higher for processed packaged meat products and beef compared to fresh pork. These developments have not yet had a substantial impact on the market, although interviewed producers and retailers pointed to increased efforts with regard to animal welfare and related labelling. These are however considered to be new and “niche” developments.

A different consequence of the domestic trends in production and consumption is the increasing focus on export markets, in particular China and Russia. This is in turn reflected in the high export volumes observed in recent years. One large German producer estimated that approximately 50% of the production is exported.

⁶⁹ Source : Eurostat

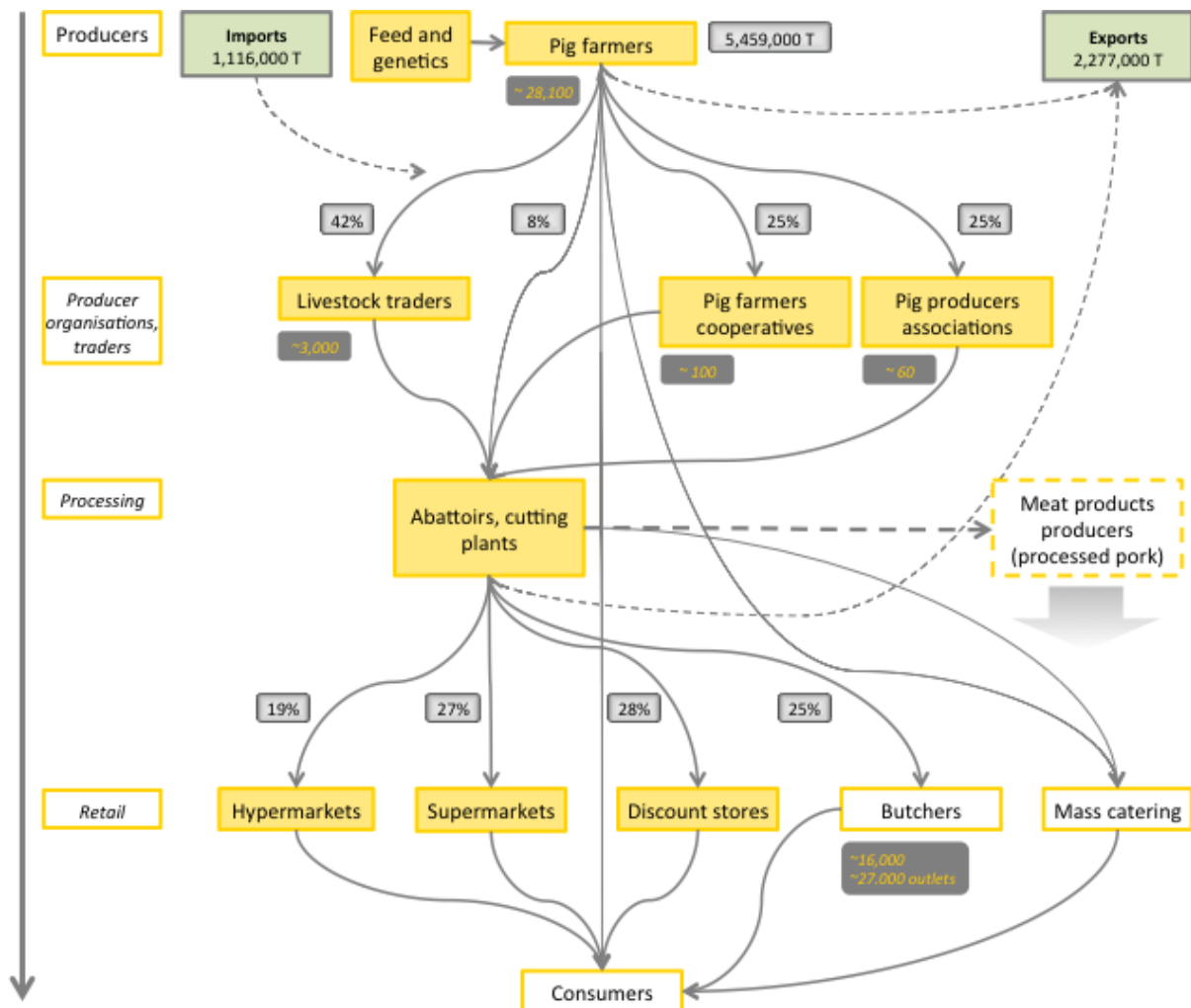
⁷⁰ Euromonitor International September 2012, ‘Meat in Germany’

⁷¹ Spiller, A., Schulze, B., and Cordts, A. (2010). ‘Was essen wir in zwanzig Jahren?’

3.2.2. Characteristics of the pork supply chain in Germany

The following figure outlines the pork supply chain in Germany, including key actors.

Figure 10: Pork supply chain in Germany



Source: Universität Gottingen (2005), Hortmann-Scholten (2011), Eurostat, Destatis, Stakeholder interviews

As can be seen in the figure above, the supply chain for fresh pork in Germany involves four main stages:

- Production:** There are approximately 28,100 pig farmers in Germany, 12,000 of which are members of ISN (Interessengemeinschaft der Schweinehalter Deutschlands e.V.), the German association of pig farmers. Pig farming is concentrated predominantly in the Northwest of the country (Lower Saxony and North Rhine-Westphalia), as well as in Bavaria. Pig farms can be broadly classified according to the number of breeding sows (female pigs which have had offspring). Farms with a large number of breeding sows are considered **breeding farms** where piglets are born and weaned (removed from the sow), while farms with no sows are **fattening farms**, where pigs are reared and fattened for slaughtering (or for future breeding). In practice, farms can combine breeding and fattening functions, although German pig farms tend to

predominantly be large fatteners⁷². The key input actors at this stage include feed producers (i.e. companies such as Agravis), as well as genetic providers (such as the global player PIC). Farmers are also supported by a range of research institutes, as well as firms providing technical consultancy services in the domain of breeding and fattening.

- **Livestock trading:** Farmers can sell their production through:
 - up to 3,000 private livestock traders (Viehhändler) (estimated to account for 42% of sales);
 - approximately 100 cooperatives (VVGs) (estimated to account for 25% of sales);
 - approximately 60 producers' associations (VZGs) forming part of the Union of Producers Associations for Livestock and Meat e.V. (VEZG) (estimated to account for 25% of sales); or
 - directly to the slaughterhouse, specialised retailers, or consumers (estimated to account for 8% of sales).

The cooperatives and associations usually offer additional services to pig farmers. These can include information on latest regulatory developments, compliance advice, assistance with logistics, or general technical consulting services. All actors at the trading stage of the supply chain are also responsible for the transport of live pigs.

- **Processing:** Processing consists of slaughtering and cutting, and is conducted by approximately 250 abattoirs (slaughterhouses) primarily in the north-west of the country, approximately 600 cutting plants and 2,300 other processing plants. The processing plants can carry out fine cutting of pork meat (i.e. in order to prepare meat for steaks), or process the meat to produce meat products (i.e. sausages), although such products are outside the scope of this case study. Large companies often integrate all processing steps across multiple sites in the country.
- **Retail:** At the final stage in the chain, meat is sold to consumers in retail outlets. These include hypermarkets, supermarkets, and discount stores (defined as modern retail in the study), as well as butchers and other small convenience stores (falling outside the scope of the study). In addition, a relatively small proportion of the processed output is also sold to consumers via restaurants and catering⁷³. For all meat products, it is estimated that 78% of meat is sold in retail outlets⁷⁴. Pork meat should follow a similar pattern. Regarding pork meat sold in retail outlets, one interviewed retailer estimated that 28% is sold in discount stores, 27% in supermarkets, 25% in smaller and specialised retail outlets and 19% in hypermarkets. According to the interviewees, this differs from beef, where a larger proportion is sold through butcher outlets than through modern retail, which can be attributed to the consequences of the BSE crisis and the consumer perception that meat sold through specialised outlets is safer (which is generally false, since the meat often comes from the same source as meat sold in supermarkets, hypermarkets, and discount stores). Finally, the interviewees also noted that the proportion of pork sold in discount stores is much lower than the overall discounter share of the retail food market (approximately 45%), suggesting that pork meat is less likely to be sold in discount stores than other food products.

⁷² See

http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Pig_farming_statistics#Further_Eurostat_information

⁷³ Universität Gottingen (2005). 'Sicherstellung der Wertschöpfung in der Schweineerzeugung: Perspektiven des Nordwestdeutschen Modells', Hortmann-Scholten, A. (2011), 'Germany's role in pan-European Trade'

⁷⁴ Euromonitor International

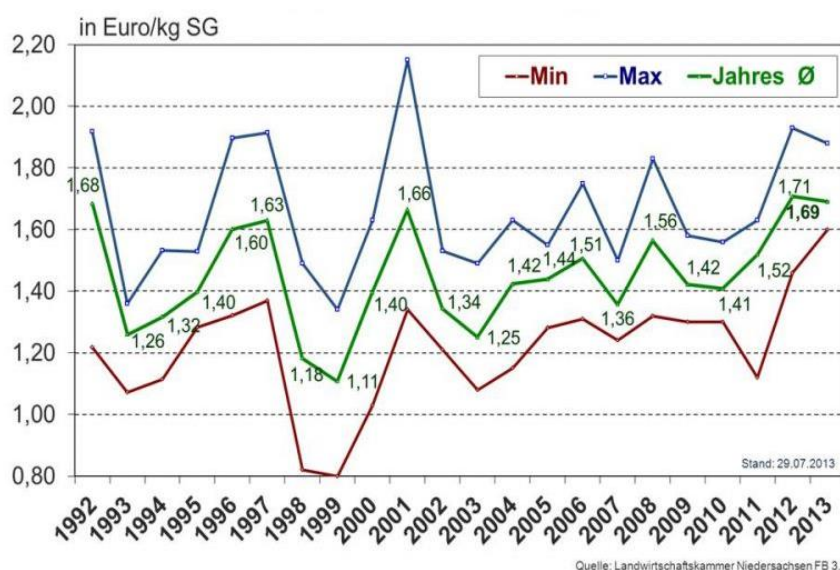
The pork supply chain differs from that of other product types and other Member States in two main ways. Firstly, it includes the livestock trading element of the supply chain (Viehhandel), which is not present in some Member States. Secondly, it lacks a dedicated wholesale element, with processing companies being primarily responsible for sale to retail outlets.

Prices are set at two different points in the supply chain:

- Between farmers and slaughterhouses prices are set through a **market price** mechanism. An important role is played by the Union of Producers Associations for Livestock and Meat e.V. (VEZG), which publishes a weekly consensus price ("Vereinigungspreis", earlier called the "Nordwestpreis") based on input from member producer cooperatives and discussed in a weekly conference call. The Vereinigungspreis in turn guides the prices paid by slaughterhouses across the country.
- Between slaughterhouses and retailers prices are set through frequent (monthly or weekly) **price negotiations**. Each retailer has a regular set of suppliers who deliver the meat products sold in the outlets. The number of suppliers differs, but one retailer stated that five individual suppliers are used to supply pork meat to its retail outlets.

The figure below outlines the development in the minimum, maximum, and average Vereinigungspreis between 1992 and 2013.

Figure 11: Developments in the Vereinigungspreis since 1992 (min, max, and average price in €/kg)



Source: VEZG (Association of Producer Groups - <http://www.vezg.de>)

The figure shows large variations in price both over time and during a single year, with prices varying by over 50% in a given year. This has implications for the industry and in particular for pig farmers whose business cannot be sustained at low price levels.

Two important aspects of the pork supply chain include the level of **vertical** and **horizontal coordination**. The German pork industry is characterised by a low level of vertical integration between farmers and processors and a higher and increasing level of integration between processors and retailers. The industry also features horizontal coordination among pork farmers, with cooperatives and producer associations playing

an important role in the supply chain. The two types of integration are described in more detail below:

- **Vertical coordination** refers to the relationship between farmers and processing companies. These relationships can vary from single spot transactions through binding contracts all the way to full vertical integration. The German pork sector is historically characterised by a relatively low level of vertical coordination, with spot transactions and informal long-term relationships being most common. This in turn gives farmers more entrepreneurial freedom than binding contracts. This sets it apart from, for instance the United States, Denmark, or Spain where production contracts and contract farming are common and in some cases farms are owned by slaughterhouses⁷⁵. The German supply chain is more vertically coordinated at the processing/retail stage, with some retailers moving into the processing sector over the last 20 years. One such example is the EDEKA-Südfleisch company, a processing company linked to the EDEKA retail chain or the Heilbad Heiligenstadt plant opened by the retail chain Kaufland. It is however worth noting that these processing plants do not slaughter pigs, with retailers still relying on suppliers to deliver meat to the processing plants. Overall, the relationships between suppliers and processors are varied and depend on the individual actors involved. As noted above, usually more than one processor supplies a single retailer and even if longer-term contractual relationships are in place, retailers tend to maintain flexibility allowing them to switch suppliers or renegotiate prices⁷⁶. In some cases, the supplier-retailer relationships vary by region, with multiple regional processing companies supplying a single retail chain in multiple regional locations. As outlined in the previous paragraphs, prices between retailers and their suppliers can be renegotiated as often as weekly.
- **Horizontal coordination** refers to relationships between actors performing the same functions within the supply chain. In the pork sector in Germany this form of cooperation refers mainly to cooperatives (Viehvermarktungsgenossenschaften, VVGs) and producer associations (Erzeugergemeinschaften, EZGs). These forms of horizontal cooperation for instance allow joint negotiations with processing companies or joint organisation of transport⁷⁷. Nevertheless, it is estimated that only about half of the production is sold this way, with the remaining farmers choosing to use livestock traders or sell directly. This is mainly due to the preference of some farmers for more autonomy in the marketing of their production⁷⁸.

One potential reason behind the low vertical coordination in the German pork supply chain is the existence of the **QS system**. This private certification system introduced in 2001 for meat, and since 2004 for fruit and vegetables, sets out a range of quality criteria for each stage of the supply chain, from animal rearing and feeding to retail. The system has enjoyed a broad take-up, with 130,000 participants across all product types, and 23,000 retail outlets carrying QS-certified products. According to one interviewee, the system has practically become a market standard for pork production and could be seen as one reason why processors are in a position to operate without contracts with individual farmers. The QS system also serves another function, with the meetings between industry players organised as part of the QS system having become an informal forum for the main pork industry players.

⁷⁵ Schulze, B. (2006). 'Vertical Coordination in German Pork Production: Towards more Integration?'

⁷⁶ Universität Göttingen (2005). 'Sicherstellung der Wertschöpfung in der Schweineerzeugung: Perspektiven des Nordwestdeutschen Modells'

⁷⁷ Universität Göttingen (2005). 'Sicherstellung der Wertschöpfung in der Schweineerzeugung: Perspektiven des Nordwestdeutschen Modells'

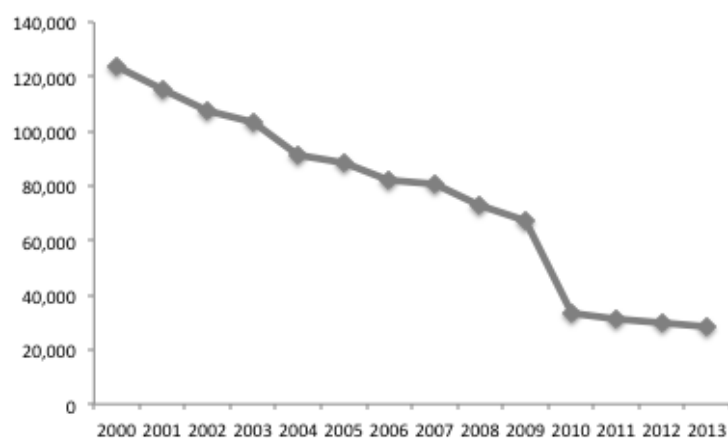
⁷⁸ Hortmann-Scholten, A. (2011), 'Germany's role in pan-European Trade'

In addition to the introduction of the QS system, another important development in the pork supply chain in Germany is the application of the Directive (EC) No 2001/88 laying down minimum standards for the protection of pigs. The Directive sets out standards for pig holdings, including improving the quality of the flooring surfaces and increasing the living space available. The Directive applies to new holdings as of January 2003 and to all holdings as of January 2013. Despite the ten-year implementation period, early reports show that some pig farmers in Germany have failed to implement the new standards⁷⁹.

3.2.3. Concentration of pork supply

With approximately 28,100 pig farmers in 2013⁸⁰, Germany has a large number of pig farms, although their number has been declining steadily, with a particularly dramatic fall in numbers taking place between 2009 and 2010, as can be seen in the figure below:

Figure 12: Number of pig farms



Source: Destatis

As the total number of pig farms declined, the number of farms with over 1,000 and over 2,000 pigs increased⁸¹. This suggests that there is an increasing concentration of pork production at the farming level, although these developments largely mirror other Member States: For example in Denmark the number of pig farms fell from over 16,000 to below 6,000 between 1998 and 2008, and by 2008, 62% of sows were found in farms with over 500 sows compared to 15% in 1998⁸². Nevertheless, even with a shift towards fewer larger pig farms, the concentration at production level remains too low for the individual actors to exercise substantial control over the supply chain.

Looking at the processing stage, **Germany has a lower level of concentration in the area of pork processing than other pig producing Member States.** While, for instance, in Denmark, Danish Crown held 90% of the slaughterhouse market as of 2007⁸³, in Germany there are still a substantial number of SMEs operating alongside large companies. In addition to the ten largest processing companies presented in the

⁷⁹ See http://europa.eu/rapid/press-release_IP-13-135_en.htm

⁸⁰ This statistic includes only farms with over 50 pigs/10 sows.

⁸¹ BMELV. 'Ausgewählte Daten und Faktender Agrarwirtschaft 2012', 'Agrarpolitischer Bericht 2011 der Bundesregierung'

⁸² See <http://www.pigresearchcentre.dk/Pig%20Production.aspx>

⁸³ Beile, J., Klein, M. and Maack, K. (2007). 'Zukunft der Fleischwirtschaft', edition der Hans-Böckler-Stiftung 186

table below, there are approximately 250 slaughterhouses, 600 cutting plants, and 2,300 processing plants, the majority of them SMEs. Nevertheless, recent developments, such as the purchase of Südfleisch by Vion point to a trend of increasing concentration⁸⁴. As shown in the figure below, in 2012 the ten largest processing companies held 74.8% of the market in volume terms, while the three largest companies (Tönnies, Vion and Westfleisch) held 54.6% of the market, with the share of the market leader, Tönnies, increasing from 25.8% to 27.6% compared to previous year.

Figure 13: Processing concentration

Processing company	Slaughterings 2011 (millions)	Slaughterings 2012 (millions)	Change 2011 - 2012	Market share 2011	Market share 2012
Tönnies, Rheda- Wiedenbrück	15.4	16.1	4.5%	25.8%	27.6%
Vion, Düsseldorf ⁸⁵	<10	<9	-10.0%	16.7%	15.4%
Westfleisch, Münster	7.16	7.39	3.2%	12.0%	12.7%
Danish Crown, Essen/Oldenburg	3.3	2.81	-14.8%	5.5%	4.8%
Vogler, Luckau	1.94	2.02	4.1%	3.2%	3.5%
Müller Gruppe, Birkenfeld	1.44	1.62	12.5%	2.4%	2.8%
BMR Schlachthof, Garrel	1.44	1.58	9.7%	2.4%	2.7%
Tummel, Schöppingen	1.35	1.54	14.1%	2.3%	2.6%
Bösel Goldschmaus, Garrel	1.5	1.51	0.7%	2.5%	2.6%
Simon, Wittlich	0.87	0.95	9.2%	1.5%	1.6%
Top 3	32.56	32.49	-0.2%	54.5%	55.7%
Top 10	44.4	44.52	0.3%	74.3%	76.3%
Germany total	59.74	58.35	-2.3%	100%	100%

Source: ISN Schlachthofranking 2012

Although the above figures show a relatively limited year-on-year upward trend in terms of concentration, **the market share of top processing companies has increased substantially over the last decade**. In 2004, the Top 10 companies held less than 60% of the market compared to over 75% in 2012. Similarly, in 2004 the Top 3 companies held a combined market share of below 45%, compared to over 55% in 2012⁸⁶.

⁸⁴ Universität Gottingen (2005). 'Sicherstellung der Wertschöpfung in der Schweineerzeugung: Perspektiven des Nordwestdeutschen Modells'

⁸⁵ Estimates

⁸⁶ Hortmann-Scholten, A. (2011), 'Germany's role in pan-European Trade'

The following table outlines in more detail the three largest market players:

Figure 14: Top 3 processing companies

Processing company	Tönnies	Vion (Worldwide)	Westfleisch
Founded	1971	2006 (previously Sovion)	1928
Turnover	€4,300 (2010)	€9,600m (2011)	€2,457m (2012)
Number of employees	8,000	26,425 (2011)	1,916 (2012)
Locations in Germany	7	48	10

Source: <http://www.toennies.de/>, <http://www.vionfoodgroup.com/>, <http://www.westfleisch.de/>

According to the consulted producer representatives, the increased concentration has had particular impact on producers. Since there are now fewer slaughterhouses to which farmers can sell their production, it has effectively reduced the number of marketing opportunities. The reduction in the number of marketing alternatives increased the relative power of large slaughterhouses, which in turn resulted in a downward pressure on prices paid to farmers. Given that a further increase in concentration is expected, these pressures on pig farmers are likely to become more acute, in turn necessitating cost-cutting and measures to boost efficiency at production level⁸⁷.

It is important to note that in addition to the growing concentration, German pig production and processing have an increasingly international dimension. Germany currently imports piglets, sows, and slaughtered sows (for cutting in Germany) from neighbouring countries (Belgium, France, Netherlands, and Denmark) and exports piglets predominantly to newer Member States. In addition, pork processing is also becoming more internationalised, with large processing companies increasingly operating internationally. Vion, for instance, is originally a Dutch company, which entered the German market through its purchase of German firms Moksel, Fleischzentrale and Sudfleisch⁸⁸, and its supply chain currently spans both Germany and the Netherlands⁸⁹. Some German companies also invest abroad, with one example being the recent investment by Tönnies in a large abattoir in Russia⁹⁰.

3.2.4. Retail concentration and the role of discounters

The five largest retail groups include EDEKA, Schwarz, Aldi (including Aldi-Nord and Aldi-Süd), REWE, and Metro, and in 2012, the market share of the five largest retailers amounted to 89.9%⁹¹. Food retail is dominated by discount stores followed by supermarkets, hypermarkets, and convenience stores, although in many cases a single group owns both supermarket and discounter chains. This is for example the case with Penny, which is owned by REWE, or Netto Marken Discount, owned by EDEKA.

Looking specifically at the sales of meat, it is important to note that some large discounter chains have only recently entered the fresh meat market. While Netto, Penny and Plus had fresh meat as part of their offer prior to 2003, the large chains Lidl and Aldi-Nord started selling fresh meat only in 2003, followed by Aldi-Süd in

⁸⁷ Recke, G., Theuvsen, L., Venhaus, N., and Voss, A. (2011). 'Der Viehhandel in den Wertschöpfungsketten der Fleischwirtschaft: Entwicklungstendenzen und Perspektiven'

⁸⁸ Beile, J., Klein, M. and Maack, K. (2007). 'Zukunft der Fleischwirtschaft', edition der Hans-Böckler-Stiftung 186

⁸⁹ Brinkmann, D. (2011). 'Quality management of pork supply chains – A question of coordination?'

⁹⁰ See <http://www.topagrar.com/news/Schwein-News-Toennies-Betrieb-in-Russland-nimmt-Fahrt-auf-847414.html>

⁹¹ Calculation of modern retail concentration of retailers based on Planet Retail

2005⁹². As noted in the previous section, a majority of pork meat is sold through discount stores (28%) followed by supermarkets (27%), butchers outlets (25%), and hypermarkets (19%).

There is clear evidence of retail concentration increasing over time, with modern retail market share of the five largest retailers increasing from 77.5% in 2004 to 89.9% in 2012⁹³. The continued success of the discounter model plays an important part in this trend, with discounters further benefitting from the recent economic slowdown in comparison to supermarkets⁹⁴. Increasing retail concentration has also come to the attention of the German competition authority (Bundeskartellamt), which intervened during the planned takeover by EDEKA of the Plus discounter chain in 2008. The merger was subsequently allowed, although under a set of conditions. However, in July 2013 the Bundeskartellamt announced an investigation into the potentially abusive relationship between EDEKA and its suppliers following the merger⁹⁵.

Overall, the recent developments in the German modern retail sector include:

- supermarket chains launching their own discounter offers or subsidiaries;
- development of private labels, which account for one-third of all food and drink spending in Germany;
- discounters diversifying their offerings; and
- growth in average outlet sizes⁹⁶.

Despite the level of concentration, the competition for market share among retailers remains high,⁹⁷ resulting in frequent price wars. One example is that of the recent cuts in retail fresh meat prices, where Aldi and Norma lowered prices of fresh meat by up to 9%. Aldi plays a particularly important role in the price competition in the German retail sector, since other retailers, such as EDEKA and REWE, usually follow its pricing strategy when setting their own prices⁹⁸. Overall, Herrmann, Möser, and Weber (2009) conclude that higher retail concentration has generally benefited consumers due to strong price competition⁹⁹.

Increasing retail concentration and the level of price competition also have an impact on the broader pork supply chain. There is evidence of substantial buyer power pushing down supplier prices¹⁰⁰, which in turn translates into price pressures on pig farmers. At the same time, the move of some retailers into meat processing and the subsequent use of the more integrated supply chain can be seen as a challenge for processing companies. As a result, in order to effectively respond to this challenge and strengthen their position against retailers, processing companies may be spurred towards further market concentration¹⁰¹.

⁹² Beile, J., Klein, M. and Maack, K. (2007). 'Zukunft der Fleischwirtschaft', edition der Hans-Böckler-Stiftung 186

⁹³ Calculation of modern retail concentration of retailers based on Planet Retail

⁹⁴ BMI Germany Food & Drink Report Q3 2013

⁹⁵ See http://www.bundeskartellamt.de/wEnglisch/News/press/2013_07_26.php

⁹⁶ BMI Germany Food & Drink Report Q3 2013

⁹⁷ Katsaras, N and Schamel, G. (1999), 'The Grocery Retailing Sector in Germany: ECR Activities in Comparison to the USA'

⁹⁸ See <http://www.agrarheute.com/aldi-frischfleisch-preissenkung>

⁹⁹ Herrmann, R. Möser, A., and Weber, S. (2009). 'Grocery Retailing in Germany: Situation, Development and Pricing Strategies'

¹⁰⁰ DIW Econ. (2011). 'The Power of Retailers'

¹⁰¹ Recke, G., Theuvsen, L., Venhaus, N., and Voss, A. (2011). 'Der Viehhandel in den Wertschöpfungsketten der Fleischwirtschaft: Entwicklungstendenzen und Perspektiven'

3.3. Definition of choice and innovation for fresh pork

3.3.1. Criteria of choice for fresh pork

Defining consumer choice with regard to fresh meat and in particular non-packaged meat requires a different approach than for packaged products with a barcode. In order to determine a set of criteria for defining choice with regard to fresh pork, it is important to identify a set of potential differentiating attributes. These include:

- characteristics of the meat, such as colour or marbling (amount of fat);
- cutting;
- packaging (i.e. size of the package);
- brand;
- labelling, such as animal welfare declarations; and
- price.

Overall, choice is maximised when consumers are able to make decisions based on all the above criteria. To that end, choice in fresh pork could be defined as:

- availability of packaged and non-packaged meat;
- number of different “grades” of pork meat available;
- availability of different cuts;
- number of packaging options;
- number of brands available, including number of private brands;
- availability of products with specific characteristics denoted by labels; and
- number of products in different price ranges.

It is important to note that the choice criteria interact with the retail situation. At the supermarket counter (which functions similarly to a specialised butcher’s outlet), meat is not sold as a packaged product, but the service provided gives the consumer a potentially wider choice than in the case of packaged products. This applies to all types of fresh meat and is discussed in more detail in the following sections.

With regard to labelling of products, in the case of pork these would generally refer to animal welfare labels and labels relating to production and processing procedures (such as the QS label). Introduction of such products on the market can however only be seen as an increase in choice in so far as these products are of a different quality level or produced differently from existing products. Labelling of existing products that does not constitute a change in packaging would therefore not be seen as an increase in choice.

3.3.2. Criteria of innovation for fresh pork

The innovation definition used in the study sees innovation as the introduction of new products, as well as use of new ingredients, use of new packaging, and product range and line extensions. Applying this to fresh pork and using the choice criteria above, innovation could be theoretically understood as the introduction onto the market of:

- meat with new physical characteristics (i.e. meat traditionally sold with bones now sold without bones);
- new cuts designed for specific uses, for instance goulash or gyros meat;
- new packaging, such as use of skewers or different (usually smaller) package size;
- new brands; and
- meat with new desirable characteristics as denoted by labels.

The definition of innovation used in this study does not consider new marketing of a product as an innovation, if no changes have been made to the product or the packaging. Therefore, as outlined in the case of choice, in order to be considered as an innovation an additional label would need to be accompanied by a change in packaging or an actual change in the way the meat was produced (the meat would then

constitute a “new ingredient”). The box below outlines an example of an innovation process.

Illustration: “Fresh pork product innovations”

Innovation process for new fresh pork products (i.e. new cuts)

- Innovation is primarily triggered by retailers
- One retailer has a quarterly meeting with its usual suppliers where product ideas are discussed
- New product ideas are usually seasonal or based on particular events in Germany (i.e. football World Cup)
- In some cases new product initiatives come from suppliers, usually large processing companies
- Time to market differs across retailers and depends on internal structures
- Prices are agreed based on negotiations
- Usually retailers have good long-standing relationships with suppliers, which facilitates the process
- Other suppliers have their own processing plants (i.e. REWE, Kaufland, EDEKA)

3.4. Trends and drivers of choice

Overall, the pork meat market in Germany is characterised by relatively little differentiation and limited impact of brands. Although retail outlets have large assortments of pork products, given that it is the most popular meat in Germany, assortments are mainly regarded as generic and of broadly the same quality. In addition, the market is fully private label-based, with very few brands being available on the market (some for organic products). This sets pork aside from poultry, where Wiesenhof is considered as the premium brand, as well as from processed meat products such as ground beef, where processing companies sell their own branded products (i.e. Hackplus produced by Vion). It also sets Germany apart from some other Member States, such as Denmark, where producers sell branded fresh pork (i.e. Danish Crown’s 100% Dansk brand), although private labels tend to dominate most meat markets in the EU. Some of the popular German meat private labels include Wilhelm Brandenburg (Rewe), K-Purland (Kaufland), Der Meistermetzger (Real), Oldenländer (Lidl), and Gut Ponholz (Netto Marken-Discount).

One potential reason for low product differentiation in the German pork market is that it is highly price-driven. According to existing research on the sector in Germany, German meat consumers largely base their decisions on price and food safety considerations (driven largely by various recent meat scandals)¹⁰². Interviewees noted, for instance, that approximately 70% of fresh pork meat is sold as part of special price promotions. The German pork market has historically been characterised by a relatively low level of consumer choice, with individual retailers providing a similar range of products under private labels. It is however worth noting that there is disagreement among stakeholders concerning the role of price in consumer decisions. While most stakeholders downplay the role of considerations such as animal welfare or sustainability in consumer decisions, one retailer noted that other characteristics do play a very significant role in retail and one should not consider Germany a price-driven market.

Despite relatively low level of consumer choice, there is some evidence of recent increases in choice. There is no systematic data on the evolution in product assortment (i.e. measured by SKUs) since fresh pork meat is not an EAN-barcoded product and hence is not effectively recorded in databases. In addition, comparing product choice over time is complex, given that pork meat sold over a counter is only

¹⁰² Universität Gottingen (2005). ‘Sicherstellung der Wertschöpfung in der Schweineerzeugung: Perpektiven des Nordwestdeutschen Modells’

considered an individual product once sold to the consumer. Nevertheless, there are indications pointing to an increase in choice:

- One discounter chain noted that the number of meat products available in the retail outlet increased from 5 upon market entry to 60 at the current point in time, ten years later. Although this includes all fresh meat, pork constitutes the majority of this increase and the figure would suggest a substantial increase in choice of pork products.
- The entry of discounter chains into the fresh meat market is in itself an indication of an increase in choice at shop level. One retailer estimated that discounters currently have on average 25 individual packaged fresh pork products in their assortment, while for supermarkets this number is around 50, not including meat sold over a counter. If these products are offered at lower prices or are different products, then one could consider that the market entry of discounters effectively enhanced the aggregate choice in the market.

Combining the two indications above would suggest that the number of pork products available in the discounter chain described above increased from approximately 2 to 25¹⁰³ from 2003 to 2013. This is an important increase and although it should not be taken as an indication of the general market trend (especially since the first figure relates to the number of pork products at the point when fresh pork was introduced for the first time in this particular retail chain), it does point towards an upward trend in consumer choice.

Given the private label domination of the market, the increase in choice can be mainly interpreted as an increase in the number of different cuts, packaging options, and price ranges (especially upon the market entry of discounter chains).

The increase cannot be attributed to market entry of new branded products as such do not exist on the German market; given the relatively uniform quality it also cannot be attributed to a wider divergence in product quality.

While animal welfare labelling of meat products is a frequently discussed topic among German industry players, aside from organic products, consumer-oriented labelling of meat is not a common practice; it is also not likely to have contributed to the recent increase in consumer choice.

The recent increase in supply and retail concentration appears to have only an indirect effect on choice in so far as it fuels price competition which in turn can encourage retailers to expand their product assortments. Increasing concentration among processing companies can potentially act as a balance against retail concentration, but may not have a major direct impact on consumers.

In terms of the overall structure of the retail market, the entry of discounters appears to have had an impact on choice, as noted above, while the type of retail outlet naturally has an impact on choice given that supermarkets offer twice as many meat references compared to discounters.

When considering the retailer/supplier relations, it is important to note that it is the retailers who drive choice. Although retailers usually maintain longer-term relationships with their suppliers, they have the flexibility to change suppliers. In addition, the fact that the pork market is private label-based also means that suppliers have relatively limited influence over choices offered to consumers.

There is no evidence of producers' associations (EZGs) or cooperatives (VVGs) having an impact on choice. Although they are important players at the production and trading level, the producers and their organisations appear to have limited influence on the downstream supply chain.

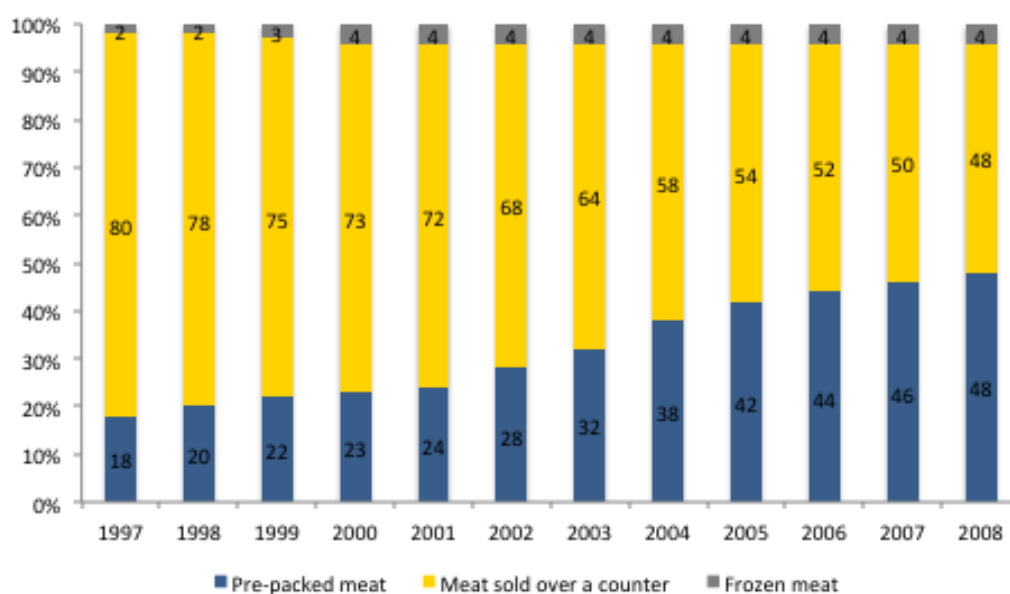
¹⁰³ Assuming that 25 of the 60 meat products, or approx. 42%, are pork products

3.5. Trends and drivers of innovation

As outlined in the previous section, the German fresh pork market is characterised by essentially generic products. Regular product innovation is rare in the market; however there are examples of process innovation, spurred by price pressure and the importance of the pork industry as an export industry. The German pork production is now characterised by a high use of production robots and the industry is viewed as very technologically advanced.

The key product innovation in the sector is the move to packaged meat ("Selbstbedienungsfleisch" or "SB-Fleisch"). Although it dates back to the 1960s, packaged meat has gained recent popularity when discounter chains entered the fresh meat market. By 2008, the market share of packaged fresh meat equalled that of non-packaged meat (i.e. meat served over a counter). The figure below outlines the development in the market share of packaged fresh meat. Although this figure includes beef and lamb in addition to pork meat, one could expect that this pattern would broadly hold for pork meat as well.

Figure 15: Development in the market share for packaged meat



Source: Schulze, B. and Spiller, A. (2009). 'Hat sich die Bedientheke überlebt?' in agrifood.kompakt 03/09

Beyond packaged meat, most meat product innovations tend to occur in the "convenience" meat segment. Recent years have seen a growth in the market share of products requiring more limited preparation for the consumer, such as pre-prepared meat (for instance seasoned "one minute" pork filets). Innovations within the scope of this study include specific cuts, such as meat destined for goulash or gyros dishes. However these products are generally considered as niche products and not significant innovations.

Overall, the innovation in the German fresh pork market can be seen as primarily the introduction of new packaging (i.e. packaged meat vs. meat sold over a counter) and to a lesser extent new cuts and physical characteristics, which can generally be classified as being part of the "convenience" products category.

As in the case of choice, the key driver behind innovations appears to be consumer price sensitivity. Regarding packaged meat, lower cost for retailers due to avoiding costs associated with maintaining a counter, and practical considerations (longer life, hygiene is easier to control) mean that packaged meat has become

increasingly adopted by retailers, especially the discounter chains. The ability to sell packaged fresh meat at a lower price leads to an increasing popularity of such products among consumers in a price-driven market¹⁰⁴, even though existing consumer research shows that packaged fresh meat is generally viewed as less safe¹⁰⁵ and less attractive¹⁰⁶.

The development of packaged fresh pork can also have consumer choice implications. Retailers offering packaged pork can either:

- eliminate service counters in their retail outlets;
- retain service counters and offer both packaged and non-packaged meat; or
- enter the market by selling only packaged meat (as in the case of discounters).

According to one interviewee, German supermarkets and hypermarkets generally choose to maintain a service counter in addition to selling packaged meat. This is generally done to attract consumers to the retail outlets, and in turn differentiate them from discounters. According to the interviewee, in some cases the counter prices are actually lower than those for packaged meat (despite overall higher costs) in order to ensure that the service counter remains a pull-factor for the outlet. Given that, as shown above, choice of packaged products is already higher for supermarkets than for discounters, when adding meat sold over a counter this effect becomes even more significant.

As in the case of consumer choice, rising retail and supply concentration can be seen as having an indirect impact on innovation by creating a competitive environment in which actors seek to innovate to gain market share. Packaged meat is a means of cutting production costs and retail prices, while “convenience” products respond to consumer preferences and are introduced to gain competitive advantage in a highly price-competitive market. Inability to compete on price can also be seen as the reason why non-discounter retail chains strive to maintain a higher level of consumer choice by offering both packaged and non-packaged meat.

Looking at retail market structure, the market position of discounters has accelerated the adoption of packaged meat and therefore contributed to packaging innovation, although it can hardly be seen as a recent or radical innovation. The relationship between retailers and suppliers in the private-label dominated German pork market puts retailers in a stronger position, which is reflected in the fact that innovation is primarily driven by retailers. As in the case of consumer choice, there appears to be no clear link between innovation and the level of vertical and horizontal coordination, except where, as outlined previously, they further fuel price competition. Where retailers own processing plants, these usually tend to focus on basic products, where independent processors still supply the more innovative meat products. There is no evidence of existing producer organisations (EZGs) and cooperatives (VVGs) having an impact on innovation. Individual pig farmers, their organisations and livestock traders appear to generally have a limited impact on the downstream supply chain and the level of choice and innovation.

3.6. Conclusions

Germany is a leading pork producer and consumer, with pig farming, slaughtering, and processing having a long tradition. However, the 2000s have seen major structural changes in the industry, with the number of pig farmers falling drastically and concentration at processing stage increasing. Compared to other Member States and sectors, the pork sector in Germany is now characterised by:

¹⁰⁴ Schulze, B. and Spiller, A. (2009). ‘Hat sich die Bedientheke überlebt?’ in agrifood.kompakt 03/09

¹⁰⁵ Universität Göttingen (2005). ‘Sicherstellung der Wertschöpfung in der Schweineerzeugung: Perspektiven des Nordwestdeutschen Modells’

¹⁰⁶ Schulze, B. and Spiller, A. (2009). ‘Hat sich die Bedientheke überlebt?’ in agrifood.kompakt 03/09

- **Relatively low but increasing supply concentration:** Although Germany has a less concentrated meat supply chain in comparison to many other countries, the number of processing companies has fallen over recent years and a few firms control an increasingly large share of the market.
- **Strength of discount retailers:** German food retail sector is concentrated, largely driven by discounters, and characterised by a high degree of price competition.

The level of consumer choice and innovation has traditionally been low, with fresh pork being a relatively generic product sold solely through private labels. There is however some evidence of increasing choice and innovation. Although there is no quantitative data available concerning the evolution in the assortment of pork meat in German retail outlets, interviews with individual retailers identified instances of increasing choice. In addition, entry of discounters onto the fresh meat market has widened the aggregate choice by providing an additional selection of lower-priced products.

Discounters have also contributed to packaging innovations by acting as a driving force for the popularisation of packaged pork. Growing market share of packaged pork has also indirectly influenced the level of choice among non-discounter retailers, as they continued to use meat counters within their retail outlets to attract customers and thus compete with discounters. The counter therefore represented an additional offer on top of packaged meat also sold by the retailers. This in turn means that supermarkets and hypermarkets offer, on the whole, a higher level of consumer choice largely as a result of the market power of discounters.

Finally, recent years have also seen some innovation in the “convenience” meat segment, with pre-prepared or pre-cut pork products being introduced onto the market. Such products are however still generally viewed as niche products in Germany.

The key factor behind the traditionally limited choice and innovation in the German pork market, as well as the recent trends, appears to be consumer price-sensitivity. German consumers of pork meat are driven predominantly by price of the products, rather than by other qualities. This has traditionally provided little incentive for supply chain actors to increase consumer choice and engage in product innovation within the fresh pork market, instead focusing on measures to improve price competitiveness of their products.

However, with the relatively recent entry of discounters onto the fresh meat market, retailers appear to increasingly seek other ways of competing than by price. The diversification of offers among discounters, the retention of counters alongside packaged meat, and the introduction of “convenience” meat products are all strategies adopted by retailers to gain or maintain market shares where price competition is no longer possible.

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Interviews

TYPE OF STRUCTURE	STRUCTURE	STATUS
National experts	sector Universität Göttingen Fakultät für Agrarwissenschaften/ Agrifood Consulting	Done 14/10
Industry associations	VDF - Verband der Fleischwirtschaft e.V.	Raised questions at « German Meat Congress » in Nov 2013
Producers and producers organisations	Producer organisation 1	Done 18/10
	Producer 1	Done 5/11
Retail	Retailer 1	Done 31/10
	Retailer 2	Done 19/11

4. Tomato in Belgium

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4.1. Adopted methodology and scope

The objective of this case study report is to highlight the main characteristics of the fresh tomato sector in Belgium which could impact choice and innovation. It is not however to undertake a common sector study, which would involve collecting comprehensive data across a number of characteristics.

This initial presentation of the supply chain is followed by a more specific and detailed focus on each factor impacting choice and innovation, in order to provide elements to complement the quantitative components of the retail study.

The scope of the study concerns only fresh tomatoes that are consumed directly, and excludes all processed tomatoes (e.g. tomato paste, canned tomatoes).

Data presented below are based on literature review, a number of interviews with experts and stakeholders, as well as site visits. The comprehensive list of sources is presented at the end of this section.

4.2. General characteristics of the market

4.2.1. Product's profile

There is much debate as to whether the tomato is a fruit, which is a botanist's viewpoint, or a vegetable, which is the commercial reality. Since the tomato is treated as a vegetable in agricultural statistics, it will be considered as such in the present case study.

The tomato is one of the most popular vegetables in the world, and in Belgium in particular. According to production and trade statistics, each Belgian consumes about 10 kg of tomatoes every year, which is consistent with the Centre de Recherche et d'Information des Organisations de Consommateurs (CRIOC) estimate of 10.4 kg¹⁰⁷. However, this figure is likely to be overstated, as it does not take transit trade into account. The Vlams Centrum voor Agro- & Visserijmarketing (VLAM) and the Verbond van Belgische Tuinbouwers (VBT) quote consumption of 6.1 kg in 2012, a figure probably much closer to actual market conditions, which will be used for the purpose of this study. Regardless of the exact figure, Belgian consumption of fresh tomatoes is substantially lower than the average 13.5 kg consumed by the EU27 consumer in 2009 according to DG AGRI calculations.

Agricultural statistics suggest furthermore that Belgian consumption has remained basically stable over the last 10 years¹⁰⁸, whereas commercial channels such as VLAM point rather to a decrease, which appears to be reflected in segmentation shifts. Evidence of this phenomenon is presented under the section on "*trends in consumer choice*".

Tomatoes are available throughout the year in a variety of sales outlets: retail, open markets and proximity groceries. Most tomatoes sold during the high season are produced in Belgium, although a significant proportion originates from the Netherlands. They are imported during the winter season, mostly from Spain, Morocco or even the Netherlands.

The fresh tomato is considered a very flexible food product, as it is suited for direct consumption as well as cooking under a variety of culinary preparations. These preparations cover three main categories: salads, cooking and cocktail - a fresh tomato can be stuffed, boiled, oven cooked, used in sauces, etc. From a dietary perspective, the tomato is considered an important source of carotenoïd (a precursor of vitamin A) as well as of lycopene (an antioxidant and the origin of the red colour). Consisting primarily (90%) of water, tomato flavour is produced by sugars and the

¹⁰⁷ <http://www.crioc.be/FR/doc/dcdc/all/document-4814.html>

¹⁰⁸ EC DG AGR – *Document de travail – AGR-C2/TOM26/04.10.2012*

maturing process. Sugar content is measured by the BRIX index, a refractometry based measurement. There is a linear correlation between the BRIX and taste indexes. The main tomato types available on the market are: round, ribbed, oblong and cherry. The first three come in bulk or packaged. Round tomatoes can be found loose or bundled. A range of “*specialty*” products is also available. The entire product range and the related market segmentation will be further described under the “*consumer choice*” section of this report.

In local groceries, open markets and bio shops, tomatoes are usually sold in bulk, with little information provided on the containers. In retail outlets, most products are packaged and include legally binding information such as barcode, commercial category or origin. Other information relates to the nature of the product, branding or quality.

The nature of the product is denoted by commercial categories such as “*Baron*”, “*Prince*” or “*Princess*”. Such categories refer to size and culinary usage (salad, cooking, cocktail). They have no bearing on any specific variety and can consist of a blend of these. Variety is thus seldom mentioned on packaging labels. Most major retailers package tomatoes under their private label, also mentioning the product’s origin, usually in small print. In the case of local production, this usually means a “*FLANDRIA*” label and occasionally the more anonymous “*Cooperatives belges*” (Belgian Cooperatives).

Commercially available tomatoes are legally classified according to categories set out in the EC Implementing Regulation (EC) No 543/2011- Annex 1, laying down detailed rules for the application of Council Regulation (EC) No 1234/2007 namely by size, shape and quality. According to the EC Regulation, commercial tomatoes may be classified into four types: round, ribbed, oblong and cherry. EC Regulation categories are used to determine bulk prices on the gross market. They are of little value to the consumer, although they must appear on the packaging. More detail on this classification will be provided in Section 3. Bio tomatoes (organic) represent only a limited market segment, both in modern retail outlets and specialised bio-shops. Only large bio tomatoes are available.

4.2.2. VBT-LAVA and the FLANDRIA label

At this point, it is important to introduce the FLANDRIA label, being developed by the Logistieke en Administratieve Veilingassociatie (LAVA), the marketing and promotion branch of the VBT, the main Belgian Union of Producers Organisations (UPO) in the fruit & vegetable sector (see further section).

This label can be used by all local producers that follow Lava specifications and commercialise their products via the VBT system. It can therefore be used both as a brand name and as a quality label. VBT-LAVA, a Union of Producers Organisations under the CAP Fruit & Vegetable regime, is described in more detail in the section outlining the supply chain.

4.2.3. Consumer trends and satisfaction

The extent to which commercial tomatoes meet consumer satisfaction is best illustrated by a country-wide survey undertaken in 2008 by TEST-ACHATS (an influential consumer protection organisation), covering commercialised products from all origins (i.e. FLANDRIA among others), suggesting that:

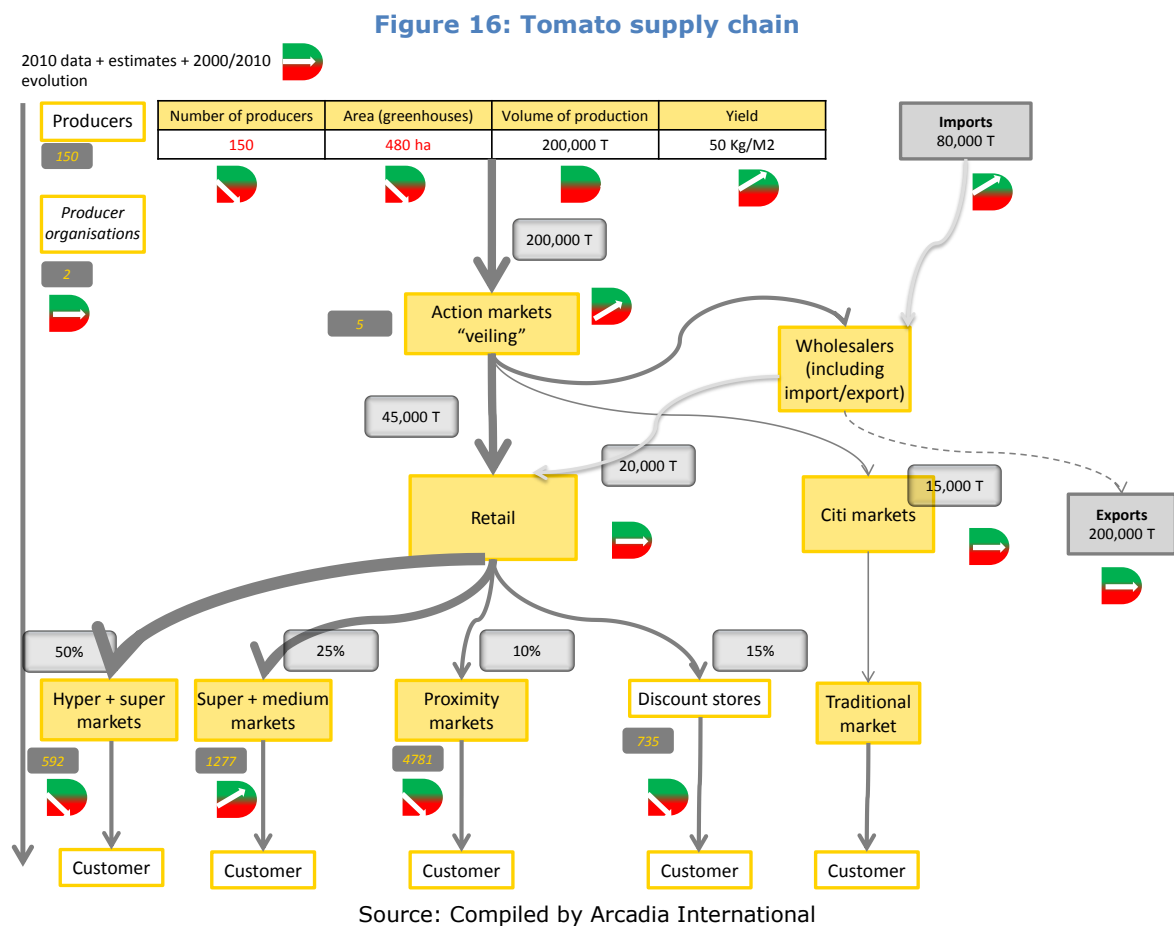
- Pesticide residues are not a subject of concern.
- Price fluctuations reflect seasonal variations in local production and import.
- In any given quality category, bundled tomatoes are slightly more expensive than loose ones.
- On an overall satisfaction scale of 1 to 10, open markets and hypermarkets score higher (respectively 7.25 and 7) whereas hard discounters and grocery

stores score lowest (with respectively 5.84 and 5.75). Whilst hypermarkets offer a wide range, a likely explanation for the high satisfaction with open markets is that their tomatoes are probably harvested at a later stage and therefore are more mature and tastier.

This leads us to a last albeit not minor point: tomato taste or flavour. It is widely acknowledged that commercial tomatoes, especially large ones, are uniformly flavourless, whether they are conventional or bio. Yet, they are produced and commercialised in large quantities. Consumer purchasing power and nutritional expectations increasingly make their presence felt in the market. The new consumers appear to be increasingly interested in flavour and nutritional properties of tomatoes and in how they have been grown with respect to the environment. A great deal of attention is being paid to organoleptic qualities, flavour, size and shape, as well as to organoleptic elements such as lycopene or vitamin. Consumer taste is setting the trend.

4.3. The supply chain and sector dynamics

4.3.1. The overall supply chain



The above graph provides an overall picture of the tomato sector in Belgium. The main operators in the supply chain are:

- **Seed companies** that develop new varieties and sell seed to plant growers that then sell small plants to tomato producers;

- **Tomato farmers**, the large majority of them belonging to a Producer Organisation (PO);
- **LAVA and the VBT**, the aforementioned union of producer organisations, which acts as an umbrella organisation of the market system operated by the POs. This system is described under the “*commercialisation*” section. In the following sections, we will refer to LAVA-VBT as VBT;
- **Wholesalers**, including importers-exporters;
- **Retailers**, including purchasing centres, distribution centres, logistic third parties and a hierarchy or points of sales (POS) including hyper- and supermarkets (such as Carrefour’s “Planet” and “Market”), proximity markets (such as Delhaize’s “Proxy”) and hard discounters (such as Lidl and Aldi);
- **City markets**, supplying grocery stores. For example, the “Early morning market of Brussels”, located alongside the canal; and
- **Grocery stores**, which come in a variety of formats: single or chain (such as Rhino), conventional or bio.

A few remarks may be helpful to acquire a sound understanding of this complex picture:

- The above figure and the list of actors provide only a broad picture of the sector. A closer examination reveals a number of specific operating patterns relating to packaging, reliance on third party service providers, etc.;
- While the above diagram reflects the sector’s structure in Belgium, one cannot ignore the situation in the Netherlands, the neighbouring country. To the Belgian tomato sector, the Netherlands agri-business acts both as a pioneering model and as a competitor. It is indeed very present on the Belgian scene. The specific characteristics of Belgium and Netherlands as compared with other tomato producing countries will be described under the section on production;
- Not only private operators (producers, retailers) but also the institutional and regulatory frameworks are playing an active role in the sector’s dynamics, leading to the need to take a closer view at the stages in the supply chain and at the main actors of the tomato complex.

4.3.2. Mapping the cluster

4.3.2.1. Production

Volume and evolution

Belgium produces about **220,000 tons** of fresh tomatoes annually, excluding industrial tomatoes. As shown below, on the whole this figure has remained stable over the last 10 years, despite some fluctuations and a minor but distinct declining trend following the peak production period in 2003-2004. It is worth mentioning here that 2004 was a notable year with overproduction resulting in lower prices.

A large majority (>85%) of this production is exported. The rest is sold on the local market.

Imports are also significant. This can be explained as follows:

- A limited number of foreign Producer Organisations, particularly Dutch ones, are members of VBT. They therefore market their products via the VBT market system. According to VBT, their presence in the tomato sector is limited;
- Local production is very low during the winter season, since only a few selected farmers succeed in generating some output. As the consumer is used to finding tomatoes in shops throughout the year, these are imported, mostly from Spain or Morocco. It should be noted that continuous tomato growing over the year is technically possible in greenhouses under 24-hour lighting. However, this is energy intensive and hence costly. It is also perceived as unsustainable,

particularly by retailers that want to develop a responsible image. Therefore, it is used to a limited extent, at least in Belgium. R&D is ongoing in the Netherlands to develop low energy lighting, but commercially exploitable results are only starting to become available;

- Substantial transit trading is carried out via importer-exporter wholesalers. No hard data is available on this activity, which can only be estimated.

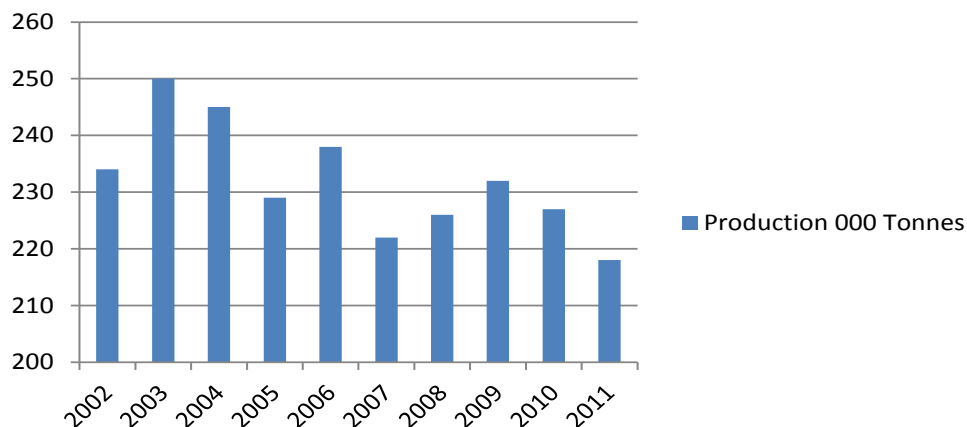
Figure 17: Production of fresh tomatoes in Belgium (000 Tons)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Prod	234	250	245	229	238	222	226	232	227	218
Exp	178	204	200	200	197	201	186	200	192	196
Imp	58	66	63	62	58	69	81	77	73	77
Cons	114	112	108	91	99	90	121	109	108	99

Source: EC DG AGRI; COMEXT: Dataset EU27 since 1999 CN

The above table describes the evolution of production, imports and exports over the last decade, with consumption calculations based on the production and trade figures. Some discrepancy may arise between DG AGRI figures and VBT-LAVA. In this case, the latter figures are favoured, with a view to ensure consistency with market segmentation estimates provided by this organisation. Trends from the above table are illustrated in the figures below.

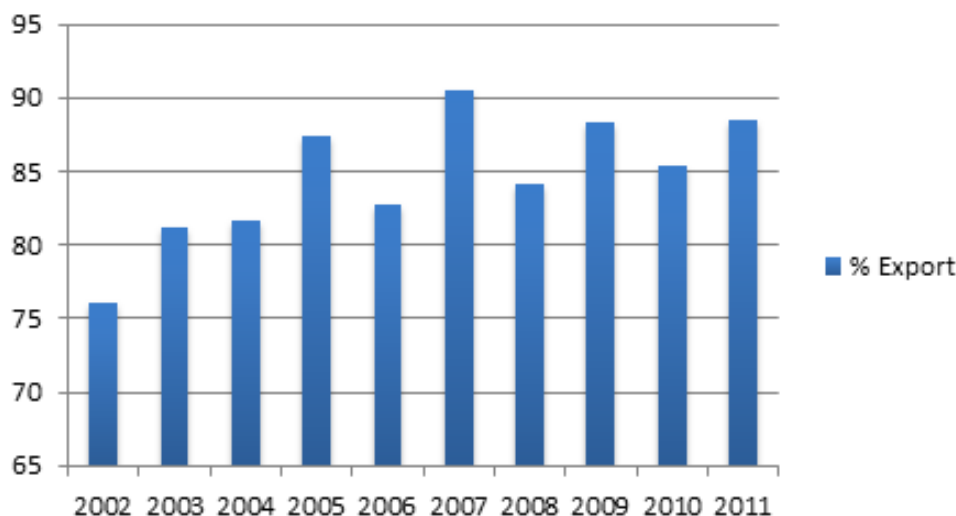
Figure 18: Evolution in production in Belgium in tomatoes (000 Tons)



Sources: DG AGRI¹⁰⁹, COMEXT: Dataset EU27 since 1999 CN

¹⁰⁹ DG AGRI-C2 – Document de travail prévision tomates 4/10/12

Figure 19: Evolution of share (in %) dedicated to export



Source: Estimation by Arcadia International based on DG AGRI statistics

These figures illustrate a declining trend in Belgian production and a growing export share.

The tomato cultivated area has decreased by 20% since 2006. This has been, to some extent, compensated by a productivity increase from 39 to 45 kg/m² (about 15%) between 2007 and 2011¹¹⁰. It should be observed that yields estimated from DG AGRI statistics are significantly lower than those indicated by VBT and producers, ranging from 60 to 70 Kg/m². One even speaks about higher yield under experimental conditions.

Tomato growing in Belgium is exclusively carried out in greenhouses, under soil-less conditions and hydroponic feeding. Plants are generated from hybrid F1 seeds. The main production cost items are: labour (30-45%), energy (25-30%), inputs and depreciation.

Both Belgium and the Netherlands enjoy the highest productivity rate in the EU. According to DG AGRI 2011 statistics, Belgium and the Netherlands reached an average yield of respectively 47.3 and 48.3 kg/m², compared with 5.0 kg/m² for Italy, 7.6 kg/m² for Spain and 14.6 kg/m² for France. This differential is due to greenhouse and soil-less hydroponic techniques, compared with ground based open-air cultivation. France enjoys a higher average rate than Italy and Spain because of its partial use of glass greenhouse cultivation, particularly in Brittany.

¹¹⁰ Source : DG AGRI

Figure 20: Surface dedicated to tomato growing in Belgium (Ha)

2006	2007	2008	2009	2010	2011	Average
600	500	500	500	481	474	509

Source: EC DG AGRI

Tomato growing is a seasonal activity and production strongly fluctuates throughout the year. The local purchasing price reflects this fluctuation, as shown in the table below.

Figure 21: Fluctuation of production and price (2012)

Month	Output (000 Tons)	Price (€/kg)
January	412	2.33
February	317	2.70
March	2,541	1.96
April	8,113	1.18
May	15,968	0.95
June	16,988	0.59
July	17,924	0.61
August	20,805	0.41
September	12,769	0.68
October	11,772	0.74
November	7,858	0.68
December	2,784	1.16

Source: VBT and Roeselare Veiling

As mentioned previously, tomatoes are available throughout the year. Accustomed to this situation, Belgian consumers do not drastically modify their purchasing patterns. Tomatoes not available from local producers are imported by wholesalers (importer-exporters) from sunny countries, mainly Morocco and/or Spain.

Operators and their concentration

VBT, the union of fruit and vegetable producers' organisations, estimates that there are about 150 producers, nearly all of them in Flanders and all of them dedicated to tomato growing. Since there is about 500 Ha of tomato cultivation in Belgium, a stable figure over the last 10 years, an average individual tomato farmer cultivates between 2 and 5 Ha nowadays. Averages however often mask the reality since a lot of the farms have been consolidated, with one producer currently running a 20 Ha tomato farm and a few of them cultivating 10 Ha. Examples of such large farms are Paul STOFFELS' and Marc PITTOORS'.

No data is available on the evolution in the number of tomato farmers over the last decade. However, consolidated agricultural data indicates a decrease in the number of farmers in Belgium, all crops included, over the long run. From 41,047 farmers in 2000, only 34,519 were still active in 2005.

Tomato farming did not escape this trend. Some consolidation factors are:

- The investment necessary to build up-to-date greenhouses;
- The competition from Dutch and, increasingly, from other EU Member States (e.g. Spain, Poland) and third country producers (e.g. Morocco);
- A tendency for overproduction over recent years, exerting a downward pressure on prices and making small farms unprofitable. In 2012, 12 farmers announced to VBT that they would no longer grow tomatoes to move to more profitable crops.

The main consolidation factor, however, is the VBT organisation itself. Individual tomato farmers are bound to a marketing cooperative ("*veiling*") and therefore are not independent in terms of selling their products. The market cooperatives, which are Producer Organisations (POs) sell the tomatoes on behalf of their member farmers.

Each of these POs thus acts collectively as one producer and in practice there is no differentiation between farmers from their clients' perspective. As mentioned above, all POs are united under the umbrella of VBT-LAVA, a Union of Producers Organisations. Three POs are involved in fresh tomato selling: BEL ORTA (in Sint-Katelijne-Waver), Veiling HOOGSTRATEN (in Hoogstraten, near the Dutch border) and REO (in Roeselare). As a result, tomato production is highly concentrated, with only three actual current players on the market. The table below describes their profile.

Figure 22: Focus on top 3 POs players in 2012

Name of player	Production area (estimated Ha)	Market share (value)	Comment on positioning
Bel Orta	265	59%	High throughput, commodity
Veiling Hoogstraten	130	29%	Specialty (also specialised in strawberries)
REO Veiling	55	12%	Diversity (also specialised in leek trading)

Source: VBT-LAVA

The current VBT-LAVA structure is the outcome of a continuous and on-going consolidation process, consisting of mergers and cooperation agreements¹¹¹:

- Roeselare-REO, founded in 1942 gathered some 3,000 farmers together producing some 60 types of vegetables in the Roulers area;
- Mechelse Tuinbouw Veiling (MTV) was founded in 1950;
- Centrale voor Glasgroeten (CVG) was founded in 1963;
- Frugro was founded in 1983;
- Venootschap Mechelse Veiling (VMV), simplified in 2003 as Mechelse Veiling (MV) was a result of a 1994, merger of Mechelse Tuinbouwveiling (MTV) and Centrale voor Glasgroenten (CVG);
- LAVA was founded in 1999 by RAVA (Greenpartners), REO, MV, Limburgse Tuinbouwveilingen, Hoogstraten, Zundert CLTV and Profruco;
- Coöbra was a result of a 2011 merger of Rava and Greenpartners;
- Bel Orta resulted was a result of a 2013 merger of Mechelse Veiling and Coöbra;
- Coöbra and Veiling Orloon merged early in 2014;

¹¹¹ Web sites and Annual reports of REO, eOrta and Hoogarten

- Hoogstraten, founded in 1933, was historically the first commercialisation cooperative. In 2006, together with Veiling Profruco and CLTV Zundert, Hoogstraten established In-Co, an Inter-Cooperative (i.e. not a merger!), primarily dedicated to the strawberry sector.

Key drivers in this continuous consolidation dynamics were:

- in the 1930s and 1940s, when the auctions were created: the need to provide farmers with commercialisation channels for their products. Advice by Boerenbond, the main farmers' organisation, was very instrumental at this stage;
- in the 1960s, a change occurred in the methods of commercialisation, with the introduction of bulk selling ("blokverkoop"), requiring larger infrastructure and investment;
- in the late 1970s, technology allowed all existing auctions to be electronically networked, actually operating as a single auction in spite of their premises being geographically separated;
- in the 1980s, matching the growing retail concentration with counterbalancing negotiation power was seen as a priority;
- in the 1990s, CAP reform and the new Vegetable and Fruit regime provided a framework for institutional consolidation as PO and UOP;
- in the late 1990s, VBT-LAVA aimed at consolidated harmonisation of commercialization, quality control and research;
- lately, mergers and cooperation agreements are primarily a response to the internationalisation of retail and the concentration of import-export companies.

It must be pointed out that only REO, Bel Orta and Hoogarten are active in the tomato sector.

All professional tomato farmers in Belgium are members of one of the three above-mentioned market cooperatives, themselves united under the VBT umbrella. These market cooperatives are recognised by the European Commission as Producer Organisations (POs). Regulations (EC) No 543/2011 and Regulation (EC) No 1234/2007 of the Fruit & Vegetable CAP Regime imply that these producers are obliged to sell all of their production via the PO of which they are a member. There is therefore no direct sale to the retail or the commerce and their products are therefore commercialised via the VBT market system, possibly under the FLANDRIA label. Most farmers focus on "*commodity*" products, diversifying only a limited part of their production. Some farmers cultivate exclusively "*special*" products. Selected tomato farmers have their own packaging line on site, while others rely on the "*veiling*" or the retailer's packaging facilities. VBT is aware of no independent, i.e. non-affiliated, tomato farmers in Belgium.

A limited number of foreign vegetable producers are affiliated to one of the VBT-LAVA POs and therefore sell their products in Belgium via the "*veiling*" system. However, according to VBT, this is not the case for the tomato.

There are also a very small number of independent producers¹¹², who produce and sell outside the VBT system. They are mostly bio farmers who commercialise their products through specialised channels and short selling chains. Because of their very limited supply, they do not sell to the retail sector and their production is negligible in statistical terms.

¹¹² No data is on this number is available.

4.3.2.2. Commercialisation

As with other fruit and vegetables, commercialization takes place in two main steps:

- from the producer to the retailer or other buyer; and
- from the buyer (retailer or other) to the consumer.

From the producer to the buyer

As mentioned, practically all Belgian producers are members of one VBT affiliated PO. As such, **they are obliged to sell their products via their PO**. Two selling channels are made available to them by the PO:

- auction (a clock market), whereby the PO operates as a broker, constituting about 70% of VBT affiliates' sales; and
- contract selling, whereby the PO assists the producer in negotiating with the buyer, constituting about 30% of VBT sales.

VBT is thus a consolidated market interface system, whose missions are:

- contract selling;
- quality control, according to a number of specifications such as Flandria, GlobalGAP, Iso, etc;
- promotion of the Flandria brand;
- R&D, for example relating to environmental management or energy saving; and
- project management.

The auction system of VBT was consolidated in the late 1990s.

The Netherlands had taken a leading position by developing a centralized market organisation. However, VBT believed that the Dutch system weakened the link between producer and market. Therefore, a decentralised system of local but interconnected markets was preferred, with a view to preserving the regional spirit of production and keeping logistics short.

Immediately after being picked, fresh tomatoes are dispatched to the nearest auction. Upon arrival, tomatoes are sorted (calibre, category), quality controlled, given an appropriate FLANDRIA label, possibly packaged (depending on buyer's arrangement) and stored until they are sold. All clearing houses are electronically operated and interconnected, providing a link to the global market. Each lot is auctioned under a clock-driven price decreasing mechanism.

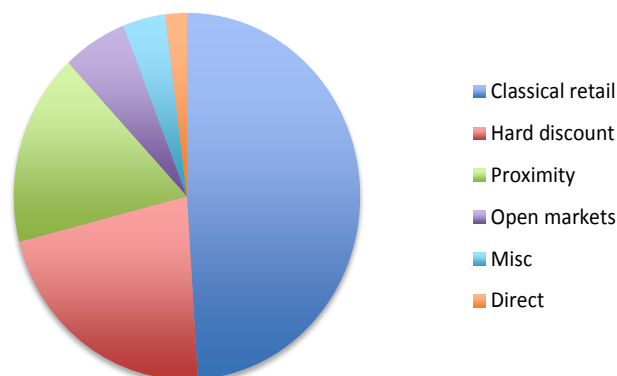
As mentioned above, about 30% of incoming tomatoes are sold through contracts. The majority (70%) is sold through spot transactions under the auction system. As seen in the data tables above, the majority of local production is exported via VBT, which sells to exporters, but does not import. On the basis of VBT and statistical figures, it is estimated that Belgian consumption represents about 70,000 tons a year, of which about two thirds (50,000 tons) are VBT market share and one third (20,000 tons) is imported. These VBT sales on the local market are distributed as follows:

- classical retail: 49%;
- hard discount: 22%;
- proximity shops & "superettes": 17%;
- open & farmland markets: 6%; and

- others: 4%¹¹³.

This is illustrated in the graph below.

Figure 23: Structure of VBT sales in 2012



Source: VBT-LAVA

Tomatoes can be packaged at various stages in the supply chain, depending on the buyer's arrangement. No quantitative data were found on these proportions and their evolution.

Key success factors for the VBT system are:

- the capacity to meet the needs of large clients, such as modern retailers, by collecting, processing and delivering large quantities. VBT is a large throughput commodity system;
- seamless logistics, achieved through sound localisation, organisation and computerised management;
- regularity and uniformity in quality and delivery, achieved through quality control and certified compliance with international standards such as GLOBALGAP, GMP, ISO 22000, ISO9001; and
- support of the FLANDRIA brand name and quality label.

Also, as mentioned above, producers from other EU and from third-countries, especially Spain and Morocco, supply tomatoes outside the VBT channel during the winter season, via importer-exporter wholesalers. These are grouped under Fresh Trade Belgium, their professional association.

From the buyer to the consumer

Retail is the main operator on the demand side. Retailers' fruit & vegetable purchasers are usually located at auction premises.

Together, **four leading retail groups make up 83.2% of the retail market:** COLRUYT (27.1%), DELHAIZE (22.8%), CARREFOUR (22.2%), and ALDI (11.1%)¹¹⁴. Depending on their strategy and positioning, they run a network of hypermarkets, supermarkets and independent affiliated convenience or proximity stores. They are organised in purchasing centres, acting on behalf of their own network and affiliates. The table below shows the coverage of the main purchasing centres¹¹⁵.

¹¹³ VBT interviews

¹¹⁴ The Benelux Food Retail Market – UDSA – GAIN Report BE2007 – June 2012

¹¹⁵ USDA – loc.cit.

Figure 24: The scope of big retail purchasing centres

Purchase group	Store coverage	Market share (%)
Carrefour	Carrefour Hyper/Planet, Carrefour Express, ROB	22.2
Delhaize Group	Delhaize Belgium, AD Delhaize, Delhaize City, Proxy Delhaize, Delhaize Supermarket, Delhaize Shop & Go	22.8
Colruyt	Colruyt, Bio-Planet, Dreamland, Spar/Eurospar, Okay	27.1

Source: USDA – GAIN Report (2012)

Various logistic schemes are currently in place. COLRUYT has tomato packed by the “veiling” and has them immediately forwarded to the Distribution Center (DC), from where they are dispatched to stores. DELHAIZE has products moved to DST, a third party logistic provider in charge of packaging, storing and dispatching to the DC. CARREFOUR even subcontracts sourcing to two organisations – SOCOMO, a Spanish based entity of the Carrefour Group, which purchases fruit and vegetables in Spain for the Group, and UNIVEG GROUP, an integrated supply chain management group specialising in fruits & vegetables.¹¹⁶

The DC sorts incoming flows into sub-lots which are immediately dispatched to sales outlets. A fresh food DC is therefore only a transit and re-assorting point, not a storage site. In the case of COLRUYT, composition of these sub-lots is usually determined algorithmically from sales statistics. So, in-house supermarket managers do not determine themselves the nature of the re-supplying lot they will receive. On the other hand, independent affiliates can usually freely make their own re-ordering choices and decisions, provided these are made within the catalogue of the mother company. In the case of DELHAIZE, the supermarket manager can decide on the quantity, but not the product range: The manager has to order the entire range selected by the purchasing department.

Bio producers, a small minority, tend to be sold directly to the retailers or to specialized chains of bio-stores. Some PO farmers, however, produce according to Bio specifications and their output is sold through the VBT system. Overall the bio tomato is a niche product, its market share being less than 5% in volume.

4.3.2.3. Agronomy inputs

Seed companies breed new cultivars/varieties and produce seed that is sold to plant growers that produce small plants in nurseries before delivering to tomato producers. The main seed houses active on the Belgian market are: DE RUITER (Monsanto), S&G, WESTERN SEEDS, ENZA, RIJK ZWAAN, SEMINIS, NUNHEMS (Bayer) and GAUTIER¹¹⁷. No data are available on their respective market shares in Belgium.

Before the 1990s, the seed sector was fragmented. Since then it has experienced a dramatic consolidation, largely due to acquisitions from international agrochemical companies that develop and offer to farmers input packages including seed and agrochemicals. The major players on the global market for vegetable seed are: MONSANTO (USA), SYNGENTA (Switzerland), BAYER Cropscience (Germany), LIMAGRAIN (France), TAKIL & Co. Ltd (Japan), SAKATA Seed Corp. (Japan) and RIJK ZWAAN (The Netherlands). In 2007, the top 10 seed companies held 67% of the global proprietary seed market. The table below is based on data available on the global market.

¹¹⁶ Interview with Carrefour’s category manager

¹¹⁷ Source : VBT Interview

Figure 25: Focus on top 5 seed companies on the global market (2007)

Name of player	Seed sales (m €)	Market share (%)	Operating brand in BE and NL	Comments
Monsanto	3,970	23	De Ruyter	Agrochemicals
Du Pont	2,640	15		Agrochemicals; No tomatoes
Syngenta	1,614	9		Agrochemicals
Limagrain	1,000	6		Integrated agribusiness
Bayer	420	2	Nunhems	Agrochemicals

Source: ETC Group

All tomato seeds are F1 hybrids, that is to say that they benefit from the hybrid vigour but the phenotypes of their offspring are unstable.

4.3.2.4. Institutional and regulatory framework

It is worthwhile mentioning briefly a number of key aspects of the tomato sector institutional and regulatory environment, including:

- The Common Agriculture Policy (CAP), whose main stated objectives¹¹⁸ are 1) to improve crop productivity; 2) to provide consumers with a stable supply of affordable food; 3) to ensure that farmers have a reasonable living. Within this framework, the Fruit & Vegetable Regime aims more specifically, among other goals, at a more competitive and market-oriented sector¹¹⁹. To achieve this goal, a key provision of the regime is the support of POs, of which the VBT is an example.
- The Flemish Government land planning policy, aiming at optimising resources such as space, energy and water, as well activities such as transportation or recycling. Within this framework, some thought has been devoted to the location and sizing of new and larger greenhouses. Farmers however point out that such planning will not be easy to implement as it will create conflict between existing agriculture activities.
- VLAM (Vlaams Centrum voor Agro- en Visserijmarketing vzw.) is a Flemish Government supported centre for the marketing of agro-products, especially on the export markets.

4.3.2.5. The Netherlands contrasted

It is also worth highlighting some specific features of the Dutch tomato sector. Indeed, Belgium and the Netherlands are similar in many ways and they are competing on the international marketplace. Producing over four times as many tomatoes as Belgium, the Netherlands is widely perceived as a leading tomato producing country and a trend-setter. Therefore, developments in the Netherlands are influencing innovation and technological development in Belgium. Main differentiating features are:

- Scale: whereas the largest Belgian greenhouse has 20 Ha, a number of Dutch greenhouses have 50 Ha or more. A complex of over 400 Ha is supposed to be planned in North Holland.

¹¹⁸ The CAP – A partnership between Europe and the farmers, EC DG AGRI (2012)

¹¹⁹ <http://ec.europa.eu/agriculture/fruit-and-vegetables/>

- Market orientation: Dutch production is very strongly export oriented. Producing 815,000 tons in 2011, the Netherlands exported over 1 million tons (including transit).
- Market organisation: in contrast with Belgium's VBT, the trend for Dutch producers is to withdraw from PO based market organisations (two of them still exist) and to approach the market either on their own (if they are large enough) or under commercial associations of individual producers ("*Telers vereniging*"). These associations develop their own commercial profile, including branding.
- Technological advances both in production methods and in product development benefit from partnerships with the industry and the academic world. PHILIPS participates in the development of LED based winter lighting and Wageningen University (WUR) actively seeks to exploit recently acquired understanding of the tomato genome. Agrochemical multinationals based in the Netherlands conduct intense R&D and variety development in cooperation with local farmers.

4.3.2.6. International competition

Both Belgian and Dutch tomato growers are primarily export oriented. Both face growing international competition from low labour cost or sun rich countries such as Poland, Morocco, Israel or Turkey:

- In 2011, the EU imported 351,000 tons from Morocco, compared to 177,000 in 2002.
- In 2008, Poland exported 81,000 tons of tomatoes to the other EU Member States, compared to 16,000 tons in 2002.

4.4. Definition of choice and innovation as related to the fresh tomato sector

4.4.1. Criteria of choice

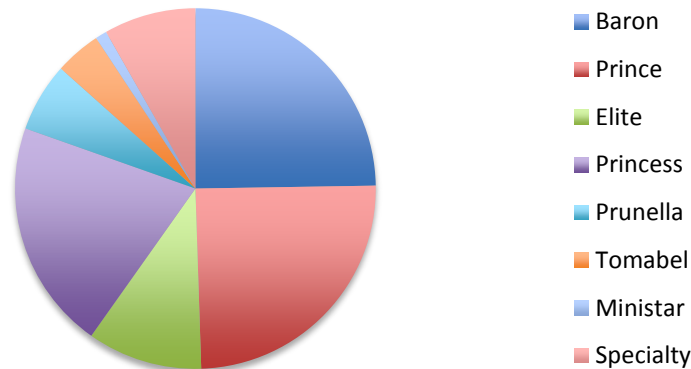
Consumer choice can be defined as the available range of products in either:

- Legal categories as defined by EC under the Fruit & Vegetable regime set out in Implementing Regulation (EU) No 543/2011, namely:
 - commercial types: round, ribbed, oblong or elongated, cherry;
 - quality classes: Extra, Class I, Class II;
 - sizing: 10 classes.
- Broad commercial categories or references defined by LAVA: loose, cluster and specialty. These gross categories are further divided into: Baron (fleshy), Prince (long lasting), Princess (large cluster), Elite (fine cluster), Pittoresk, Prunella (plum), Royal, Ministar (cocktail tomatoes on the cluster), Tomabel (special presentation) and Specialty (a bundling of 19 types). Each of these categories may consist of several botanical varieties. For instance, the specialty segment includes 19 sub-segments which can themselves be produced from 27 botanical varieties. In total, some 54 varieties are grown in Belgium¹²⁰. It is unclear to what extent consumers distinguish these sub-categories. On the basis of a survey in 2013, the total planted area of 485 Ha was distributed as follows: Baron - 120 Ha, Prince - 120 Ha, Elite - 50 Ha, Princess - 100 Ha;

¹²⁰ Flandria Special 2013, pp. 24-29

Prunella - 30 Ha; Tomabel - 20 Ha; Ministar - 5 Ha; Specialty - 40 Ha¹²¹. This distribution is shown in the graph below.

Figure 26: Segmentation of cultivated acreage in the Roeselaar region



Source: REO 2013 survey

Trends can be observed from partial data available from the REO (Roeselaar) area, covering 120 Ha out of a total of 480 Ha¹²². These suggest that, over the period of 2008 – 2010, the area devoted to respectively:

- cluster Princess grew by 35%;
- cluster Specialty grew by 25%;
- loose Baron grew by 400%;
- loose Prince practically disappeared;
- loose Prunella grew by 38%; and
- loose Specialty grew by 40%.

It is however unclear whether these movements are typical of the whole sector.

- Packaging and presentation:
 - in bulk, by weight or by number of tomatoes;
 - packaging material and shape: cardboard, plastic;
 - homogeneous or assortment.
- Variety: some 30 varieties are proposed by LAVA to producers in the FLANDRIA catalogue. This implies that a Belgian producer must necessarily grow these varieties if he wants to benefit from the FLANDRIA label. Each year, farmers select newly planted varieties, depending on commercial perspectives and of agronomical factors, pest resistance being a chief one. A catalogue constraint does not apply to Dutch tomato farmers who are free to select or experiment from any seed company proposition. As far as taste is of interest to the consumer, variety is a key influencing factor. Given that the European Catalogue of Varieties includes 3,614 entries for tomatoes, it is clear that eligible varieties represent only a very small proportion of the existing varieties on offer.

¹²¹ Source: VBT Interview

¹²² <http://www.in-co.be/incontact:kwaliteit/areaal-2010/>

- Production method, mostly implying bio or non-bio. On top of complying with EU bio agriculture specification, selected retailers develop their own bio standards and labels.
- Besides, some retailers have developed their own segmentation with respect to their own pricing strategy. For instance, a major retailer has defined three labelling categories: "365" (lower priced than the competition), "Boni selection" and "Flandria".

4.4.2. Criteria of innovation

There is a continuous stream of major and minor innovations, pertaining to either operators (farmers, marketing, retail) or consumers. A typical agronomic innovation could for instance, be a new variety with increased yield or pest resistance. However, it might also be an energy saving device, such as LED-driven or computer-assisted efficient 24hour greenhouse lighting. Commercially relevant innovation could have a bearing on long conservation or uniform appearance. Such innovation is usually not perceived by the consumer.

Hence this study focuses on customer-oriented innovation. In this respect, three main types of innovation are of relevance: packaging innovation, marketing innovation and product innovation.

With regard to **packaging**, there is a combination of incremental change, merely aiming at avoiding consumer tiredness, and real innovation. These incremental changes and innovation can relate to:

- the presentation: bulk or packaged;
- the packaging material: plastic (mono or multi-coloured), bio-degradable fibre, cardboard, tomato leaves¹²³;
- the size: 1kg, 6 or 8 tomatoes;
- the shape: rectangle, box, polygonal, 1 or 2 pieces ..;
- the label information: minimal to detailed nutritional content, origin, etc;
- the assortment: homogeneous or multi-coloured, multi-sized; or
- the functionality: convenience, shaker.

Marketing innovation is usually based on a broader appeal to consumers. It can include:

- information campaigns promoting the retailers' or the producers' image as being environment conscious, responsible, "grass-roots", caring for consumers' wellbeing, etc;
- information to promote new uses of the product, such as cooking recipes;
- information on product safety, its traceability; or
- branding: private label, FLANDRIA, foreign origin, etc.

Product innovation is related to **tomato attributes**, such as:

- aspect: size, shape, colour, freshness;
- potential for specific culinary applications: oven, salad, sauce;
- consistency: soft, hard, juicy;
- durability: long conservation;
- organoleptic attributes such as : taste, flavour, odour;
- bio merits: soil based cultivation, natural pest resistance;
- documented sustainability or traceability: low energy;
- nutritional or dietetic value: high lycopene, high vitamin C; or

¹²³ Edwin Keijsers & all., Tomato packaged in their own leaves, WUR Publication (2012)

- identification of the region of origin.

4.5. Trends of choice

It is clear that, over the last decade, consumer choice has increased markedly. It is also clear that the choice in large retail outlets is now much larger than in grocery shops. One question is whether this ongoing trend is here to stay.

More specifically, retailer interviews indicate that:

- In the late 1990s, consumer choice in both retail and grocery consisted of large and fleshy loose tomato, round or oblong, in bulk or packaged (weight or number).
- About ten years ago, long lasting cherry tomatoes appeared on the market and became very popular when used for cocktails.
- Following this, the prune-shaped tomato entered the market (therefore called "prune tomato").
- Over the last five years, two main tomato types appeared on the market: the bundled, or trussed tomato and "speciality" tomatoes. The appeal of the trussed tomato is both visual and olfactory, since the branch exhales tomato smell, contrarily to the fruit itself, which does not have a smell. Speciality, on the other hand, encapsulates a growing class of "non-standard" tomato, generally of cherry size, of various shapes (spherical, oblong) and colours (green, yellow, orange, black). Small specialty tomatoes are generally more flavoured than large ones, principally resulting from their larger surface to volume ratio, allowing a greater flow of light per unit volume and yielding more sugar production in the plant.
- Recently, some micro-tomatoes, the size of redcurrant, appeared on selected retailer shelves.

There has recently also been an increased variety in packaging and presentation. As long as only "standard" tomatoes were available, their packaging remained very basic, consisting of a plastic sheet wrapped around a rigid support. Various types of support were resorted to by retailers, with a main view of reducing cost and without modifying consumer choice.

Changes were triggered by the appearance of tomato varieties. Various shapes and formats of plastic containers are being developed to better present assortments of speciality tomatoes and to suggest new uses. Multi-coloured assortments of medium sized speciality tomatoes for salads are also displayed in cardboard boxes.

Illustration: "Evolution of choice in a proximity store affiliated to a major retail group, in the Brussels Region"

- N° of product (SKU) 5 years ago: 2 main products
 - N° of product (SKU) today: shop manager can make bi-weekly choices among some 15 references
 - Characteristics of the product 5-10 years ago: bulk and packaged round fleshy tomato, loose or trussed
 - Characteristics of the product/assortment today: bulk & packaged; round and oblong; large and cherry; however, no fancy colours or shapes, as would be available in a hypermarket
 - N° of (Group) Supplier & Brands 5 years ago: VBT and a couple of wholesalers; shop to re-order from the Group
 - N° of (Group) Supplier & Brands today: unchanged
 - Impact and role of the Producer Organization on choice: the Group's purchasing central has adapted to consumer trends and to farmers' innovation. Shelf space devoted to tomato has doubled. Tomato is considered as the shop's window for consumer choice in vegetable.
-

In terms of market share, both retailers and producers agree that the current trend on the Belgian market is for the consumption of “*standard*” tomato to decrease and for the “*speciality*” segment still to grow. Production of speciality tomato for the local market is increasing, with between 25 and 30 % of Belgian greenhouse acreage being now dedicated to “*speciality*” variety. Most farmers still devote only part of their capacity to speciality, still concentrating on standard products. However, there is at least one large farm in Belgium producing only speciality tomatoes. Out of 27 FLANDRIA references, 18 are “*specialities*”.

In terms of labelling, the main practices are to present:

- FLANDRIA as the front label, which for example is the main practice of COLRUYT;
- The retailers name on the package, sometimes associated with the FLANDRIA logo, sometimes with another country of origin;
- “Belgian cooperatives”;
- The country of origin.

None of these labelling practices seem to influence the range of products made available to the consumer.

In conclusion, it appears indeed that consumer choice dramatically increased over the last few years. All retailers now dispose of some 30 types of tomato. The breadth of their selection depends of their market positioning and of the size and location of the shop. Overall, retailers consider that this is too large a range. The larger this range, the more various tomato types will compete with each other on the shelves, resulting both in consumer confusion and in increased complexity for the retailer without any gains in margins or turnover. “*Veiling*” managers and wholesalers equally share this view. The crisis, which hits family budgets, has amplified this issue. The main pressure for increased variety range stems from seed house growth strategies. It is thus likely that retailers will encourage producers to self-regulate and to reduce the range of available tomato types.

4.6. Trends of innovation

It is important to consider separately tomato and packaging innovation. Early in the last decade, packaging innovation was relatively standard, merely consisting of trials of new wrapping and support material: cardboard, plastics (PET, polyurethane), recyclable bio-fibres. Such innovation aimed merely at reducing packaging cost, and avoiding monotony for consumers. A pool of standardised blue plastic cases was also put up to enable seamless operations for bulk products throughout the supply chain. Convenience requirements resulted in a shift from bulk towards small pre-packaged quantity, by weight or by number of tomatoes (generally 6 to 8). Retailers attempt to differentiate by presentation, each developing its own variation of support material and wrapping.

With the appearance of a variety of tomatoes, the function of packaging evolved towards enhancing the visual appeal of tomato assortments and suggesting novel culinary uses. Hence a variety of plastic containers shaped like shakers, bowl, etc.

In the Netherlands, large producers who now enter the market on their own and independently from the “*veilingen*”, also attempt to differentiate their offer through the packaging and to create novel visual concepts.

Tomato product innovation is largely related to the fruit’s genetics. While a large choice of traditional varieties is available from gardening shops, commercial tomato genetics is in the hands of seed houses. For example, the catalogue of KOKOPELLI, a specialist in seed for gardening, includes several hundreds of tomato varieties¹²⁴. Over

¹²⁴ <http://www.kokopelli-semences.fr/boutique/tomate>

the last 25 years, the once fragmented seed sector consolidated, resulting in the dominant position of major agrochemical companies such as SYNGENTA (ex Novartis), BAYER or MONSANTO. All these companies have sophisticated research facilities, as well as breeding and multiplying stations. Over the last 50 years, tomato genetics have been extensively manipulated with a primary focus on agronomic traits such as productivity (kg/m²), low energy or labour requirement and pest resistance, as well as a secondary interest on process traits such as shape, size, regularity, low waste and long shelf life. As a result, almost all product innovation was geared towards operators' value, remaining obscure to the consumer who was offered uniformly good looking, but uninteresting and tasteless products.

A milestone was achieved in the 1980s, when Israeli research developed a long lasting variety from a mutation on the *rin* gene. This was much appreciated by the logisticians and the retail, as it implied long shelf life. The drawback was that the tomato is firmer and ripens more slowly. The quest for better quality was triggered by a deep crisis in 1995¹²⁵, due to both overproduction and poor quality. At the time, the Mechelse Veiling initiated requirements for better quality, implying better genetics. Following this, Lava established the catalogue of varieties allowed under the FLANDRIA brand name. Currently the FLANDRIA catalogue includes about 30 tested and documented varieties. Genetic developments in speciality, together with operators' willingness to differentiate changed the game. As a result, intensive cooperation developed between all operators to identify and develop commercially interesting new traits. Producers, retailers and seed houses regularly communicate to define desirable traits and identify market trends. Producers run trial plots on behalf of seed houses or retailers. This trend is even more marked in the Netherlands than in Belgium. As a net result, consumer expectations are being at the same time increasingly taken into account and manipulated. Some recent or forthcoming product innovations include:

- lycopene rich "Prolyco" by MONSANTO;
- cocktail and tasty varieties with convenience packages;
- high culinary value species ("Coeur de Boeuf");
- resistance to "white moisture" disease; and
- increased productivity, even at the cost of lower quality.

Commercial tomato seeds are F1 single hybrids, meaning that they are produced from the hybridisation of 2 different parents. Their progeny are of no value for producers since they would produce unreliable and non-uniform tomatoes. Therefore, new seeds (or rather plants) need to be purchased each year. Interviewed producers observed a shortening of the commercial life cycle of new seed variety from 5 to 6 years to 2 or 3 years.

Academic research is also of potential great significance. As noted above, in the Netherlands Wageningen University (WUR) carries out various tomato-related projects, such as LED-driven lighting and packaging with tomato leaves. Another major breakthrough is the recent sequencing of the tomato genome¹²⁶, potentially enabling targeted qualitative variety improvement.

¹²⁵ Additional genetic R&D was triggered since 2010-2011, when there was another crisis due to *Escherichia coli* entérohémorragique (EHEC ou VTEC)

¹²⁶ For example : L.A. Mueller & all., A snapshot at the emerging tomato genome, *The plant genome* (2009)

Illustration: "Story of a technology innovation: the KUMATO"

- The KUMATO is the trade name given to a variety of tomato developed in Spain by SYNGENTA, called "Olmeca". It is grown by specially selected producers in Spain, France, Belgium, the Netherlands and a handful of other countries. The KUMATO is a standard variety of tomato weighting between 80 and 120 grams. It is green to reddish brown, and sweeter than typical tomatoes, due to higher fructose content.
 - Unlike other tomato varieties, seeds cannot be purchased by the general public. SYNGENTA has stated that they will never make KUMATO seeds available to the general public, as KUMATO tomato is grown under a concept known as club variety, whereby SYNGENTA sells only to licensed growers that go through a rigorous selection process and participation by invitation only.
 - SYNGENTA maintains ownership of the variety through the entire value chain from breeding to marketing. Selected growers must agree to follow specified cultivation protocols and pay fees for licences per acre of greenhouse, cost of seeds and royalties, based on the volume of tomato produced. Typically, SYNGENTA licences only one large vertically integrated greenhouse producer per country that has established relationship with the retail.
 - In Belgium, LAVA succeeded into placing the KUMATO on its speciality catalogue and can be grown by Belgian farmers who meet SYNGENTA specifications.
 - The commercial appeal of the product seems nowadays to be tested, on a small scale, by selected retail groups and makes occasionally its way to the shelves. It is too early to determine whether it will be a commercial success in Belgium.
-

Illustration: "Story of a marketing innovation: Flandria "Specialty Street"

- Following the cherry tomato, the first to depart from the commodity type, a growing number of novel varieties appeared on the market, mostly small ones but in a variety of shapes, colours and, to some extent, taste. VBT farmers as well as retailers were happy to test them on a small scale trial basis. But it became soon apparent that their diversity would make them confusing for the consumer, hence hard to market.
 - This is how LAVA created "Specialty Street", a bundling concept for "special" varieties and a sub-brand of Flandria. This marketing concept encompasses:
 - a range of 19 novelties and specialties for tomatoes, such as: Bellino, Coeur de pigeon, Vitatom, Coeur de Boeuf, Kumato (see above), etc.
 - a logo
 - good looking assortments, mixing colours and shapes, such as "Partymix"
 - attractive packaging.
 - The first special types of tomatoes were added to the FLANDRIA tomato range around 2004. All sorts of types have since registered steady growth. Since dynamic farmers and seed houses continuously introduce new varieties, it is a challenge each time to bring comparable varieties under the same sub-segment. Thanks to good cooperation, the BVT-LAVA auctions have always managed to maintain the specialties in a well arranged structure and under one label. The total acreage of specialty currently covers 40-50 Ha, or some 10% of total FLANDRIA tomato acreage.
 - The response of the retail is positive, being fuelled by significantly higher margins on specialty products. "Specialty Street" is indeed present on the shelves of hyper- and supermarkets of the major retailers.
-

4.7. Drivers

4.7.1. Choice throughout the value chain

4.7.1.1 Main drivers for choice as revealed by the case study

- **Retail purchasing power.** Out of some 100,000 tons of tomatoes consumed in 2012 in Belgium, COLRUYT, DELHAIZE and CARREFOUR together purchased about 55,000 tons. This enables retail to exert price pressure. Also, such large

volume requires effective, continuous and seamless logistics which goes together with standard quality and relatively limited variety.

- Production and market organisation as constructed under the VBT/LAVA system has been the producers' response to the retail concentration and purchasing power. The VBT channels a majority of the local production. Based on mass production, it is a very efficient collection and market organisation system, which aims primarily at ensuring uniform quality over a large throughput at a low production cost. Low production cost implies volume and stable operational conditions. In other words, it is a commodity system implying some control and limitation of choice. This is achieved via the FLANDRIA specifications and label. Varieties selected in the FLANDRIA catalogue privilege agronomic traits such as productivity or pest resistance. Therefore, retailers who want to offer a larger range of products do not source the products from the auction mechanism, but directly from producers under contract purchasing arrangements. These contracts are however drafted under VBT/LAVA legal format for all members of the cooperatives;
- Retail commercial strategy and positioning. Some retail chains differentiate themselves by targeting specific consumer segments, based on income and consumption habits. Hence, the range of tomato references depends on such positioning, as illustrated by the table below.

Figure 27: Typical number of varieties available at retail

RETAILER	CUSTOMER PROFILE	N° VARIETIES ON SHELVES
CARREFOUR	All consumer segments	+ 30 , i.e. all available
DELHAIZE	Urban, mid-upper income	+ 20, of which 15 specialties
COLRUYT	Sustainability-minded, price-sensitive consumers	+ 15, of which 11 small ones
ALDI	Low-mid income	Max 3

Source: VBT + Interviews + Shop visits

- **Size of shop.** The larger the shop, the larger the range of products offered. A typical hypermarket (e.g. Carrefour Planet) displays a larger range of products than a supermarket, itself with a larger range than a proximity shop. An affiliate to a retail chain will put up a larger range than an independent grocery store. Similar observations were already made in 2008 by Test-Aankoop/Test-Achats, a consumer organisation, which assessed consumer choice by visiting 30 selling points (3 open markets, 3 bio shops, 5 hypermarkets, 11 supermarkets, 6 grocery stores, 2 hard discounters) at various points in the year. Their main findings were:
 - The largest choice was available in large hyper- and supermarkets from DELHAIZE, CARREFOUR, COLRUYT and MAKRO.
 - Choice is highest in the summer (high season).
 - On average, supermarkets offer 13 types of tomatoes.
 - Most segments are available throughout the year, with some limitation during the winter season. In 2013, for instance, a major retailer's hypermarkets would display 20 references in the high season and 15 during the low season, whilst its supermarkets would carry 15 and 11 references respectively¹²⁷.

¹²⁷ Retail interview.

- Choice is more limited in open markets and grocery stores.
- Offering consists of some 80% local production during summer (versus 20% imported) and some 12 % during the winter season.
- Little information is provided to consumers regarding origin, class and variety.

Our own site visits to selling points and retail interviews confirmed these observations.

- **Shelf space** management by the retail outlet is likely to reduce the consumer choice in the middle term. Indeed, retailers complain that available varieties are too numerous: they cannibalize each other and the consumer is confused. This claim, though, suggests that producer power has so far been more influential than the retailers in generating the current product range.
- **Farmers' consolidation.** As any entrepreneur, tomato farmers need to balance income maximisation and risk minimisation. Compared to large farmers, which may be open to taking more risks and diversify, small farmers (from 1 to 5 Ha) tend to produce standard tomatoes.
- The CAP Fruit & Vegetable Regime, which aims at creating a more competitive and more market oriented sector, at having fewer crisis-generated fluctuations in producers' income and at increasing consumption gave a major impetus to the setting up of Producers Organisation such as VBT. As we saw above, a PO such as VBT is very effective at regulating the market at the expense of some control on choice diversification. A majority of Belgian producers operate under the VBT system. Dutch producers, on the other hand, who are often larger, become commercially more independent and, hand in hand with local seed houses and specialised banks (e.g. RABOBANK) develop more diversified production lines.
- Changes in **consumer perception and preference.** Increased consumer interest for "speciality" tomatoes is accompanied by a decline in the market share of the "standard" tomato. This reflects consumer preference for savoury tomatoes. Insofar as this trend will last, it will also reflect a demand for new and diversified tastes and hence for new varieties. Consumer panels as well as retailers' interviews suggest that consumer preference remains by and large driven by appearance: large, round, fresh and red. Hence, exotic varieties like "Kumato" (a black tomato) and "Coeur de Boeuf" (ribbed) are perceived as less attractive. In other words, there are indications that a large consumer segment remains rather conservative.

4.7.1.2 Role of Producers Organisations highlighted

As a Union of Producers Organisation, VBT-LAVA is primarily concerned with smoothing out income fluctuations for its members. Their main concern is securing a high throughput at constant and reliable quality and commercial attributes. This is best achieved via optimised cultivation methods and a limited number of varieties. VBT R&D programmes focus on cultivation efficiency and the FLANDRIA catalogue of varieties emphasises productivity and pest resistance. On the other hand, VBT is not the initiator of variety diversity. This is indeed the role of seed houses and farmer choice, itself driven by educated guesses and contracts with the retailer. VBT is a counsellor but not a decision maker, merely taking notice of acreage devoted to various tomato segments. This implies that VBT/LAVA is largely in a position to regulate the maximum range of products made commercially available, but not to the same extent as the relative importance of segments.

LAVA however also seeks to maximise sales revenue, to which high priced high margin variety contribute, at some commercial risk. The above described "Specialty case" illustrates how difficult it can be for VBT to credibly bundle a large number of varieties.

In summary, VBT is not the initiator of consumer choice but seeks to regulate and control diversity with a view to balance seamless market operations and maximised income.

4.7.1.3 Matching with drivers from the econometric study

The following is a qualitative analysis based on our interviews, literature search and site visits.

- **Concentration of retailers** does not seem to have an adverse effect on consumer choice. On the contrary, as large retailers compete for market share, they develop differentiated strategies and market positioning. It seems that these strategies influence the choice offered to consumers: a discounter like ALDI or COLRUYT will offer a narrower product range than a more up-market retailer like CARREFOUR or DELHAIZE. On the other hand, there is no indication that the relative strength of a retailer presence in a specific catchment area influences the product range offered to consumers.
- **Shop type:** definitely influences the product range. Typically, a hypermarket offers a larger product range than a supermarket, itself more diversified than a proximity shop. Independent grocery shops and bio boutiques generally offer a limited range.
- **Shop size:** this variable is generally correlated with the shop type. However, some positive effect is apparent with everything else remaining the same. Indeed, a large affiliated proximity shop, serving a larger catchment area, will display a larger product range than a smaller one. It should be noted that this will depend on the decision of the shop manager, making his selection from the group's catalogue. It should also be noted that large shop managers estimate the current range as being too large, resulting in internal competition and consumer confusion.
- **Socio-demographic profile** has a net influence, since an up-market group like Delhaize (not to speak about ROB, an up-market affiliate of CARREFOUR purchasing group), aiming at the well-off segment of Brussels' international population will offer a broader range than ALDI whose targeted consumers have more limited income. Also, since there is a larger choice in hypermarkets and since these are located close to high density areas, there is generally a larger choice in larger density areas.
- **Supplier concentration** also has an effect on consumer choice. On the one hand, seed houses differentiate by putting on the market a diversified range of varieties, which tend to increase consumer choice. On the other hand, the PO system appears to have a double role. In its marketing capacity, VBT-LAVA seeks to cover the range of existing types of tomatoes. In its operational capacity, the "veiling" system emphasises high and regular throughput at uniform and constant quality, which implies some regulation of the available range.
- **Ratio of retailer to supplier concentration:** as described above, there does not appear to be a significant imbalance of concentration between suppliers and retailers in Belgium. Supply, which is based on contract selling for 30 to 40%, is negotiated centrally between VBT representatives and retailers' purchasing centrals. Retailers currently appear to be quite open to enlarge their offering. They test market acceptance on trial basis. When the need will arise to reduce the product range, this will again be negotiated centrally with VBT.
- **Private label share.** In Belgium, it is not easy to sell tomatoes as branded products. They have long been seen as un-differentiated commodities. There is a tendency for retailers to put their name on the package and to relegate the FLANDRIA logo as a co-branded quality label. This does not seem to influence the available product range in any of the surveyed retail groups.

- **Product category turnover.** There is a certain loss of consumer interest for “commodity” tomatoes, compensated by a growing interest for “specialty” products which are perceived as more tasty and appealing to the eye. These being significantly more expensive, and food expenditure remaining constant, this results in purchase of more tomato types but in smaller quantity. It also results in a slight decrease in consumption, tomato being now replaced by carrot as the most popular vegetable for the Belgian consumer¹²⁸.
- **Region.** Competition from outside, particularly from independent producers associations (“*Vereniging*”) in neighbouring Netherlands may contribute to increase the range of available products. However, this effect, which is in principle possible, is not visible on the shelves. Competition from third countries such as Morocco is on price, not on tomato type.
- **Economic crisis:** the crisis has definitely limited any growth in food expenditure. It also pushed more limited income consumers towards the discounting retailers, hence de facto reducing their choice. However, the crisis did not affect in any way the increase of choice visible on the shelves of up-market shops. However, the crisis limits the trend towards higher priced varieties and puts some pressure towards reducing the current range of specialty.

4.7.1.4 Summary

Observed trends	Key drivers	Initiator	Conditions of success
Growing diversity of shapes & colours	Consumer interest for novelty Retailers’ positioning	Seed houses	Perceived value for money of new propositions
Declining commodity segment	Life cycle dynamics and entry of new products	NA	
Growing segment of specialty, but confusing excess of them	Consumer interest for novelty Seed houses R&D Farmers’ risk taking profile	Seed houses	Perceived value for money of new propositions Retailer effective marketing
Growing consumer interest for taste	Life cycle dynamics	Consumer Retail	Diversity management by retail

4.7.2. Drivers for innovation

4.7.2.1 Main drivers for innovation as revealed by the case study

Main drivers for innovation, as revealed through the survey, appear to be in part similar to choice drivers, namely:

- **Commercial strategies** of retail. Considerations made under the preceding section are equally valid. Not all retailers have the same attitude. Pro-activity towards consumer choice and innovation generally go together. This pro-activity takes the form of active contacts with producers and seed houses, with a view to exchanging information on market trends and technological development as well as to propose, on a contract basis, trial production of novel variety.
- **Breeding** progress by seed houses. Breeding programmes are based upon a combination of producers and retailers requirements. Producers’ requirements for productivity and pest resistance have generally been dominant over the last decades. Moreover, seed houses are owned by large agrochemical companies

¹²⁸ VLAM, loc.cit.

who are often interested in proposing packages of seeds and agrochemical inputs. Since commercial tomato genetics has been manipulated in that way for decades, it is difficult to move back. Therefore, most developments of real interest to the consumer are to be expected in small tomato variety. It is possible that the now available full knowledge of the tomato genome will open new avenues for qualitative, consumer-oriented, development.

- The **market organisation** described above is very effective in terms of promoting market balance, securing supply for large clients and fair distribution of income among producers. However, it is rather conservative, not being very pro-active in terms of identifying and promoting consumer-oriented innovation. It effectively channels such innovation once it appears, as illustrated by the "Speciality street" reference by FLANDRIA.
- **Scale economics** and **competition** among farmers. The larger a tomato farmer becomes, the greater the commercial capacity and need to differentiate through new or unique products. This is especially and increasingly the case for Dutch farmers, acting alone or collectively, but active on the Belgian marketplace.
- **Operators' profitability.** It appears that, all along the chain, margins for successful innovative products are higher than for traditional ones. There are indications that retailers' margins on speciality tomato are proportionally much greater than producer's.
- An **industrial food chain complex**, including technology and finance and government supported programmes or research contracts is very powerful and very active in neighbouring Netherlands. It includes agrochemical owned seed houses, banks (e.g. RABOBANK), greenhouse engineers, university (WUR, in Wageningen) and industry (PHILIPS).
- Changes in **consumer preferences**, sending mixed signals about innovation. One consumer segment seems to remain very conservative, whereas another one is in demand for novel colourful and tasty cherry variety.
- National **agriculture policy** which is concerned, both in Belgium and the Netherlands, with land planning (greenhouse location), energy savings, export promotion, impacting on production and post-harvest methods.
- The **export market** and internal competition, whose requirements still remain, on the whole, for volume and competitive pricing, rather than novel consumer oriented propositions.
- Regular contacts and an **integrated flow of information** along the supply chain, implying coordination between producers, retailers and seed houses. Seed houses regularly propose new varieties to "advanced" farmers on a trial basis. Retailers, some of them more than others, communicate with seed houses and producers on market trends. VBT-LAVA screen novel varieties, in connection with governmental Test Stations ("*Plant Proef Statie*", near Ghent).

4.7.2.2 Role of Producer Organisation highlighted

Seed companies, rather than producers or retailers, **are initiators** of product innovation. As a UPO, LAVA-VBT acknowledges a stream of new varieties, monitors their testing and selects some of the new seeds for its FLANDRIA catalogue. VBT does so in coordination with all players in the supply chain. As mentioned, VBT focus is on securing a high throughput at constant and reliable quality. Also, VBT main market is export, which emphasises logistics and post-harvest process attributes. This requires continuous process improvement, both in cultivation and in market operations. These improvements attract most of VBT innovative effort, with lesser attention being devoted to consumers. The exception is in marketing, with LAVA segmentation and, in particular, the “Specialty Street” attempts to credibly bundle the growing number of specialty varieties. In summary, from a consumer perspective, VBT as a PO acts as a regulator and a channel for innovation rather than as an innovator. The comment that was made on the driving role of PO’s in consumer choice applies here equally as well.

4.7.2.3 Matching with drivers from the econometric study

- **Concentration of retailers:** retailers are part of an integrated and continuous innovation process, but they are not initiators of product innovation. As mentioned above, product innovation in fresh tomato is largely dependent on seed breeding programmes. The influence of food retailers on breeding program design and targets is limited because of the different timescales of these activities. Retailers often seek to introduce many new products per year, developing commercial plans on timescales of months or one year. Their decisions are heavily influenced by what products are commercially available in reliable quantity, where production and supply challenges are already understood and resolved. In contrast, seed breeding programs may take between 5-10 years or more to develop products with new characteristics, the early stages of such programmes therefore tend to be of low interest to retailers. On the other hand, large retailers are happy to take on board, on a trial basis and on limited scale, what they see as commercially viable innovations. Their ability to identify these innovations depends on the intensity of their contacts with their supply chain stakeholders. Intensity of these contacts does not appear to be dependent upon concentration, but more upon their market positioning.
- **Shop type:** The extent of innovation diffusion is dictated by the product range a shop can support. Once an innovation has been tested and adopted by a retail group, it will be diffused first via hypermarkets, followed by supermarkets and proximity shops. This is illustrated by the fact that specialty products are sold primarily through hypermarkets and supermarkets, and seldom through convenience stores.
- **Shop size:** the above comment equally applies to shop size.
- **Socio-demographic profile:** there is definitely, among the medium to high income segment of consumers, a tendency to move away from commodity products and seek out more tasty tomatoes, as well as to look after novel gustative sensations. This trend fuels the need for introducing new varieties, since the retailers want to sustain the interest of this segment.
- **Supplier concentration** appears to have a positive effect on innovation. This effect has two dimensions. On the one hand, the high degree of concentration in the seed sector generates continuous innovation. Large agrochemical companies compete for market share and are all going for growth. Growth is fuelled by introducing new products on the market, hence a continuous stream of new variety. Farmers believe that the life cycle of tomato variety is

shortening, being currently in the range of 2-3 years against 5-7 years in the past. Not all of this innovation stream is aimed at the consumer. A substantial part of it is oriented towards agronomic or process traits. On the other hand, the high degree of farmer concentration under the PO system regulates this flow and channels it towards market requirements. Regular discussions take place between VBT and seed houses to influence developments. From VBT literature it is inferred that such discussions are principally geared towards agronomic issues, such as pest resistance, or process traits, such as shelf life. On the other hand, LAVA dynamically promotes innovative specialty by bundling them under the umbrella label of FLANDRIA "Specialty Street". In summary, producer concentration under the VBT-LAVA structure stimulates innovation, however prioritizing process innovation over consumer oriented product innovation.

- **Ratio** of retailers compared to suppliers: There is no such imbalance on the Belgian market: both retail and production are concentrated.
- **Private label share:** For the consumer, tomato branding is indeed a low impact item, being most of the time a mere name printed on transparent plastic sheet or box and acting more as a quality label than as a brand. Specific "innovative" brands such as "KUMATO" or "Specialty street" keep featuring as such on the shelves.
- **Product category turnover** is probably playing some role. As consumer interest for tomato is stable at best and as the life cycle of commodity tomato fades away, there is a pressure for introducing new varieties on the market.
- **Regional characteristics:** As mentioned above, Belgium imports a substantial quantity of tomatoes, particularly from the Netherlands, a lower cost producer. Also, new low cost producers are emerging, such as Poland or Turkey. This exerts pressure on prices. The main answer of the Belgian sector is to focus on cost reducing innovation, not consumer oriented ones. Also, innovative seed houses point at the current EU policy, which imposes high up-front costs to meet requirements of the regulatory process and offer new differentiated products with established health claims.
- **Economic crisis** limits the possible interest of low and medium income groups towards new and tastier variety as well as fancy presentation.
- **New shop opening:** No information or observations are available.

4.7.2.4. Summary

Observed trends	Drivers	Initiator	Conditions of success
Growing number of specialty varieties	Seed houses growth strategies	Seed houses	Consumer perception Retailers' category management
Shorter life cycle of new varieties	Seed houses growth strategies	Seed houses	
New packaging for specialty	Need to recoup higher production cost of specialty and emphasise novelty	PO and retail in B Farmers in NL	Perceived value-for-money despite crisis Retailers' marketing and category management
New marketing for specialty	Need to recoup higher production cost and enlarging range of specialty and emphasise novelty	PO and retail	Perceived value for money in spite of crisis

4.8. Summary and conclusions

Consumer choice and innovation in the fresh tomato market in Belgium depend upon operators achieving a balanced distribution of income and minimal risks. This requires maintaining stable operating conditions over a large throughput. The tendency of this system is both to require and to limit choice and innovation. Therefore, innovation, which is pushed by production and pulled by commercialisation, will appear mostly at the boundary of this system.

Tomato has long been a basic, undifferentiated commodity product. Over the last decade, a number of new products appeared on the market, dramatically enhancing consumer choice. These innovations were largely initiated by seed houses. Consolidation of the seed sector, initiated in the 90s and driven by agrochemical majors' strategy, provided resources for R&D effort, resulting in an accelerating stream of new varieties.

Farmers have embraced this trend with a view to produce high-margin tomatoes. They are doing so cautiously, though, because of the uncertainty involved and because Belgian production is largely oriented towards the export market, emphasising high throughput, low cost and consistent quality rather than diversity. Retail has entered an active testing phase and faces a diversity of new varieties. As a result, about 10% of tomato acreage is currently devoted to the growing "specialty" tomatoes, however they already account for over 60% of retailer references.

As a (Union of) Producers' Organisation, VBT emphasises regular and smooth operations in a mass market. Most of its innovative effort goes into continuous process improvement. VBT consolidates the production sector and, acting as a single agent, achieves negotiating power balance with the retail. Via strong supply chain coordination, VBT channels and regulates the flow of innovation and diversity from the agrochemical and seed sector. Its main role in innovation is in marketing and segmenting, particularly with respect to "specialty" tomatoes.

Concentration of the top five food retailers (C5), which has reached about 80% in Belgium, had a positive influence on consumer choice and on acceptance of innovation. Because of its size, retail is able to select, source and propose a range of products. What most influences retail with respect to their offerings and innovation acceptance is their positioning more than their market share. Discounters will offer a lower range of products and be more reluctant to test high priced novelty.

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Future Trends in Tomato Packaging, Sydney University	2012	Benjamin Smider	

Interviews

TYPE OF STRUCTURE	STRUCTURE	STATUS
Local store	Grocery store 1	Done
Wholesalers	Fresh Trade Belgium	Done
	Vanco	Done
Producers and producers organisations	VBT	Done
	LAVA	Done
	Paul Stoffels	Done
	Marc Pittoors	Done
Consumers	Test-Achats/Test-Aankoop	Done
Retail	Retailer 1	Done
	Retailer 2	Done
	Retailer 3	Done
Seed houses	Bayer	Done
	Zena Zaden	Done
	Monsanto	Done
Site visits	Hyper and supermarkets and proximity stores	Done
	Independent local stores	Done
	Producer's greenhouse	Done
	Early market for fruit & vegetable in Brussels	Done

5. Cheese in the Netherlands

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5.1. Adopted methodology and scope

The objective of this case study is to highlight the main characteristics of the cheese sector in the Netherlands which could have an impact on choice and innovation. It is not, however, to undertake a common sector study which would involve collecting comprehensive data across a number of characteristics.

We therefore present a synthesis of the main characteristics first, followed by a more specific and detailed focus on each characteristic impacting choice and innovation, in order to provide elements to complement the quantitative components of the study.

The scope of the study concerns: hard, semi-hard and soft processed and unprocessed cheese originating from cow milk.

Semi-hard cheese, such as the Dutch traditional variants Gouda, Edam and Maasdam, accounts for the majority (93%) of all cheese produced in the Netherlands¹²⁹. In terms of new cheese products introduced on the market in the period 2004-2012, hard and semi-hard cheese had the largest share (36%). The market for hard cheese is dominated by Dutch cheese companies.

Soft cheese originating from cow's milk accounts for a significant proportion of successful innovations on the market. The soft cheese market comprises Dutch and foreign companies¹³⁰.

Other products such as cheese originating from goat's or sheep's milk are not included in the scope of the study. "Non-dairy based cheese" using soy or other protein has gained in popularity but is excluded from the scope as it cannot be sold and marketed as cheese due to consumer regulations in the Netherlands. It only represents 1% of the cheese market.

Data collection has proven complex and discrepancies with regard to production, sale and consumption figures can be attributed to the different types of cheese included in the calculations, or the lack of distinction between cheese and other dairy products.

This case study will also touch upon the broader dairy industry in the Netherlands, especially when discussing the structure of the cheese market and the supply chain.

Data presented below are based on a literature review and interviews with experts and stakeholders. The comprehensive list of sources is presented at the end of the report.

5.2. The cheese supply chain in the Netherlands

5.2.1. The world's largest cheese exporter

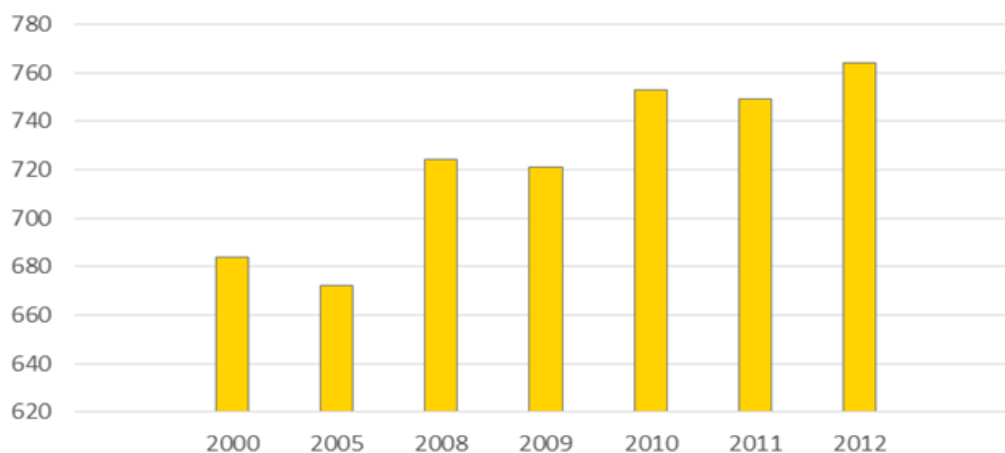
It is important to firstly describe the key characteristics of the cheese industry in the Netherlands. This section outlines key figures and trends in the industry, whereas the following sections will subsequently focus in more detail on the characteristics of the supply chain and the structure of the market.

The Dutch dairy sector comprises 18,100 farms and 1.48 million dairy cows. The milk production in the Netherlands amounts to 11.9 billion kg annually. The climate and landscape of the Netherlands are particularly apt for dairy production and have contributed to a substantial development of the industry in the last 140 years.

The dairy market structure is to a large extent export- and trade-oriented. Traditionally, cheese was a means of storing milk. Milk expires quickly and is difficult to ship and export. Cheese, on the contrary, is easier to ship due to the possibility of storing the products for a long time, and sometimes even without being refrigerated. Currently, approximately 55% of milk processed in the Netherlands is used for cheese production. Raw milk is also imported from other countries, although according to the Dutch Dairy Association there is no data on the use of this milk.

¹²⁹ Dutch Dairy Association (2012)

¹³⁰ Passport, Euromonitor International, 2013 (market shares)

Figure 28: Production of factory cheese (x million kg)

Source: Dutch Dairy Board, 2013

Dutch cheese companies produce 762,800 T of cheese (cow's milk only) per year¹³¹ and two-thirds of this amount is exported to over 90 countries around the world, mostly within the EU, in particular Germany (36.2% of the exports), Belgium (10%) and France (9.9%), but also to non-EU countries, e.g. Russia, Saudi Arabia and Nigeria¹³². The total amount of exported cheese reached 642,000 T in 2012¹³³. In terms of volume, only Germany exports more cheese than the Netherlands. However, taking into account the size of the country, Dutch production and exports are immense. The largest company, FrieslandCampina, is the fifth largest dairy company in the world and exports more cheese than any other company in the Netherlands. Out of the Dutch cheese production destined for the domestic market, one of the interviewees estimated that 80-90% is sold through retail, whereas 10-15% is used in the food industry.

The Netherlands also imports cheese, principally from other European countries, with a total of 199,500 T/year in 2012 originating from EU27. In addition, 14,700 T are imported from third countries, amounting to 214,250 T of cheese imported in total annually¹³⁴. Dutch companies, including manufacturers and cheese traders, constitute approximately 28.2% of the Dutch market. In addition, private label products hold a market share of 32.7%. Although there is no data available on the country of origin of cheese sold under private labels, one can expect that a significant proportion of these products is produced nationally¹³⁵.

¹³¹ Dutch Dairy Association, 2012

¹³² Dutch Dairy Board, Dutch export of cheese, 2013; interviews with sector organisations.

¹³³ Dutch Dairy Board, Overview cheese

¹³⁴ Dutch Dairy Board, Dutch import of cheese

¹³⁵ Passport, Euromonitor International 2013

Figure 29: Imports and exports of cheese (x 1000 kg)



Source: Dutch Dairy Board, 2013

Cheese products are expected to continue to register positive growth in both volume and value in the Netherlands despite the maturity of the market. According to Euromonitor data, this is due to the steady demand for cheese and the high per capita cheese consumption of Dutch consumers¹³⁶. In addition, one interviewed sector organisation highlighted the importance of the increasing demand for cheese on the world market as another growth factor for cheese in the Netherlands.

Dutch cheese consumption has for years exceeded the European average¹³⁷, with about 19 kg consumed annually per person. Cheese plays an important role in the Dutch food culture; it is consumed daily for breakfast and included in other meals during the day. However, the Dutch per capita consumption of cheese is not the highest in the EU: Greece has the largest per capita consumption of cow cheese with 27.7 kg consumed per capita in 2011, followed by France and Germany¹³⁸. Other sources put the Dutch cheese per capita consumption as second highest in Europe, after Norway¹³⁹.

¹³⁶ Passport, Euromonitor International, 2013

¹³⁷ Dutch dairy in figures 2012, Dutch Dairy Board

¹³⁸ Dutch Dairy Board, per capita consumption of factory cheese, 2013

¹³⁹ Passport, Euromonitor International, 2013

Figure 30: Cheese consumption per capita, factory cheese – cow's milk only (kg)

Country/Year	2007	2008	2009	2010	2011
EU-27	16.7	16.7	16.9	17.1	17.1
Greece	29.2	31.1	31	30.9	27.7
France	25.6	26.9	27.1	25.6	25.7
Germany	22.3	22.2	22.3	22.9	23.1
Italy	20.9	20.7	21.1	22	22
Netherlands	18	19.3	19	19.5	19.4
UK	11.2	11.7	10.9	11.2	11.1
Spain	7.4	7.5	8.2	9.3	9
Romania	5	5	5	5	5

Source: Dutch Dairy Board, 2013

5.2.2. The Dutch cheese supply chain

The Dutch supply chain consists of the following actors:

- Milk producers:** 18,100 farms rearing 1.48 million dairy cows. Within the Dutch dairy industry, most farmers are part of cooperatives (84.4%)¹⁴⁰. There are a total of 51 dairy factories in the country, out of which 30 are cooperatives¹⁴¹. The Dutch cooperatives are a historical feature of the industry, with the first one established at the beginning of the 19th century. The cooperatives have a dominant position on the market, processing about 90% of the milk produced in the Netherlands. In this company structure, farmer cooperatives own the dairy companies which focus on processing and product development. In most cases, the dairies also produce other dairy products such as cheese and yoghurt. The most obvious example here is FrieslandCampina which accounts for the largest share of Dutch cheese production and plays a key role in innovation on this market. This will be further outlined in the sections below.
- Cheese manufacturers:** 7 large dairies or cheese factories account for the total cheese production in the Netherlands. However, only three of those are highly present at Dutch retail level. In terms of sales, FrieslandCampina is the most dominant company in the sector (10.5%), followed by DOC Kaas (3.9%) and the Bel Group (3.0%). Data regarding smaller producers is not available. In addition, some farm cheese producers are active on a smaller scale (i.e. cheese produced and processed within the farm)¹⁴². Some manufacturers only produce under their own brands (e.g. CONO), whereas others produce under own brands and supply to private label products (e.g. FrieslandCampina). A third category of manufacturers predominantly supplies to private labels (e.g. Rouveen, except from one brand). As noted above, private label cheese accounts for approximately 32.7% of the market.
- Cheese traders:** An estimated 80% of the cheese produced in the Netherlands is ripened by the manufacturers themselves¹⁴³. The remainder of the production is ripened, packaged and traded by cheese traders, e.g. Westland Kaas, which also sells cheese under its own brands. Different traders cooperate with dairies

¹⁴⁰ Dutch Dairy Board

¹⁴¹ Dutch Dairy Board, 2013

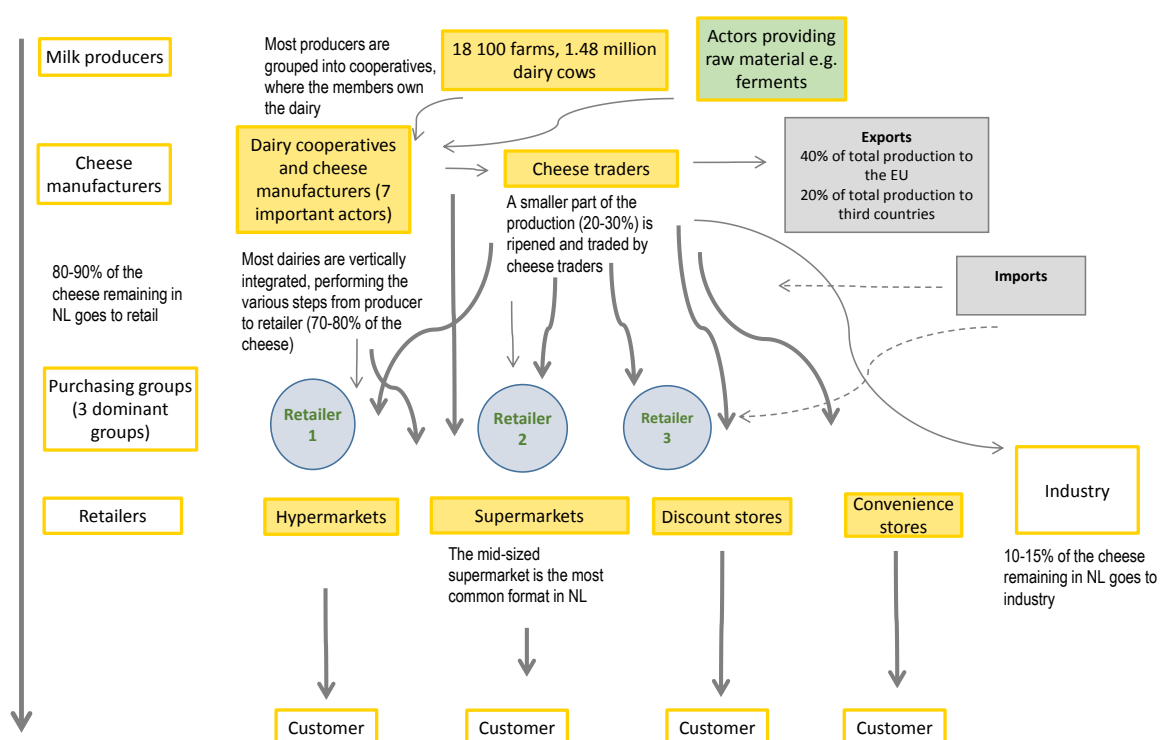
¹⁴² About 240 farmers produce farm-made cheese and other dairy products, according to the Dutch Dairy Board.

¹⁴³ According to an educated guess by one of the sector organisations interviewed.

in the trade with the retailers. The traders may also carry out other production steps, such as slicing or packaging.

- Retailers:** Three retail groups account for approximately 75% of the Dutch modern retail market, with the Albert Heijn supermarkets, owned by the Ahold group, accounting for 39% of the market share. Discounters such as Lidl and Aldi have entered the market over recent years. Aldi has become the third largest retailer with 10% of the modern retail market share. The most common shop format is the mid-sized supermarket (total of 4,410 in 2012), whereas the larger hypermarkets are rare in the Netherlands compared to many other European countries, with a total of 126 hypermarkets in 2012. Although the majority of food is sold (43.69%) through hypermarkets¹⁴⁴, according to some of the interviewees and data, cheese is predominantly sold in supermarkets¹⁴⁵.

Figure 31: The Dutch cheese supply chain



Source: Arcadia International analysis

5.2.2.1 Integration and organisation

The Dutch cheese supply chain is characterised by vertical integration, i.e. where one actor covers several steps in the supply chain, for example a cheese manufacturer being active in the cheese production, packaging, and distribution. In addition, as mentioned above, the producers are connected to the dairies within cooperatives, which are becoming increasingly involved in production development of milk as well as of other products, including cheese.

Another characteristic in the Dutch dairy industry is the high degree of organisation, which is said to be an important factor influencing innovation on the cheese market in a positive manner¹⁴⁶. At the cooperative level, there are structures such as

¹⁴⁴ BMI Netherlands Food and Drink Report, 2013

¹⁴⁵ Passport, Euromonitor International, 2013

¹⁴⁶ Competitive Analysis of the Netherlands and the Dutch Dairy Cluster, 2011

FrieslandCampina, which is divided into 21 districts with one member dairy farm per district. Each district selects members to represent their district in the council, which works as a connection between the members and the cooperative. In addition, each segment of the production chain has its own organisation, which represents the interests of the group. Many organisations are involved in the Dutch dairy sector, such as NIZO Food Research, which plays an important role in technology Research and Development, and the Dutch Dairy Board, established in 1956, consisting of representatives of employers and employees from the various segments of the industry. Finally, there are also "clubs" of dairy farmers and a variety of other relevant businesses focusing on, for example, animal health, research or quality assurance. This high degree of organisation and involvement by various actors is considered to strengthen and stimulate the industry¹⁴⁷.

The dairy sector is regulated by a quota system as part of the Common Agricultural Policy (CAP), which limits dairy production to a certain level. These quotas, however, will be abolished as of the 1st of January 2015. Many farmers are working on increasing their stable capacities in view of the abolishment to be able to increase the production as of 2015. The Dutch Dairy Board is responsible for the implementation of the quota system, as well as for collecting the levies. Furthermore, the board has regulatory powers, which means that it can impose regulations that farmers, processors and traders must comply with. The board also acts as a centre for knowledge and information for the Dutch dairy sector.

Government involvement and support has also been important for the development of the Dutch dairy sector and its innovative activities. Throughout the years, it has encouraged high product quality and enabled research and innovation through funding programmes¹⁴⁸.

The high organisation of the dairy industry may not directly influence choice and innovation, but it serves as a basis for an innovative dairy industry. In particular, producer organisations (POs) play an important role with regard to quality assurance, legal matters and precompetitive research. Furthermore, according to the Dutch Dairy Association, the diversified structure of the market and involvement of a range of different stakeholders may have a stimulating influence on innovation¹⁴⁹.

5.2.2.2 Retailer-supplier relationships

The contract agreements between retailers and suppliers vary according to the size and type of companies.

Some smaller cheese companies may merely trade through cheese traders (for example Rouveen Kaasspecialiteiten), where the trader itself makes an order specifying the quantity and type of cheese required, and based on this an order/delivery agreement is signed. Larger volumes may result in a contract lasting over a year. Moreover, some contracts are exclusivity contracts, reserving a specific product for a specific trader. Other companies negotiate directly with the retailers: a negotiation process takes place between supplier and the procurement department of the retailer. Contracts may be signed for a year, establishing price, volume and type of cheese (pre-packed, unpacked, fresh-packed, block/wheel, smaller packaging etc). These contracts are often based on a tender procedure¹⁵⁰.

Larger companies generally trade both directly with the retailers and through cheese traders. The cheese traders also have their own brands, making additional brands available to those of the major seven cheese factories. One such example of this

¹⁴⁷ Competitive Analysis of the Netherlands and the Dutch Dairy Cluster, 2011

¹⁴⁸ Competitive Analysis of the Netherlands and the Dutch Dairy Cluster, 2011

¹⁴⁹ Interviews with Dutch Dairy Association, Dutch Dairy Board, 2014

¹⁵⁰ Interview with Dutch Dairy Association, 2014

business model is Westland Kaas. Both yearly- and long-term contracts are common¹⁵¹.

The largest suppliers are regularly performing preparatory research with regard to consumer preferences, products and how to increase retailer turnover. This research is used to convince the retailers' purchasing departments and category managers that they will gain market share by purchasing the products of a specific type from the specific supplier, and, if necessary, take other products away from the product assortment. Depending on its strategy, customer needs, margin and rotation, the retailer will accept or refuse a new product. The limited shelf space available and the increased market share of private label products have resulted in a growing importance of this process, as well as of preparatory research. When a new product is accepted, the retailer markets it through campaigns and extra attention is given to this product on the shop floor. Private label products are marketed to a lesser extent e.g. through tastings, demonstrations and customer magazines¹⁵².

Smaller manufacturers present their new products to retailers in order to convince them to distribute their products. If the retailer accepts the product, it will distribute it for a test period in limited volumes. If it is successful, the supplier and the retailer negotiate an increase in volume. In some cases, the retailer will invest in marketing and advertising of the new product if it has strong potential, since the supplier itself does not have sufficient resources.

The process for smaller and larger companies is generally similar; however the process appears to be shorter for large companies, since they have resources to invest in marketing, communication and consumer research. These different procedures highlight differences in the way in which larger and smaller companies get their products on the shelves. Large companies benefit from a shorter process, however smaller companies take advantage of retailers actively marketing their products.

5.2.3. Supplier concentration

This section outlines the characteristics and the concentration in the sector, starting with the milk and dairy industry, and then focusing on the cheese industry.

Historically, each town in the Netherlands had its own milk factory and produced milk, cheese and butter locally. In the 1940s and 1950s, there were about 700-1000 milk factories in the country. This situation has changed significantly over the years and the level of supply concentration has become high. In 2008, two of the largest cooperatives, Friesland Foods and Campina, merged to become the largest actor in the Dutch dairy market, and the fifth largest dairy company in the world.

Smaller dairies still exist. In addition to FrieslandCampina, 20 smaller companies also operate on the market¹⁵³; the Dutch Dairy Association represents 11 dairies comprising 95% of the dairy production. In some cases they buy milk from FrieslandCampina for processing and in some cases they have their own producers. Due to the historically low milk prices (about 34c/litre¹⁵⁴) it is not particularly profitable for smaller companies to produce and sell milk. Therefore, they tend to manufacture processed products such as cheese or yoghurt, and develop marketing strategies focusing on tradition, in order to differentiate themselves from multinational dairies¹⁵⁵. Some dairy companies specialise in a range of products, while others focus solely on cheese. The latter include companies such as Bel Group (private) or CONO (cooperative).

¹⁵¹ Interview with Dutch Dairy Association, 2014

¹⁵² Information regarding this process has been collected through interviews with retailers and suppliers.

¹⁵³ The Dutch Dairy Sector, 2013, Dutch Dairy Board

¹⁵⁴ The milk price has increased significantly throughout 2013, from 34.5 euros/100kg to 39.65 euros/100kg, according to the Dutch Dairy Board.

¹⁵⁵ Interview with sector organization

Looking specifically at cheese, 7 companies account for the total cheese production, including FrieslandCampina, the BEL Groupe, DOC Kaas, CONO Kaasmakers, Henri Willig, Rouveen Kaaspecialiteiten and De Graafstroom¹⁵⁶. Out of these, FrieslandCampina, BEL Group and CONO have a total market share of 17.4%. If Westland Kaas, the largest cheese trader, were to be included, the Top 4 would hold 27.5% of the retail market. This does not take into account the private label products present on the market, which often are produced by the same companies. For example, about two-thirds of FrieslandCampina's cheese production is sold under private labels¹⁵⁷. FrieslandCampina on its own produces over 50% of the cheese produced in the Netherlands. This cheese is subsequently sold under private labels, exported, sold to cheese traders, or sold as FrieslandCampina's branded products¹⁵⁸.

Figure 32: Top 3 Dutch cheese producers

Dutch cheese manufacturers	Market Share	Brand share of most popular brands	Cooperatives or private
FrieslandCampina	10.5%	Milner (5.7%), Frico (1.6%), Cantenaar (0.7%), Kollumer (0.5%)	Cooperative
CONO Kaasmakers	3.9%	Beemster (3.9%)	Cooperative
BEL Groupe	3%	Leerdammer (1.8%), Baby Bel (0.5%), Boursin (0.4%), Cantadou (0.1%), La Vache Qui Rit (0.1%)	Private

Figure 33: Top 3 Dutch cheese producers – recent development in retail market share

Dutch cheese manufacturers	2008	2009	2010	2011	2012
FrieslandCampina	13.3%	11.8%	11.6%	11.4%	11%
CONO Kaasmakers	3.5%	3.8%	3.7%	3.7%	3.8%
BEL Groupe	3.1%	2.8%	3.1%	3.1%	3.0%

These two tables demonstrate the development of the market shares for the three largest players on the Dutch market. In the last five years the market share of FrieslandCampina has declined, while the market shares of CONO and Bel Group remained relatively stable, although their market shares are considerably lower than that of the market leader. It is important to note that, as mentioned above, another important actor is the cheese trader Westland Kaas.

As noted previously, some interviewees highlighted that large suppliers are necessary to balance concentration at retailer level, and that the concentration at supplier level has followed the concentration at the retail level. If a new product from a small supplier is successfully introduced to the market and becomes popular, the small supplier will have difficulties in supplying all the stores of a retailer group with this product. Therefore the expansion of the new product will be slower compared to a larger supplier. There is no sector-level data available on the profitability of cheese manufacturers.

¹⁵⁶ Information collected from interviews with sector organisations

¹⁵⁷ According to interview conducted. In general, data on producers supplying to private label products is not available to the public, according to the Dutch Dairy Association.

¹⁵⁸ According to interview conducted

5.2.4. Retail concentration

The Dutch modern retail market is highly concentrated. The three major retailer groups have a market share of approximately 75% according to information collected in the interviews (and confirmed by Planet Retail). Ahold is the major group in the Dutch retail market and includes approximately 2,000 Albert Heijn stores of different sizes (mid-sized supermarkets to large hypermarkets). Ahold is also the Dutch player with most activity in other European countries, as well as in non-EU countries, generating more than half of its revenues in the US. JUMBO has in the past few years bridged the gap between itself and Ahold in terms of market share and established a strong position as the second largest retailer group after buying Super de Boer in 2009 and C1000 in 2011 (which held 12% market share), adding up to 21.7% market share for JUMBO, compared to 33.7% for Ahold group¹⁵⁹. In addition to these two groups, Superunie is a purchasing organisation representing 13 retailers¹⁶⁰ and holding about 30%¹⁶¹ market share¹⁶². This purchasing group functions similarly to a retail group, gathering several retailers together in order to increase their purchasing power. According to some interviewees, its market share allows it to have the same buying power on the retail market as Ahold and JUMBO; it is also a significant player on the private label market.

Despite the concentration, it has been possible for new actors to enter the Dutch market in recent years. For example, German discounter chains Aldi and Lidl are both relatively new to the Dutch market. The increased number of discounters can be seen as a consequence of the economic crisis, with consumers seeking out less costly alternatives. This development is threatening the otherwise very strong position of the largest retailer groups¹⁶³. Finally, competition at retail level also varies across regions, since some banners are present only in specific parts of the country. There are, for example, differences in terms of competition and concentration between the north and the south of the country¹⁶⁴.

Looking specifically at cheese purchases, most cheese is bought by Dutch consumers in supermarkets. There are smaller, specialized cheese shops, but consumers tend to favour supermarkets due to a wider choice, as well as the availability of new products. However, the distribution of cheese is shifting towards the increasingly visible discounters. For example, Aldi and Lidl have extended their cheese offer and increased the number of price promotions in the category. The figure below outlines the distribution channels for cheese; it shows that discounters have become the second most important distribution channels far behind supermarkets. In 2012, 8.0% of the total cheese sales were through discounters, compared to 7.3% in 2008. Hypermarkets, on the other hand, have a comparatively small share of the sales, while mid-sized supermarkets are the most common distribution channel for cheese sales.

¹⁵⁹ BMI, Netherlands food and drink report, 2013

¹⁶⁰ Superunie retailers: A-C Holding, Sperwer, Spar, Sligro, Poiesz, Nettorama Distributie, Jan Linders, Detailresult, Deen Supermarkten, Coop Holding, Boon Beheer, Boni-Markten, Hooglivet

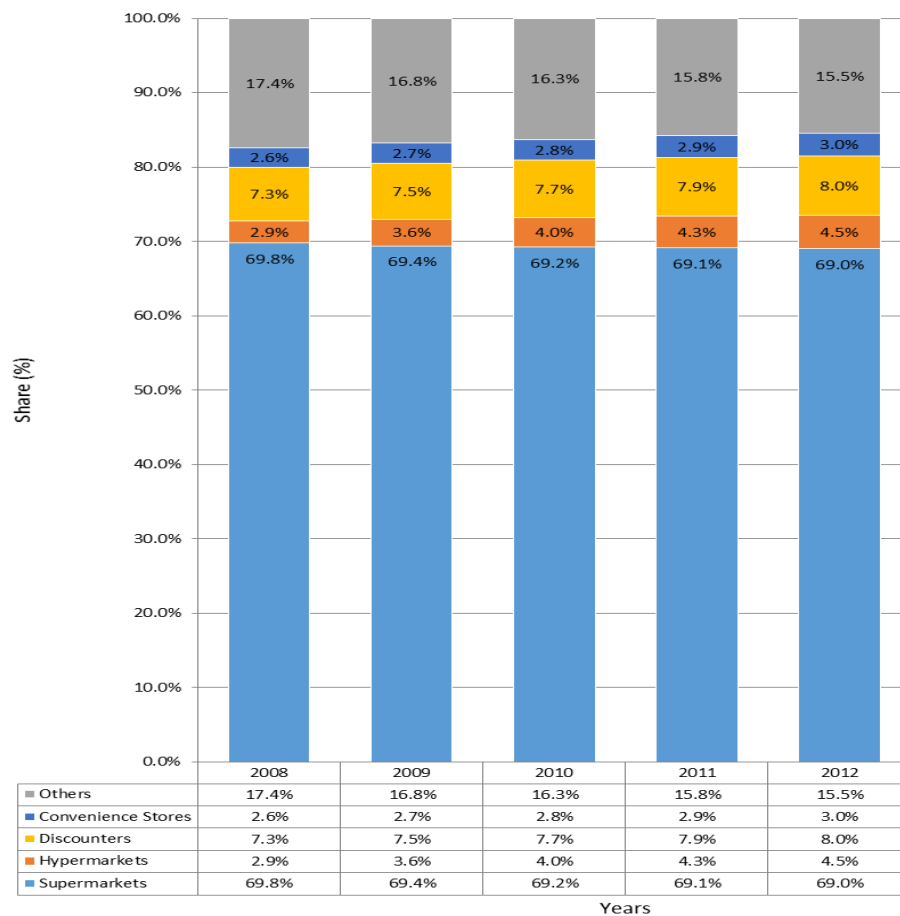
¹⁶¹ As provided by the Superunie website

¹⁶² Superunie website

¹⁶³ Interview with supplier

¹⁶⁴ This was highlighted by one of the interviewees

Figure 34: Cheese distribution channels



Source: Euromonitor, 2013

With some Dutch consumers shifting to discounters, the average unit price for cheese is expected to decrease, since it is significantly lower in the discounter outlets¹⁶⁵.

The mid-sized supermarket format is particularly widespread in the Dutch retail market, whereas hypermarkets are less common. Around 90% of Dutch consumers are within a 10-minute walk from a supermarket¹⁶⁶. This can potentially be attributed to the urbanised nature of the Dutch population. However, a negative consequence is a smaller selection of products, as well as limited storage space, which may imply that retailers are more frequently out of stock of certain products¹⁶⁷. According to one supplier, the number of hypermarkets and larger supermarkets will probably increase in the coming years. In 2011, the number of supermarkets amounted to 4,410, compared to the 126 hypermarkets. By comparison in 2006, there were 4,390 supermarkets and 105 hypermarkets¹⁶⁸.

This first section of the case study provided a description of the Dutch cheese industry, outlining the different steps with a particular focus on retailers and suppliers. The dairy and cheese industry in the Netherlands is historically important due to a large export volume and a national consumption per capita which is among the highest in Europe. A limited number of significant actors are involved in the industry.

¹⁶⁵ Passport, Euromonitor International, 2013

¹⁶⁶ Foreign Agricultural Service (BMI)

¹⁶⁷ BMI, Netherlands food and drink report, 2013

¹⁶⁸ BMI, Netherlands Food and Drink Report, 2013

The following section focuses on choice and innovation in the cheese industry and the related drivers that impact choice and innovation.

5.3. Definition of choice and innovation for cheese

Cheese, being a very traditional market in the Netherlands, do not appear to be conducive to significant innovation. In addition, innovation can result in higher prices, which could act as an additional barrier. Furthermore, the long production time for many cheese varieties makes it difficult to adapt the product quickly to consumer needs.

Despite this, in recent years, new consumer behaviours and expectations have led market players to provide different product adaptations. Increased health awareness has led to a consumer preference for lower fat and salt; the urbanised population in the Netherlands has pushed for smaller packaging and sliced cheese; and some manufacturers have focused on developing specialty cheeses, including the use of different herbs.

As mentioned in previous sections, food innovation has a significant place in the Dutch food industry, which is reflected in the investment and innovation activities of the larger companies. The Dutch agrifood industry has become increasingly known for its innovation activity in product development, food processing and technology¹⁶⁹. Through this culture of food innovation, a historically traditional product has increasingly become subject to innovative developments with regard to both packaging and ingredients.

5.3.1. Criteria of choice for cheese

Consumer choice concerning cheese products relates primarily to:

- types of cheese offered (i.e. flavour, ingredients, reduced fat/salt/sugar, added herbs);
- number of brands offered (different brands per manufacturer, different brands per cheese trader);
- number of private labels, including a variety of products. Some retailers have different types of private label products, some of them positioned at a lower price, others at a high quality level;
- packaging;
- imported cheese (including both hard and soft cheese); and
- price.

5.3.2. Criteria of innovation for cheese

Innovation concerning cheese products relates primarily to:

- new products/varieties/range extensions, e.g. extra flavour, new flavours, reduced fat/salt/sugar, added herbs (e.g. Rouveen cheese company);
- new brands and product relaunches;
- new packaging, e.g. smaller packaging for modern/single households, for elderly people, sliced cheese (introduced by Westland Kaas);
- new formulation, e.g. sustainably, organically and ecologically produced and labelled products, or change of ingredients; and
- usage (snack, cooking, salads, aperitifs).

¹⁶⁹ Netherlands Foreign Investment Agency

5.4. Trends and drivers for choice

5.4.2. Level of choice

Dutch consumers generally prefer traditional cheese, with Gouda as one of the favourites. The majority of Dutch consumers have a preference for less mature varieties of cheese, even though this preference is slowly changing and there has recently been a strong increase in consumption of more mature cheese. Different types of imported Brie have also a strong presence in Dutch supermarkets¹⁷⁰. One of the suppliers interviewed, however, contradicted this and suggested that due to the economic crisis, consumers are increasingly turning to less mature cheese since the shorter ripening period implies a lower price.

On the basis of information collected for this case study, there appears to be a high and stable level of choice available to consumers with regard to cheese in the Netherlands. No data on the number of SKUs per retail outlet, or its evolution, is available for this study. There are, however, other data that provide an indication of choice evolution. Cheese manufacturers produce a large number of brands and supply cheese to different private label products and cheese traders. The Dutch cheese manufacturers and traders offer 18 large brands. In addition to the cheese produced nationally, other varieties are imported, constituting another 18 large brands, adding up to a total of 36 large brands available in retail outlets¹⁷¹. This implies a slight decrease (primarily in foreign brands), compared to the 39 brands in 2008. Other smaller brands are not included in these numbers but account for 28.7% market share in 2012, compared to 31.4% in 2008¹⁷². Finally, the private label products available on the market account for about 32.5% market in 2012, compared to 27.9% in 2008. Most of the cheese sales take place in supermarkets, however specialised shops are also providing consumers with an extended choice. One of the largest retailers interviewed estimated their current offer to include 400-500 types of cheese.

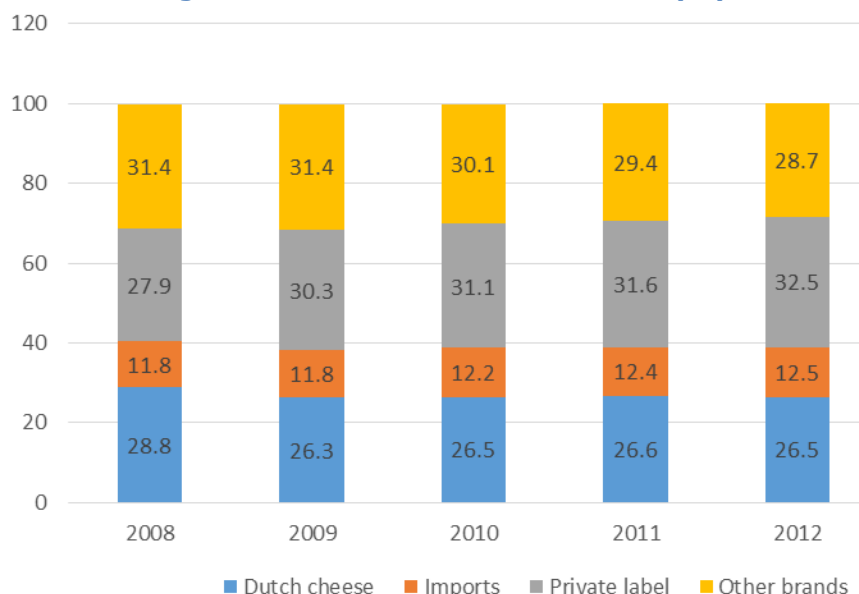
The figure below outlines the market share of nationally produced and branded cheese, imported cheese, private labels and other brands. A decrease can be noted in the nationally produced cheese, while the share of both private label products and imported cheese has increased. This might seem contradictory to what was previously said, however, the previous statement regards solely the number of large brands whereas this figure accounts for total imports. The share of other brands has also decreased. There are no major changes to the pattern over the past years, which indicates a relative stability on the market and a high level of choice in terms of brands available.

¹⁷⁰ Passport, Euromonitor International, 2013

¹⁷¹ Passport, Euromonitor International, 2013

¹⁷² Passport, Euromonitor International, 2013

Figure 35: Evolution of cheese brands (%)



Source: Euromonitor 2013

Illustration: "Example of the evolution of choice in term of available brands"

The below data¹⁷³ provides an indication of the evolution of choice in terms of number of available brands, as well as the presence of private labels and other smaller brands.

- In 2008:
18 national brands, 21 imported brands
Private label share: 27.9%
Other smaller brands: 31.4%
- In 2010:
18 national brands, 20 imported brands
Private label share: 31.1%
Other smaller brands: 30.1%
- In 2011:
18 national brands, 19 imported brands
Private label share: 31.6%
Other smaller brands: 29.4%
- In 2013:
18 national brands, 18 imported brands
Private label share: 32.7%
Other smaller brands: 29.1%

FrieslandCampina is the market leader in cheese sold in supermarkets with a value share of 11% in 2012. The second player is the supermarket chain Albert Heijn's private label, which offers an extensive range of cheese varieties¹⁷⁴. Due to the economic recession and declining income levels, several consumers are switching to private labels. Other important domestic cheese suppliers are Westland Kaasexport BV, Uniekaas and Superunie, the purchasing organisation, which also supplies its members with a range of private label products¹⁷⁵. As noted before, the share of

¹⁷³ Passport, Euromonitor International, 2013

¹⁷⁴ Passport, Euromonitor International, 2013

¹⁷⁵ Passport, Euromonitor International, 2013

private label products on the retail market has increased over the past years¹⁷⁶. In 2007 it was 27.9%, compared to 32.7% today¹⁷⁷. According to the Dutch Dairy Association, about 85-90% of the cheese produced in the Netherlands is sold under private labels. However, a large share of this production is destined for exports. As a result, this important private label share in cheese production is not noticed in Dutch supermarkets. This is also due to the many varieties and brands being imported from other countries. As demonstrated in the above table, until 2012 there were more large imported brands on the market than national ones. One retailer estimated that the current product assortment on the shelves is divided into 30% branded products, 40% private label products and 30% imported products¹⁷⁸.

As mentioned previously, the cheese factories often supply retailers with both branded products and private labels. In this way, one company may provide the product for private labels which will be competing with the company's own brands. The private label cheese consists of different types and price levels, which are not the same products or recipes that are used for the branded cheese, even though they might come from the same manufacturer. Private labels offer different types and varieties, some of them resembling branded products but at a lower price, while others focusing on high quality. As a result, one can see different brands and private label products, at different prices, being provided by the cheese manufactures, both Dutch and foreign, and by the national cheese traders who provide the market with their own brands and private labels. This results, on the whole, in extended choice in cheese products available to the consumers.

5.4.3. Analysis

When looking at the indicators and qualitative information presented above, choice in cheese has remained at a relatively stable but high level over the past decade. There appears to be a wide range of national suppliers, international suppliers and private labels. According to the interviews conducted throughout this case study, consumer choice has not been visibly affected by the concentration at the supply or retail level, nor by the growth of private label products. In fact, retailer concentration levels (measured by the C5) in 2012 were at similar high levels in 2004, suggesting minimal evolution compared other EU Member States.

This said, there has been a slight decrease in the number of larger foreign brands on the market. The rise of private label products and the growing acceptance of these labels by consumers may undermine the branded products in the long run.

Conversely, one retailer highlighted that the branded products are required as well, in order to offer a complete range of products to consumers; they are also useful in allowing retailers to see what products work and to structure the product assortment accordingly. Retailers analyse the trends in branded products, the choice available, and the consumer preferences. Based on this, private labels are developed. The distinction between branded products seems to be clearer than between private labels. Another interviewed retailer highlighted that appropriate choice does not necessarily have to mean a large number of products. Based on consumer feedback, the interviewee argued that sometimes the choice available is too large for the consumer and complicates the shopping decisions. In this context, structuring and presenting the choice available is a crucial task for retailers, since it can help facilitate the shopping experience for the consumer. This might imply a reduced number of products and brands offered that nevertheless increases consumer satisfaction due to

¹⁷⁶ The impact of private labels on the competitiveness of the European food supply chain, DG ENTR, 2011

¹⁷⁷ Passport, Euromonitor International, 2013

¹⁷⁸ Interview with retailer

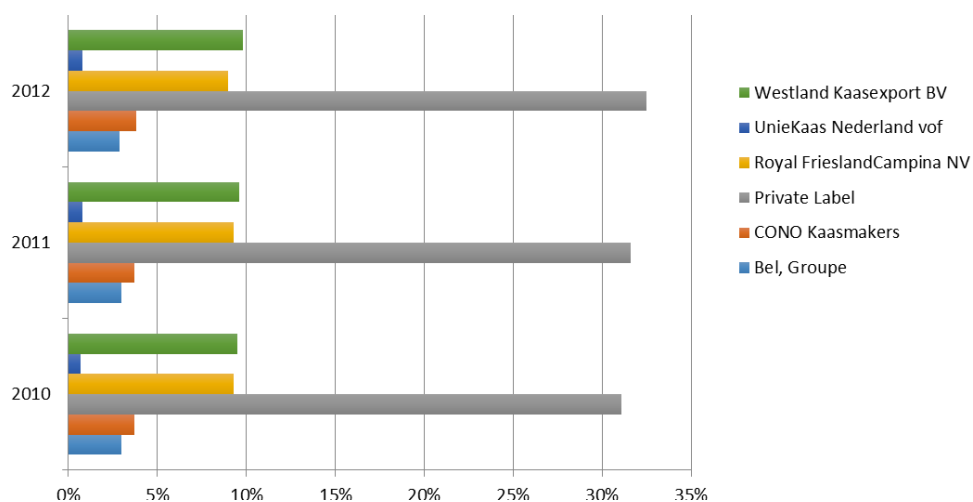
adapted structure and presentation of products. It is, however, important to note that this statement applies only to this single retailer¹⁷⁹.

Another concern relates to private label products and the expectation that fewer new products could be introduced on the market as a consequence of the growth in private labels. By copying successful branded products, private labels may lower the incentives for cheese manufacturers to innovate, potentially resulting in lower innovation, and thus in less choice.

Private labels may therefore have varying effects in terms of choice, both positive and negative:

- The presence of private label products may imply an increased choice in terms of price, providing different price levels which may be positive for consumers.
- If the diversity of private label products is as developed as the diversity of branded products, the presence of private label products only adds to the available choice. This does not have a negative effect in terms of choice, but may be a problem for suppliers of branded products.
- If the diversity of private label products is less extensive than the diversity of branded products, the effect is reduced choice.
- The increase of private label products may eliminate some of the branded products and reduce incentives for the introduction of new products, in turn reducing their likelihood of being added to the shop assortment.

Figure 36: Cheese companies and market share development



Source: Euromonitor International

The figure above shows the increasing share of private labels, as well as the decreasing market share of FrieslandCampina brands. There are however no data available regarding manufacturers supplying private label products¹⁸⁰, thus it is not clear if the rising private label market share has a negative impact on FrieslandCampina's total sales. Other brand shares in the figure have remained stable or increased slightly. More generally, it is important to note the large market share of private labels in comparison to branded products.

¹⁷⁹ Interview with retailer. This statement was made by one retailer spontaneously and has not been asked to the other retailers interviewed.

¹⁸⁰ According to the Dutch Dairy Association, this data is not publically available

Limited shelf space is another factor that may impact consumer choice. The mid-sized supermarkets are the most common distribution channel for cheese, and generally the most popular means of food shopping in the Netherlands, whereas hypermarkets are rare. All things being equal, compared to other countries with a greater number of hypermarkets (e.g. France, the UK), the consumer choice would be lower in the Netherlands since less shelf space implies less choice, and vice versa. However, no data has been found to verify this. One retailer stated that in order to introduce a new product on the market, another product of the assortment needs to be taken away due to the space. On the other hand, a possible consequence of this situation is increased competition due to the limited space, which may spur innovation. The suppliers need to present new value-added products in order to obtain the shelf space required, and convince the retailers to invest in their specific products instead of another company's products.

Limited shelf space may therefore have both positive and negative effects on consumer choice:

- Since Dutch supermarkets are generally smaller than the many hypermarkets in e.g. France and the UK, they provide less space and therefore possibly less choice with regard to the amount of products.
- Higher market share of private label products further limits the shelf space available for manufacturer brands and possibly leads to less visibility for the branded products.
- Limited shelf space may lead to increased competition which, as a result, may encourage innovation and result in a greater number of new products introduced.

In addition to the above, some of the suppliers interviewed expressed concern about future developments of the retail market, and suggested that concentration could have an impact on consumer choice:

- One concern expressed is the lack of attention paid to consumer needs when retailers are too powerful. In this case, retailers would tend to focus more on growing on a national or European level, focusing less on the local consumer.
- On the other hand, a high concentration and consequent purchasing power at retailer level imply a fierce competition among the suppliers in order to satisfy the requirements of the retailers and secure their place on the market. As a consequence, this might spur innovative activity and result in new products introduced on the market.

To conclude, there appears to be a high and relatively stable level of choice in the Dutch cheese market. With regard to the criteria outlined in the beginning of this section, the number of brands presents on the market and its evolution have been discussed, involving both domestic and imported cheese, as well as private label products. The market provides a high level of choice both in terms of products, brands and price varieties. Three factors have been outlined as being the main factors influencing the choice available, i.e. the increasing market share of private label products, the limited shelf-space in Dutch supermarkets, as well as high but stable retailer concentration, measured in terms of the C5. Possible and future effects of these factors have been discussed in relation to choice; however, due to the lack of available data it is difficult to establish the exact size of the impact. The extension of choice is mainly driven by consumer demand and expectations. Due to the strong purchasing power of large retailers in the Netherlands, suppliers perform thorough market studies with the aim of demonstrating to retailers how new products will satisfy the consumer demand, and convincing the retailers to choose their products. Based on this observation, one could say that the extension of choice originates from the suppliers, however, based on the consumer demand which is translated into the demands of retailers.

The table below presents an overview of the perceived drivers (in order of importance, starting with the most dominant one), their impact and related examples.

Figure 37: Overview of perceived drivers of choice evolution, their impact and examples

Driver	Positive impact	Negative impact	Example
Increase in the market share of private label products	Higher choice in terms of total number of brands (branded products + PL products) and price range.	The growth in PL may have a negative impact on branded products. PL may discourage innovation and introduction of new products on the market (long-term development – less choice).	Provision of different PL products at different price levels. Important increase of PL products in recent years (c. 30% market share in 2012). Number of imported brands slightly reduced.
Limited shelf space	Competition among suppliers in order to get onto the shelves may spur innovation and the introduction of new products (long-term development – higher choice).	Limited variety of products available on the shelves (limited choice).	In comparison to other countries where large hypermarkets are more common, the choice in the Dutch typical smaller supermarkets is limited (number of brands and PL).
Supplier concentration	Positive effect on innovation when suppliers need to add value to the products in order to differentiate from their competitors. Thus, introduction of new products and increase of choice.	The larger, dominant suppliers have more resources and thus an advantage with regard to research and innovation. This may provide an advantage over smaller companies.	Dominance of FrieslandCampina, following the merger in 2008. BEL Groupe, CONO and Westland are important players, whereas the other suppliers are smaller.
Retail concentration	May have a positive effect on innovation and introduction of new products since the suppliers need to find a way of balancing the purchasing power of retailers (thus increase of choice).	Retailers focusing on international development may be less attentive to national consumer trends. New product developments might be less adapted to the national market.	Albert Heijn is the most significant player on the market – more than half of its revenues are generated in the US, their PL products account for the second largest market share after FrieslandCampina. JUMBO and Superunie are also important, whereas the other players are smaller. Increasing importance of discounters.
Consumer preferences and awareness	Appears to lead to an increased choice in terms of introduction of new products and motivates innovation.	The hypothesis that too much choice can be confusing for the consumer.	Types of packaging, usage, variety of price levels and products (national and imported brands, PL products)

5.5. Trends and drivers of innovation

5.5.1. Level of innovation

As previously noted, the Netherlands is a centre of knowledge and innovation in the agrifood sector with a strong position in this field. The historical presence of a large number of smaller dairies in the market, as well as trade openness to neighbouring

European players contributed to competition and innovation at an early stage. The “Food Valley”, south-east of Amsterdam, is host to research facilities such as universities, public and private research institutions and research departments of multinational food companies. Every year a Food Valley Expo takes place to promote innovation in the Dutch agrifood sector. Furthermore, government subsidies support the innovative food industry and aim to encourage research and development, as well as company cooperation¹⁸¹.

The strong innovation culture and the organisation of collaborative efforts in the dairy sector, organised by institutions such as the Dutch Dairy Board, have resulted in higher innovation and productivity. Another important actor is NIZO food research, founded in 1948 by the joint Dutch dairy industry, first as a control institute guaranteeing quality and food safety, later becoming an innovation institute and finally a private research company. Examples of new products resulting from NIZO work include the reduced fat and reduced salt cheese varieties¹⁸². The university Wageningen UR is another important actor in the area of dairy research.

Despite cheese being a traditional product in the Netherlands allowing for limited scope for innovation, the culture and history of food innovation in the country is also reflected in the cheese sector. Before the merger of Campina and Friesland Food in 2008, Campina was considered as an innovative company in terms of product development, whereas Friesland Food was considered as strong regarding technology and innovation at the processing level¹⁸³. There is an on-going effort to make production more efficient and to develop and improve existing products, adapting them to consumer preferences and needs. Within the dairy industry, innovation activities mostly focus on finding new product varieties and applying new ingredients, which add new functionalities.

Figure 38: Launch types of cheese in the Netherlands (2004-2012)

Launch type	Number of innovations	%
New variety/Range extension	135	32%
New product	187	44%
New packaging	80	19%
Relaunch	9	2%
New formulation	13	3%

Source: GNDP database

According to one supplier, over the past 10 years, innovations has evolved from being mostly focused on the efficiency in factories and technology to focusing on new varieties of products, adapting to consumer needs and preferences. This appears to be reflected in the GNDP data in the above table, pointing to an upward trend in product innovations. Cheese manufacturers today set out to predict and forecast the upcoming consumer habits and trends in order to adapt their products accordingly. Some companies also aim to create new habits and needs.

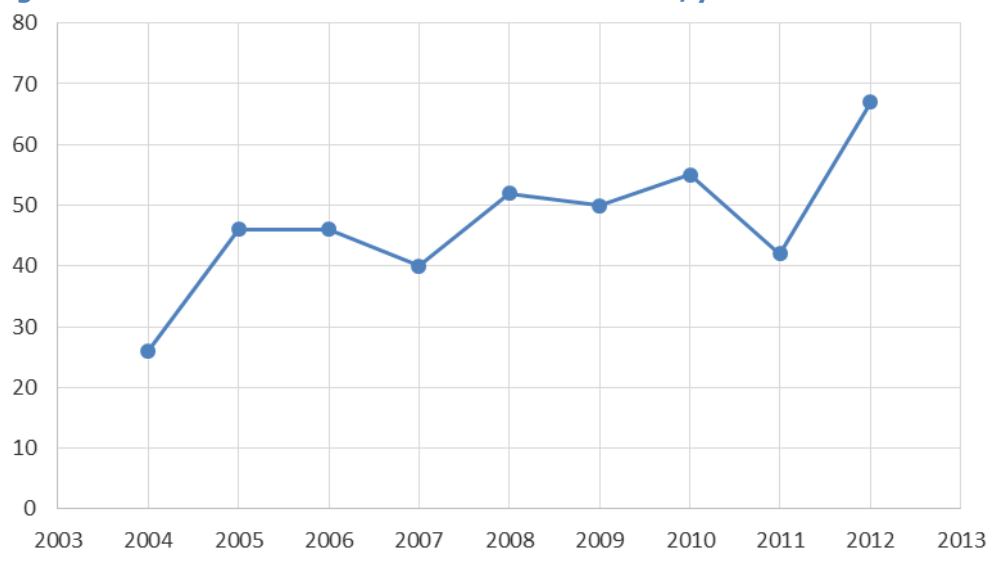
In addition, consumer awareness regarding origin and sustainability has also become increasingly important. Some suspect this could potentially benefit beneficial smaller suppliers to a greater extent than larger companies and multinationals.

¹⁸¹ BMI, Netherlands Food and Drink Report 2013

¹⁸² www.nizo.com (accessed on 27/09/2013)

¹⁸³ Competitiveness of the EU dairy industry, LEI Wageningen UR, 2009

Figure 39: Number of observed cheese innovations/year in the Netherlands



Source: GNDP database

The figure above provides an indication of the evolution in the number of new products introduced on the cheese market in the Netherlands. The data reflects both Dutch and imported cheese, and includes the five different types of innovations mentioned in figure 38.

The interviewed industry stakeholders have provided a number of examples of specific innovations that have been important over the past few years. The table below outlines these examples, as well as the drivers and potential consequences.

Figure 40: Examples of innovations in the Dutch cheese market

Innovations	Motivation	Drivers	Consequences
Packaging: small blocks of cheese, sliced cheese, "on-the-go" snacks, resealable packaging, convenience adaptations.	Urbanised population, increased number of single households, increased number of Dutch women in the workforce, longer working hours. Depending on the market, different consumer habits will be considered and products developed accordingly.	Consumer demand; Economic drivers at firm level; socio-demographic characteristics; regional characteristics	Smaller blocks, sliced cheese and advanced packaging imply a higher unit price. Pioneer: Westland Kaas, cheese traders
Usage: unprocessed spreadable cheese used for cooking, cheese used in salads and as appetizers (cheese cubes developed for this purpose).	Life style – less time available for cooking; competitiveness, i.e. companies creating a new need by proposing these products for cooking, aiming at increasing the frequency of cheese consumption.	Consumer demand; Economic drivers at firm level; socio-demographic characteristics; regional characteristics	Recently introduced and seems to have gained sufficient popularity to stay on the market.
Products: Lower levels of fat and salt.	Health and wellness awareness among consumers.	Consumer demand; Regulatory and policy barriers (health	Higher prices, due to increased production costs of this type of

		awareness)	cheese. It may also result in less taste.
Formulation: Production of organic cheese, locally produced developments, sustainable packaging, GMO-free products (regarding cattle feed etc).	Consumer awareness.	Consumer demand; Regulatory and policy barriers (e.g. awareness of labelling, GMO)	Easier for smaller cheese factories to adopt to these needs, applying organic ways of production that are less available to multinationals.

Looking at the above table one can conclude that the main drivers for innovation appear to be consumer demand, preferences and expectations, as well as the competitiveness of cheese manufacturers.

5.5.2. Analysis

Innovation in the cheese market in the Netherlands is used as a way for companies to increase customer loyalty, gain new customers and profits in a market that is rather traditional, through differentiation of the offer and responding to evolving consumer preferences. This section describes and analyses the main drivers affecting innovation in the Dutch cheese sector.

Competitiveness on the national market and the role of retailers

Cheese manufacturers need to develop new products, maintain the quality in the existing ones, and convince retailers of the value-added of these products in order to get their products on to the market. The need to satisfy retailers is increasingly important due to the purchasing power of the retailers. This increasing power, following the growth of private label products and increased concentration at retailer level over the past few years, established a competitive environment for the suppliers and encouraged innovation. Developing specific and unique products has become a way of responding to the retailers' purchasing power according to one supplier. Retail concentration appears to have both negative and positive consequences on innovation and development of new products in the cheese sector, as mentioned above. The suppliers interviewed have expressed some concern with regard to retailer consolidation. Excessive purchasing power at retailer level limits the influence of suppliers on the market, while retailer concentration forces suppliers to adapt to the retailers' requirements. Furthermore, the increase in the market share of private label products in combination with strong retailers may threaten the market for branded cheese. In addition, private label products may have negative consequences on innovation, discouraging cheese manufacturers from investing in innovation since their new products are regularly copied by private labels, which offer the same products at lower prices. Although no quantitative evidence of this has been provided throughout the study, both interviewees and literature have supported this view.

Competitiveness in European and international markets

Since production costs are relatively high in the Netherlands compared to other countries, innovation is required for the products to be competitive. Another driver for innovation is also competition against other large foreign multinationals, especially those increasing their presence on the Dutch market (i.e. Scandinavian Arla and Fonterra from New Zealand). Looking forward, one expected innovation driver is globalisation, with China potentially becoming an export destination. The Chinese population is becoming increasingly accustomed to cheese through fast-food restaurants and westernisation; this might lead to an increase of cheese sales.

Consumer expectations

Dutch consumers are in general open to new products and receptive to value-added products. An increase in health awareness has resulted in a consumer trend towards healthy and functional products¹⁸⁴. An urbanised population, longer working hours and active life style are also affecting the consumer requirements. Another consumer requirement may be regional adaptations to specific food taste. Due to the culture of product innovation, consumers expect to see innovations coming from the larger companies, like FrieslandCampina. One interviewed retailer emphasised the importance given to consumer satisfaction as one driver for innovation. Looking forward, the ageing population in Europe and the preferences of older consumers is another area expected to shape the Dutch cheese industry in the coming years.

Consumer awareness regarding organic food, food and packaging sustainability as well as the importance of origin is another factor that affects the consumer demands, and as a consequence has the function of an innovation driver. The interest in sustainability decreased somewhat since the beginning of the economic crisis, but it appears to have recently gained in importance for consumers again. One supplier suggested that the information and transparency available through e.g. the Internet has increased this awareness and resulting consumer interest; it might become increasingly important in terms of the future development of new products.

The declining demand for milk

Consumer demand for milk in many European countries is declining or remaining stable. As a result, dairies look for possibilities of adding value to other already existing products, such as yoghurt and cheese, as a means of maintaining the revenues. To this end, larger companies, like FrieslandCampina, have more possibilities to do so, since research and development in combination with marketing may be very costly¹⁸⁵.

Quality requirements

Dutch government quality requirements mentioned previously guarantee a high quality level for all cheese products. However, they may also limit food innovation since the process to comply with the requirements is complex, and investment of time and resources is needed to have the new products approved. For example, all food products on the market must adhere to food quality standards, relating to e.g. ingredients and the presence of micro-organisms like bacteria. There are also a number of requirements concerning the amount of sugar, fat, sodium, calories and dietary fibre. The adherence to all these standards may result in a healthy choice label awarded to the product¹⁸⁶. One interviewed retailer suggested that the focus on quality will become increasingly important in the future.

The role of governmental bodies and the high organisation of the dairy sector

In addition to the quality requirements set by the Dutch government to guarantee the high quality of cheese products, the overall involvement of governmental bodies has been reported to be important for innovative activity in the Dutch cheese sector. In combination with the highly organised nature of the sector, comprising a variety of agrifood research centres, producer organisations and other stakeholders, this seems to have a positive influence on innovation. Finally, government subsidies supporting food research and innovation are seen as an important driver.

¹⁸⁴ BMI, Netherlands Food and Drink Report 2013

¹⁸⁵ BMI, Netherlands Food and Drink Report 2013

¹⁸⁶ Government of the Netherlands, <http://www.government.nl/issues/food-and-food-safety> (accessed January 24, 2014)

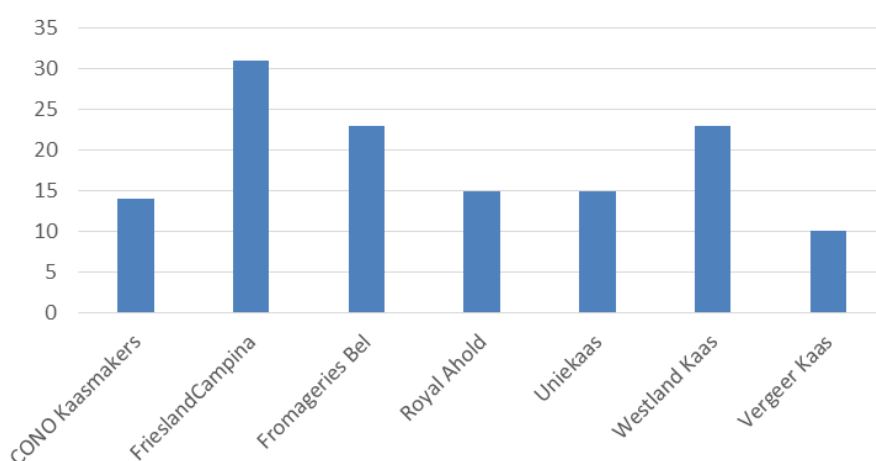
Supplier concentration

Regarding the consolidation at supplier level, all types of suppliers recognise the need to innovate and differentiate. Rouveen, for example, is solely focusing on cheese specialities and is almost only supplying cheese traders for different purposes. CONO on the other hand has a variety of brands and refuses to sell cheese under private labels. By contrast, FrieslandCampina supplies retailers both with their own brands and private label cheese. Other companies may focus on traditional cheese or on local production and organic cheese. A company like FrieslandCampina may have advantages with regard to capacity, research, and innovation facilities, whereas smaller companies may be more flexible and quicker in their processing and able to adapt their products to the market in a more efficient way. According to one interviewee, innovation comes both from smaller and bigger cheese manufacturers, even though larger players have more resources and facilities which may enable a larger number of innovations¹⁸⁷.

Cheese traders

Cheese traders may also have an active role in innovation. Westland Kaas, which introduced the sliced cheese to the market, is one example. In particular, traders have been active in the innovation of packaging, as has been noted previously, but also in product innovation e.g. the Old Amsterdam, a fast ripening cheese which was introduced by Westland Kaas¹⁸⁸. However, following the forward vertical integration of the cheese industry in the Netherlands, the innovative activity at trader level is becoming less important¹⁸⁹. Forward integration implies that activities of one company are expanded to comprise control of the distribution centres of the products, i.e. cheese traders in this case. Many cheese traders have been bought by cheese manufacturers and integrated into their activity, and as a result the innovative activity rather lies with the cheese manufacturers than with the cheese traders.

Figure 41: Number of innovations per company (2004-2012)



Source: GNDP database

The figure above suggests a correlation between the number of new products introduced on the market and the size of the companies. Assuming these new products to be innovations, FrieslandCampina and Fromageries Bel (Bel Group), i.e.

¹⁸⁷ Interview with retailer

¹⁸⁸ Interview with DDA

¹⁸⁹ Interview with DDB

the larger companies, appear to be the most innovative producers along with Westland Kaas, the cheese trader. Larger companies with more resources to invest in innovation activities seem to provide the market with most new products.

Consumer preferences may be addressed differently by multinational companies compared to smaller companies. Multinationals and very large companies may make different decisions and choices, focusing more on growth at an international level, whereas smaller companies depend on their consumers in the local market and take their interest and requirements into due consideration. A disadvantage for the smaller companies, according to one supplier, is the relatively limited resources to spend on research activity. Research may lead to new, value-added products and advantages on the market for the larger companies investing considerably in research. One example of this is the research and innovation centre which was recently opened by FrieslandCampina. This advantage is reflected in the innovation patterns in the figure above.

The table below provides an overview of perceived drivers (in the order of perceived importance), their impacts and related examples.

Figure 42: Overview of perceived drivers of innovation, their impacts and examples

Driver	Positive impact	Negative impact	Example
National competition and retailer concentration	Competitive environment spurring innovation. Suppliers need to provide value-added products adapting to retailers' requirements.	Increase of PL products and their copy-cat function may discourage innovation.	Introduction of new products and varieties on the market.
European and international competition	High innovation is required to produce competitive products compensating for high production costs.		Important export despite high production costs, partly thanks to innovation and high quality products.
Supplier concentration	Each cheese manufacturer strives to find its own niche and to offer innovative products with the aim of distinguishing themselves from the other suppliers. The dominance of FrieslandCampina in particular and other large suppliers gives them an advantage in terms of resources available for research and innovation.	Small suppliers do not have sufficient means to develop R&D and innovate	Rouveen focused on cheese specialities, whereas CONO concentrates on traditional cheese types.
Consumer expectations and awareness	Incentive for innovation both adapting to consumer needs and preferences, and also to create new needs through the introduction of products on the market.		Adapting to the needs and preferences of consumers some innovations include new packaging and usage, reduced salt/fat/sugar in cheese, organic, ecological and locally produced products.
Demand for milk	The decreasing demand for milk in many European countries has led to increasing innovation in other dairy products like cheese, as well as efforts in		Unprocessed spreadable cheese used for cooking.

	increasing usage and frequency of consumption.		
Quality requirements	High quality products, increase in market share of private label products.	May hinder innovation, since it becomes costly and time-consuming to experiment, satisfying the quality requirements.	Private label products increasingly accepted by consumers due to high quality.
Cheese traders	Have had an important role in innovative activities, particularly for packaging, but also product innovation.	Lately, the impact is less important due to the increasingly vertically integrated supply chain.	Packaging – the cheese trader Westland introduced the sliced cheese. Products – Old Amsterdam, introduced by Westland.

This section has described the level of innovation in the Dutch cheese industry, establishing that it appears to be high, despite cheese being a traditional product. Consumer demands are increasingly taken into account and new products are adapted accordingly. The main drivers impacting innovation have been identified and analysed, leading to the conclusion that competitiveness at national and international level, concentration at retailer and supplier level, and consumer requirements appear to be the strongest drivers.

5.6. Conclusions

This case study has aimed to investigate the Dutch cheese market and supply chain, developing an understanding of the evolution of choice and innovation, and identifying the drivers behind these evolutions. To conclude the case study, four points of particular interest, characterising the Dutch cheese market, are highlighted.

Choice is high but relatively stable, whilst innovation has steadily increased over recent years

There appears to be a high and relatively stable level of choice in the Dutch cheese market. There appear to be a broad range of brands present in modern retail, both domestic and imported cheese brands, as well as a growing number of private label products. The market therefore provides extensive choice in terms of products, brands and price varieties.

Innovation in cheese has increased over the last decade in the Netherlands, despite cheese being a traditional product implying limited motivation for innovation. There are on-going efforts to make cheese production more efficient and to develop and improve existing products, adapting them to new and evolving consumer preferences and needs.

High supply concentration and vertical integration

The Dutch dairy sector is characterised by high concentration at supply level with one dairy cooperative controlling 80-85% of the milk produced. At the same time, the industry is highly organised and vertically integrated, two characteristics which seem to encourage innovation. In addition, the tradition of food research and innovation plays an important role also in the cheese sector. Innovation is primarily driven by competitive pressures on the national, European and international level. Furthermore, consumer demand and expectations are also important drivers. This study has highlighted a high level of concentration in the food retail sector in the Netherlands, which has increased further over the past few years; the market is now dominated by three large retail groups. Despite this, there are possibilities for new actors to enter the market. Discounters such as Aldi and Lidl have recently entered the market with

good results and increasing shares, constituting a potential threat to the larger retail groups. This development may also be due to the economic recession and consumers switching to less costly alternatives.

High supply concentration does not appear to hinder innovation in the Dutch cheese sector. Each supplier makes an effort to differentiate from competitors. FrieslandCampina invests considerably in research and innovation, other companies focus on traditional cheese (e.g. CONO), and others on cheese specialities (e.g. Rouveen). The only concern resulting from our research and interviews is the potential limited interest of overly strong multinational actors in the local market, in comparison to smaller national manufacturers. These companies might invest in innovation, but their innovations might be targeted at the European or international market. Smaller companies, on the other hand, may not have the resources required to invest in innovation and larger producers may therefore have a market advantage leading to increased innovation and choice, but less adapted to the national consumer requirements.

Increase in popularity of private label products

Due to the economic climate, consumers tend to turn to less costly alternatives. This is observed through the growing popularity of private label products. In addition, stringent quality requirements guarantee an equally high quality of these private label products, while retailers manage to keep the prices low as a result of costs saved on marketing and brand development. So far, the effect on consumer choice is not evident. The limited shelf space and resulting competition may spur innovation. However, in some cases big manufacturers invest in innovations and product development that are subsequently taken over by private labels and sold at a lower price. This, in turn, may discourage innovation and result in a decreased consumer choice. With regard to consumer choice, the consulted stakeholders have not noted any concerns concerning the current situation. In fact, over the past 10 years, innovation with regard to product development and new varieties appears to have increased, adapting to consumer requirements.

Tradition of food innovation in an export oriented-industry

Competition with multinationals and smaller companies on the European and international market appears to be an important driver for innovation in the Netherlands. The high production costs of Dutch cheese are a drawback for Dutch competitiveness, which may be compensated by innovation and product development. An organised and well-structured sector in combination with government subsidies has strongly supported innovative activity in the Dutch cheese sector. On the other hand, quality requirements are often lower with regard to exports and therefore less resources may be spent on research for the products that are due to be exported. Suppliers, however, expect increased exports over the coming years, since cheese consumption is already very high and stable in the Netherlands, whereas it is likely to increase in the global market, like e.g. China. Raising exports could imply further innovation in order to distinguish Dutch cheese on the international market. Both traditional cheese and new varieties have been reported to constitute part of the current exports.

To conclude, although cheese is a traditional product in the Netherlands, the level of innovation is high on the Dutch cheese market and consumer choice appears to be stable. Important developments in the sector include increased concentration on retailer and supplier level, vertical integration and an increasing popularity of private label products. Based on the data collected throughout the case study, to date this concentration does not appear to have threatened the level of innovation and choice.

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Title	Year	Author/Source
STUDIES & DATA		
The impact of private labels on the competitiveness of the European food supply chain	2011	European Commission, DG ENTR
The Benelux Food Retail Market	2012	USDA Foreign Agricultural Service, Global Agricultural Information Network
Dutch retail trade on the rise? Relation between competition, innovation and productivity	2006	CPB Netherlands Bureau for Economic Policy Analysis
Friesland's Food/Campina: a merger between the two Dutch dairy cooperatives approved with a set of comprehensive remedies	2009	Merger Control
The Dutch Dairy Sector	2013	Dutch Dairy Board
Dutch Dairy in Figures 2012	2012	Dutch Dairy Board
World Trade Update	2013	Dutch Dairy Board
Co-operatives – between myth and reality	2012	European Milk Board
Competitiveness of the EU dairy industry	2009	LEI Wageningen UR
Milk and milk products in the European Union	2006	European Commission DG AGRI
The European Cheese Market, Industry note	2011	Rabobank
Synopsis of Member States' National Competition Authorities contributions on the Milk Supply Chain	2009	European Commission, DG COMP
Competitiveness analysis of the Netherlands and the Dutch Dairy Cluster	2011	Microeconomics of competitiveness
Netherlands Food and Drink Report, Q3 2013	2013	Business Monitor International
Passport	2013	Euromonitor International
GNDP Netherlands Food Innovation	2012	GNDP database
ONLINE SOURCES		
Government of the Netherlands		http://www.government.nl/issues/food-and-food-safety
Superunie, purchasing organisation		http://www.superunie.nl/
NIZO Food Research		www.nizo.com

Interviews

TYPE OF STRUCTURE		STRUCTURE	ROLE
Researchers and association		Dutch Dairy Board	Economist
		Dutch Dairy Association	Marketing and communication
		Wageningen UR, Research Institute	Researcher, Consumer and behaviour
Producers and processing companies		Processor 1	Director Business Unit
		Processor 2	Head of department for product development
		Processor 3	Marketing Manager
Retail		Retailer 1	Sourcing of cheese/legal department
		Retailer 2	Communication department

6. Olive Oil in Spain

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6.1. Adopted methodology and scope

Prior to undertaking a case study regarding olive oil in Spain, it is essential to define the exact scope being considered. According to International Olive Council (IOC) specifications, there are three basic kinds of olive oil produced by mechanical means: 1) virgin olive oil, 2) refined olive oil blended with virgin, and 3) lampante olive oil.

The first two are considered edible, and therefore considered in this case study, whilst lampante oil is not edible due to the levels of acidity. There is also a sub-product chemically extracted, referred to as Pomace oil, which is, by itself, not edible.

Furthermore, it is important to mention that European legislation prescribes that olive oil can only be sold in packages to final consumers, and therefore cannot be sold in bulk.

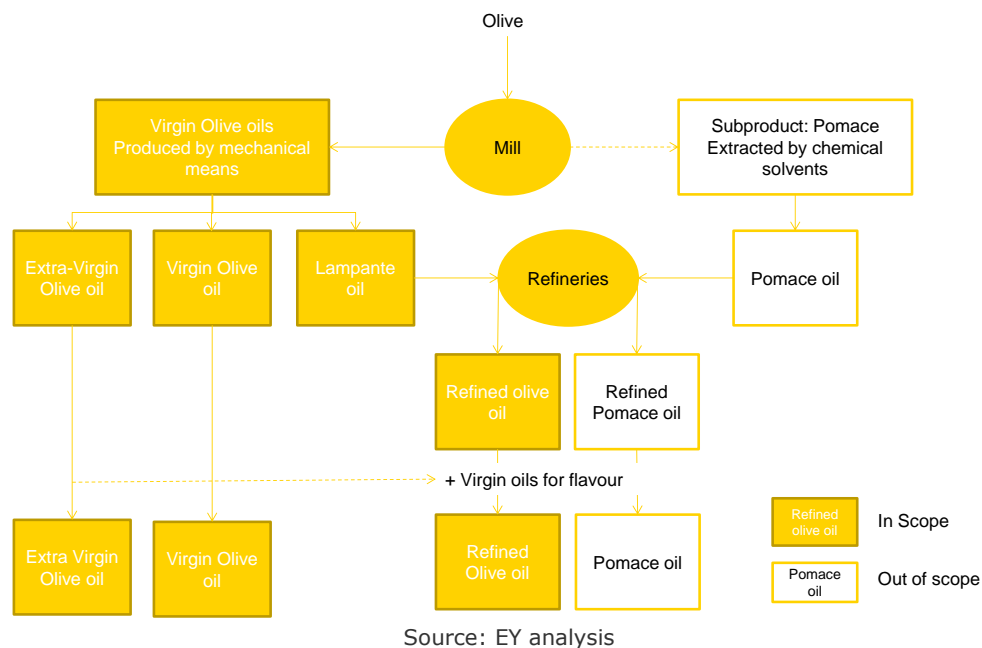
An introduction to each kind is provided below¹⁹⁰:

- “Virgin oil” signifies oil produced by the use of physical means and having undergone no chemical treatment. It can be labelled both as virgin oil or extra-virgin oil, determined by the level of acidity.
 - Extra-virgin olive oil originates from virgin oil production only, contains no more than 0.8% acidity, and is considered to have a superior taste.
 - Virgin olive oil originates from virgin oil production only, has an acidity level less than 1.5%, and is considered to have a good taste. This category includes all 20 “Protected Guarantee of Origin” (PGO) olive oils, which are specific virgin oils.
- “Olive oil” consists of a blend of refined olive oil (having undergone chemical treatment to be fit for consumption) and virgin olive oils, fit for immediate consumption. It has a free acidity, expressed as oleic acid, of no more than 1% and its other characteristics correspond to those fixed for this category in this standard. Refined olive oil is obtained from virgin olive oils by refining methods which do not lead to alterations in the initial glyceride structure. It has a free acidity, of no more than 0.3 grams per 100 grams. The oil has been chemically treated to neutralize strong tastes (characterized as defects) and neutralize the acid content (free fatty acids). Refined oil is commonly regarded as lower quality than virgin oil. Oils with the retail labels “extra-virgin olive oil” and “virgin olive oil” cannot contain any refined oil.
- Lampante oil and Pomace olive oil are not fit for immediate consumption and have a free acidity, expressed as oleic acid, of more than 3.3%. Other organoleptic characteristics have been fixed by the IOC for this category. They are intended for refining or for technical use.

An illustration of the scope of olive oil for this study is presented in the figure below.

¹⁹⁰ <http://www.internationaloliveoil.org/estaticos/view/83-designations-and-definitions-of-olive-oils>

Figure 43: Olive oil definitions: in-scope and out of scope products



The scope of the study covers all **edible olive oil produced and consumed in Spain** and available for sale in modern retail shop formats. Some information and data on exports has been included, in order to study the impacts that exports may have on choice and innovation on the domestic market. Under European legislation, olive oil can only be considered as such if the sole ingredient is olives: adding any other element to olive oil requires an alternative classification and is therefore considered a "sauce". This study does not consider olive oil based products defined as sauce.

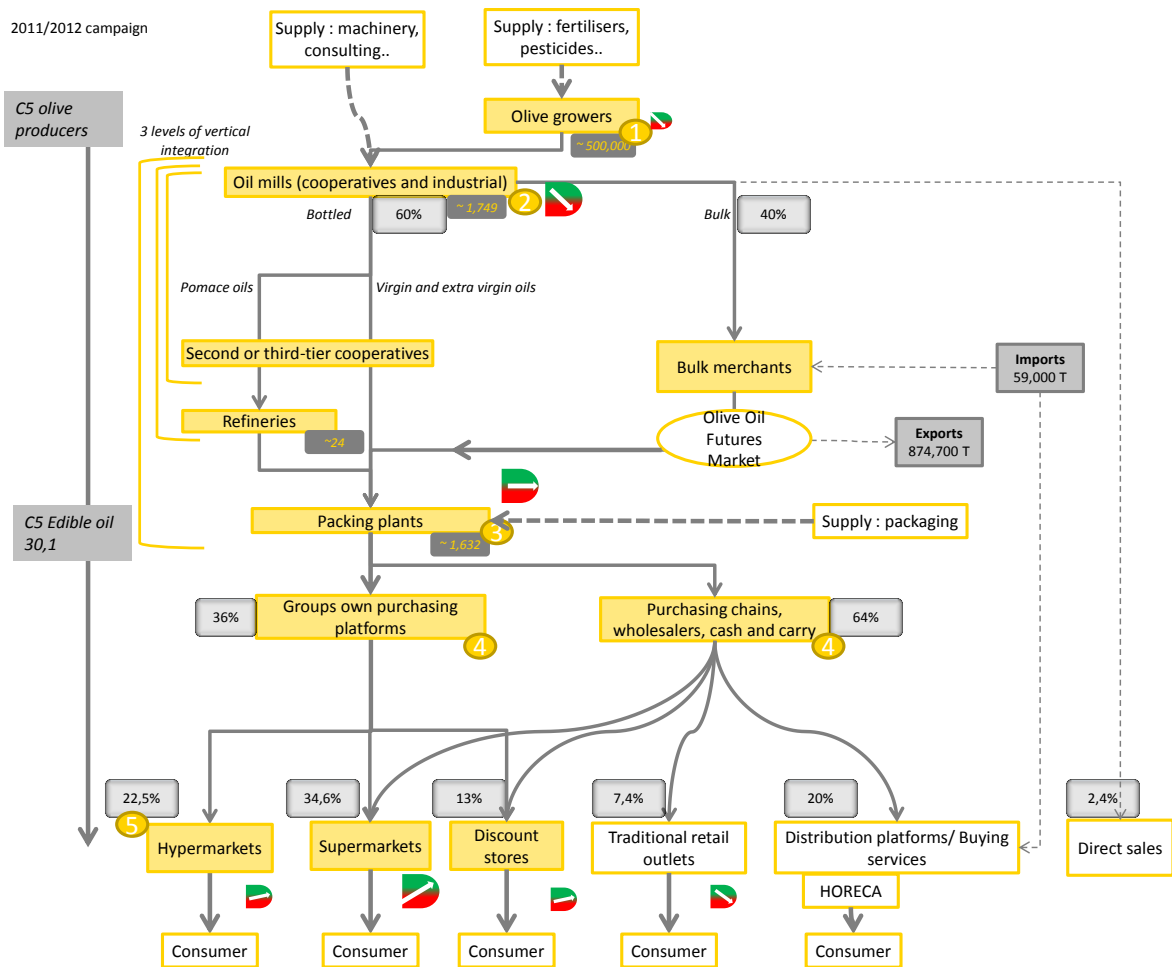
The case study is based on an extensive literature review, qualitative interviews with main stakeholders in Spain and statistical analysis from various databases.

6.2. General characteristics of the market

6.2.1. Production

Spain is the largest olive oil producer in the world. The production value chain is characterised by a large variety of actors including growers, mills, cooperatives, bulk merchants, packers/packing plants. The role of cooperatives is essential in oil production with 67% of total production volume. Increasing concentration among those cooperatives is taking place, potentially to lower their production costs thanks to scale economies as well as to strengthen the bargaining power of producers vis-à-vis retailers. This concentration is occurring through the increase in second-tier and third-tier cooperatives, which are cooperatives of cooperatives. Olive oil is a basic commodity in Spain - the high demand for low-price olive oil from consumers and therefore from retailers at procurement level is a cause for tension between producers and retailers.

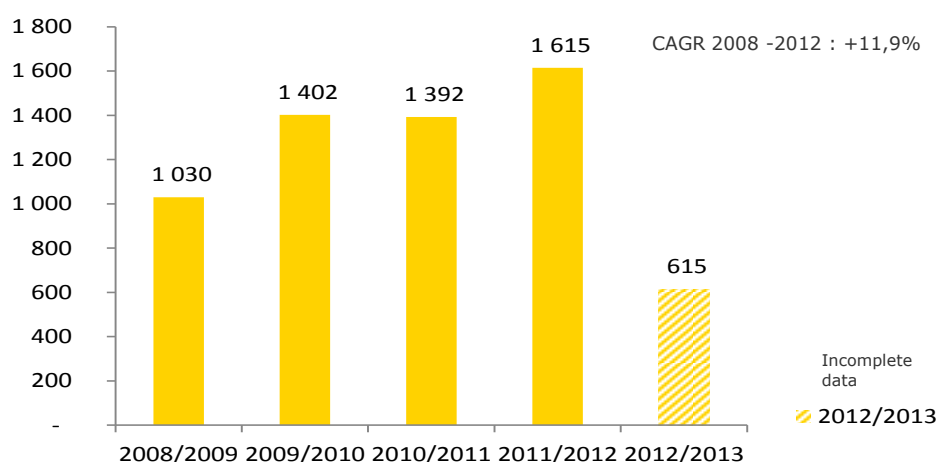
Figure 44: Overview of the olive oil production chain



Source: Agencia del Aceite de Oliva / Interprofesional del aceite de oliva

Spain is the largest olive oil producer in both Europe and worldwide.

The production of olive oil has been constantly growing, with the exception of the latest campaign (2012 / 2013), where harsh weather conditions have resulted in a fall in production. The cumulative annual growth from 2008 to 2011 is + 11.9%. Spain produces 40% of the world’s olive oil on average (47.8% in 2011/12) and accounts for around 28% of worldwide exports (outside the EU). Given that the data for 2012 / 2013 was still incomplete at the time of this report, the increase in volume between 2008 / 2009 and 2011/ 2012 is highlighted in the graph below.

Figure 45: Evolution in production in Spain in olive oil in thousands of tons

Source: Agencia del Aceite de Oliva

Production is geographically focused in Andalusia

In 2011, Andalusia accounted for close to 360,000 t of oil-olives produced in Spain, representing 85% of the national total (c. 417,000 t). Next in line came Castile-la Mancha and Extremadura with shares of 8% and 3%, respectively.¹⁹¹ The municipality of Jaen in Andalucía is the largest producer in Spain. Production in Jaen, on average, exceeds the entire annual Italian olive oil production output. This has two main impacts on the production chain: 1) producers' organisations are mostly local organisations, however 2) this proximity increases the need for producers to differentiate and develop a national or international market strategy.

The olive oil sector benefits from solid productivity compared to other EU producers, however this productivity level does not guarantee high profitability

Almost all harvesting is mechanical and extraction is done using new, modern processes. Farms produce olives which are sold to mills (cooperative or industrial). From 2000 to 2010, the margins and income indicators of olive farms in Spain have, on average, undergone a downward trend, with an approximate one-third drop in nominal terms (-38% in family income per work unit). This is due to the lack of productivity gains, economies of scale and the downward trend in prices.¹⁹²

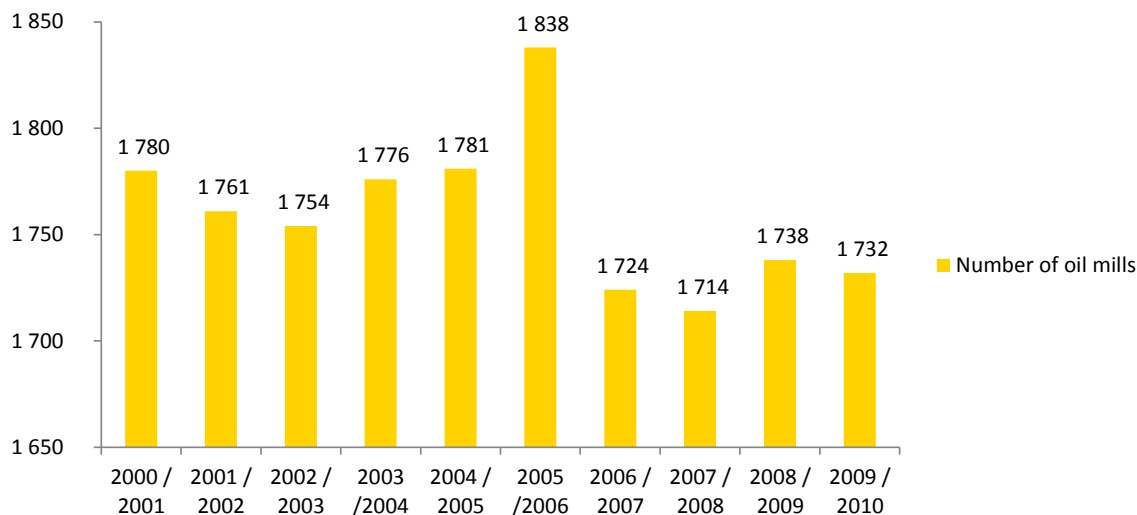
There is large number of growers, however olive growing is predominantly a part-time activity

There are over 500,000 olive growers¹⁹³ accounting for a rather large land area (14% of all agricultural land in Spain). This said, most olive growers are only part time growers. In 1999, 41% of olive grove growers undertook other income-generating activities beyond olive cultivation. Out of this 41%, the "other activity" was the main activity for 88% of growers. This can be explained by the small scale of most olive groves and the concentration of tasks at specific times of year. The structure of the olive plantations is strongly linked to the history context. On average, olive plantations in Spain are small, with centenary trees.

The main players in the production of olive oil are *Almazaras* (oil mills), which are run by either industrial actors or agricultural cooperatives.¹⁹¹ Source Agencia del Aceite de Oliva (AAO), 2011/2012 campaign¹⁹² Economic Analysis of the Olive Sector, EC, DG AGRI, Jul. 2012¹⁹³ Interprofesional del Aceite de Oliva / <http://www.interprofesionaldelaceitedeoliva.com/portal/>

These *Almazaras* buy olives from growers, and produce oil by grinding the olives and extracting the oil. The number of oil mills has been relatively stable over the past five years, following a drop in 2006.

Figure 46: Evolution of number of players in production



Source: Agencia del Aceite de Oliva

Agricultural cooperatives are the main players in the extraction and transformation of olive oil into a final product.

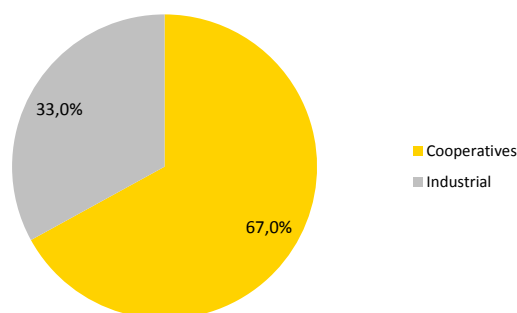
Oil mills are run by either agricultural cooperatives or industrial entities. Cooperatives are organisations owned and jointly run by their members, who share the profits or benefits, whereas industrial entities are private commercial entities. Although cooperatives represent 55% of all processing businesses, they represent 67% of all olive oil produced in Spain in terms of volume.

There are first, second and third-tier cooperatives¹⁹⁴ that produce olive oil; whilst some also have bottling activities. First tier cooperatives are organisations of olive growers, second-tier cooperatives are made up of cooperatives, whilst third tier cooperatives are unions of second-tier cooperatives. There are 1,744 processing businesses (oil mills), including some 947 cooperatives, that produce olive oil, although the majority do not bottle or market oils. In general, the cooperative movement - whether first or second grade - is limited to olive oil production. The typical size of oil mills (per production volume) is variable: most mills produce between 20 to 100 thousand tons, although 11% of oil mills (over 1,000 thousand tons) produce 34% of total national production.

Oil mills are becoming increasingly vertically integrated: most of them are integrated with a packing plant. Cooperatives have become a key player in terms of production, and their concentration is reinforcing their importance. Second-tier cooperatives, such as Hojiblanca, and third-tier cooperatives, such as Oleo-España, have emerged and seized a large market share.

¹⁹⁴ Agencia del Aceite de Oliva (AAO)

Figure 47: Market structure by type of organisation in % of volume in 2006



Source: AAO

Packing plants are key players in the olive oil industry, and their organisation into strong unions is important as it increases the bargaining power. Whilst most packing plants are integrated to *Almazaras*, they are still considered as independent actors: many bottle other kinds of oil in addition to olive oil, and they put the olive oil on the market. Most industrial oil bottlers are grouped in the producer organisation ANIERAC, which had a market share of 75% in the bottled vegetable oil market in 2011/2012¹⁹⁵.

A few large groups control the majority of the olive oil market. The trend in the upstream market has been stronger vertical integration either through cooperatives or merger of industrial players. In recent years, the concentration of producers has increased with the merger between Deoleo and Hojiblanca in 2012, and most recently with the merger of Hojiblanca and Tierras Altas Aceites de Granada to create DCoop, the largest oil producer in the world.

The five main cooperatives in the production of olive oil are Hojiblanca, Oleoestepa, Jaencoop, Tierras Altas and Olivar de Segura. Together they have 37.2% of market share. Hojiblanca (now DCoop) is by far the largest player in the market with a market share of 24.4%.

Figure 48: Market structure by main players in % of value in 2012

Name of player	Market share (value)	Main shareholders	Comment
Hojiblanca / Dcoop	24.4%	171 cooperatives	Extra virgin olive oils, protected denomination of origin, special oils marketed for specific uses and vinegars
Oleoestepa	5.5%	16 cooperatives	7 brands: Estepa Virgen , Egregio Ecológico, Oleoestepa Selección , Oleoestepa Hojiblanco, Oleoestepa Arbequino, Oleoestepa Especial Gran Consumo, Salt and vinegars, Boxes for presents
Jaencoop	3.2%	11 cooperatives	6 brands
Tierras Altas	2.3%	15 cooperatives	In 3 years, the cooperative has become a major player in national and international markets.
Olivar de Segura	1,8%	14 cooperatives	4 brands of edible olive oil, one of vinegars, one of cosmetics

Source: DCoop

¹⁹⁵ Based on interviews

6.2.2. Upstream production organisation

The upstream structure of the olive oil industry is large and concerns many levels of the production chain. This represents high costs and puts pressure on the profitability of growers and producers. For the production of olives, the upstream industry involves all actors providing the olive growers with chemical entrants, fertilisers, pesticides, as well as those providing machinery for harvesting. For the processing of olives into oil, suppliers provide everything from machinery to consulting services, including scientific instruments to test the quality of the oil.

Some cooperatives take advantage of their size to provide a range of services for their members, such as DCoop¹⁹⁶. As for the bottling process, the supply side is made up of package suppliers. Some players, such as Aceites Toledo, produce their packaging themselves, to increase the added value of their products.

6.2.3. Retail organisation

Modern retail has overtaken traditional retail in Spain in the past twenty years: 7 out of 10 olive oil bottles are bought by consumers in supermarkets and hypermarkets.

The downstream structure (trade) is fairly concentrated. The largest retail groups in Spain, Mercadona, Carrefour and Eroski (with respectively 23.5%, 7.3% and 6.1% of the edible grocery market share in 2012) operate their own group purchasing organisations. Companies with lower shares of market, such as Dinosol, Ahorramás and El Árbol, rely on purchasing organisations made up of different affiliated companies to seek to obtain better prices for their supplies. The two main procurement organisations are Euromadi and IFA which each have 20% market share (40% total¹⁹⁷).

There is increasing concentration in the retail sector at national level, especially in the edible grocery sector. In 2004, 27 retail groups represented 50% of edible grocery market shares, with the five largest representing 37%. In 2012, the five largest retail groups represented 47% of edible grocery market shares¹⁹⁸. However this increasing concentration at national level is not necessarily reflected at local level. To illustrate this, from 2004 to 2012 the number of modern retail stores has increased from 8,903 to 9,702¹⁹⁹. In term of shop type, the number of hypermarkets has increased from 45 to 69 (1% in 2004 and 2012), supermarkets have increased from 5,408 to 5,877 (61% in 2004 and 2012) and discount stores from 3,450 to 3,756 (38% in 2004 and 2012)²⁰⁰. This would suggest that local concentration may not be increasing due to the opening of new shops and banners.

The modern retail sector has strongly evolved in the last 20 years. The rapid implantation of hypermarkets with large floor spaces and broad product assortment has been dampened by the 1996 law regulating the retail sector (*ley del comercio minorista*).

Supermarkets are the dominant format at present, representing 47% of household grocery purchases²⁰¹. In recent years, the growing importance of this commercial format has been accompanied by a decline in the role of traditional retailers, whose edible grocery market share dropped from 35.6% in 1995 to 27.7% in 2009. Until 2010, a special licence was required for discount stores, which limited their impact on the market. The impact of the reform in 2010 was the object of a report by the national authority on competition (CNC) on the relation between retailers and the food sector.

¹⁹⁶ <http://www.dcoop.es/secciones/suministros/datos-generales/>

¹⁹⁷ Corporate info available on their websites

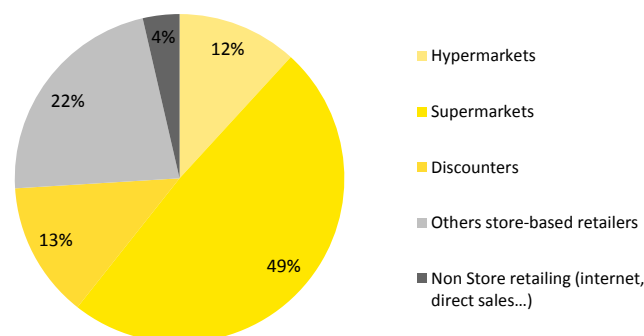
¹⁹⁸ Nielsen database

¹⁹⁹ Planet Retail

²⁰⁰ Planet Retail

²⁰¹ Report on the relations between manufacturers and retailers in the food sector, CNC

Figure 49: Retail distribution of oils and fats in Spain in 2012



Source: Euromonitor Passport

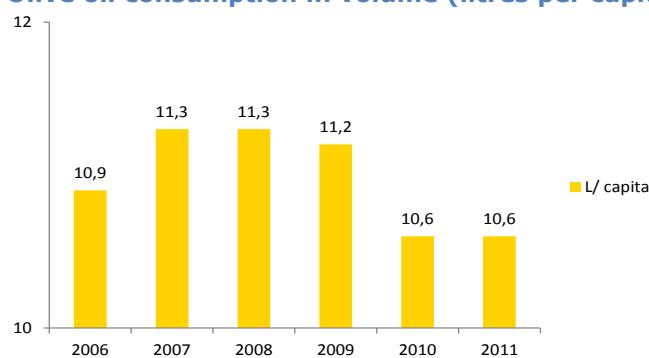
Spain is the first olive oil exporting country in the world, with an increasing share of packaged olive oil. As the domestic market is fairly mature, export markets are seen as providing most growth opportunities, with different consumption habits allowing more creativity. For instance, most innovations in “sauces” are first and foremost destined for export markets²⁰².

Spain is the first olive oil exporting country in the world, with annual average exports in the last 10 years of more than 300,000 tons, even reaching 600,000 tons in some years.

6.2.4. Consumption

Olive oil is one of the most frequently consumed products in Spain (20 kg/year/consumer)²⁰³ and is at the heart of the traditional Mediterranean diet²⁰⁴. It is used both chilled, in salad dressings for instance, and to cook and fry many dishes. Olive oil is considered as healthy in comparison to other vegetable oils because of its high proportion of unsaturated fat. Domestic consumption of olive oil represents less than half of the country’s production: the incentive to innovate and create more olive oil-based products for the domestic market is considered as lower than for export markets²⁰⁵, where prices are higher. Nonetheless, as presented below, the consumption of olive oil decreased in 2009, at the highest point of economic recession where GDP/capita lowered.

Figure 50: Olive oil consumption in volume (litres per capita per year)



Source: INE

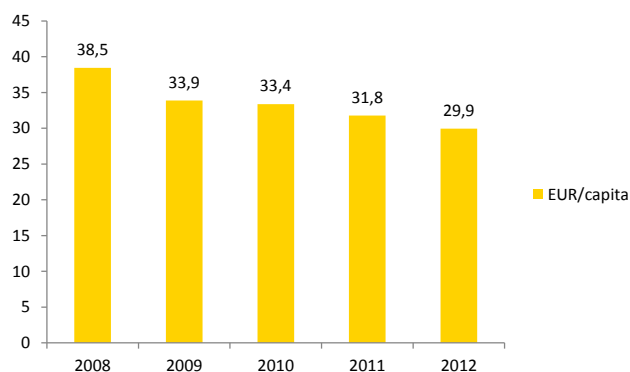
²⁰² Based on literature review and interviews

²⁰³ Kantar Worldpanel

²⁰⁴ The Mediterranean Diet is now part of the World Heritage list of UNESCO

²⁰⁵ Based on interviews

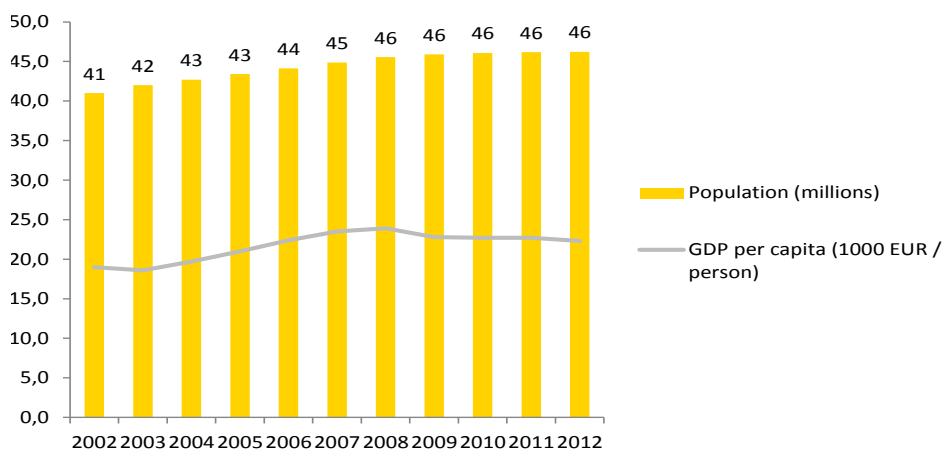
Figure 51: Olive oil consumption in value (EUR per capita per year)



Source: MAGRAMA

The economic crisis since 2009 has had a strong impact in Spain, increasing consumer sensitivity to price. This has impacted Spanish household purchasing power, even for basic commodity products such as refined olive oil. Although historically already high, the price sensitivity of lower income households has increased, and a substitution towards other vegetable oils has been observed.

Figure 52: Population and GDP per capita evolution in Spain



Source: Eurostat

Consumption habits differ across regions, which impacts product assortments at a regional level. A study from the Ministry of Agriculture in 2007/2008 indicates that the highest consumption of oil is in the Canary Islands and in the north of Spain, especially in Galicia and la Rioja (4.8 litres above average). In 2012, the highest consumption of olive oil per person was in Cantabria and Castilla y Leon, with 13.8 L/year/person and 12.5 L/year/person, respectively. The lowest consumption was in Comunidad Valenciana and Castilla-La Mancha. Highest income households buy more virgin and extra-virgin olive oil (26.6% above average and 33.7% above average, respectively). Consumers over 65 years old purchase the highest volumes of olive oil in general (70% above average), whereas consumers under 35 purchase the lowest volumes (50% below average). Global consumption in volumes has dwindled since 2009, especially in households with children.

Consumer trends and expectations are evolving, with an increasing tendency towards virgin and extra-virgin olive oil. The nature of Spanish consumption differs from other Mediterranean countries. In Italy and Greece for instance, the majority of oil consumed is extra virgin²⁰⁶, however in Spain virgin olive oil only represents 30% of total household consumption.

A recent study²⁰⁷ has demonstrated that Spanish consumers still have quite a low level of knowledge of olive oil characteristics. For instance, less than 30 % of regular olive oil consumers know that the "olive oil" grade is a mixture of virgin olive oil and refined olive oil. The poor knowledge of olive oil characteristics by Spanish consumers affects the demand for different types of olive oils and their market prices. Therefore, price elasticity remains high on the olive oil market in Spain.

Nonetheless, consumption habits in Spain are evolving. Spaniards are consuming an increasing amount of virgin and extra virgin olive oil. Whilst olive oil consumption in general has slightly decreased since 2009 (from 9.7 kg/year/consumer to 9.3 kg/year/consumer²⁰⁸), consumption of extra virgin oil has increased (3.4 kg/year/consumer in 2008 to 3.6Kg/year/consumer²⁰⁹); this growth is likely to continue.

This is linked to a general perception of virgin olive oil as healthier than other oils, and a better understanding of the different kinds of oils. This perception is in part fuelled by recent marketing campaigns and studies, for example studies on the impact of the Mediterranean diet on health. Organic olive oil consumption is also being developed, though on a smaller scale. Its consumption has been multiplied by 2.5 since 2007, but domestic consumption only reached 0.02 kg/year/consumer on average in 2012²¹⁰. On the other hand, the PGO label in Spanish olive oils is not yet an important factor in production and consumption, despite the fact that the first PGO was established in 1975. In 2004, even though one-third of all olive plantations fell into the geographic zone of a PGO, only 1.27% of the total production was marketed under a PGO label. In 2006, there were only 20 recognised PGO labels in Spain (as compared to 43 in Italy).²¹¹

6.2.5. Specific national issues

The role of producer organisations has been strengthened by EU legislation through the common organisation market (COM 1966): EU legislation has strongly influenced the current state of the olive oil production sector in Spain. Thanks to subsidies, the EU created major financial and structural incentives to produce more and higher quality olive oil.

However, such incentives are diminishing, with the end of the COM in 2001, which was absorbed into the Common Organisation of Agricultural Markets, and the global decrease of European subsidies.

Under the Common Organisation of Agricultural Markets, all direct subsidies to olive oil were cut. The only remaining aid is included in the *Mediterranean package*, with an aid planned for the upkeep of olive groves of environmental or social value. This aid is a maximum of 40 % of the aid previously granted, and is only granted for olive groves recorded in the geographical information system. Spain is the only country to have

²⁰⁶ source: European Commission, Directorate-General for Agriculture and Rural Development, update: July 2012

²⁰⁷ Francisco Jose Torres-Ruiz, Manuela Vega Zamora, Maria Gutierrez-Salcedo, Mar. – Apr. 2012

²⁰⁸ Source: MAGRAMA statistics

²⁰⁹ source: European Commission, Directorate-General for Agriculture and Rural Development, update: July 2012

²¹⁰ Victor J Martin Cerdeño, 2012 & MAGRAMA

²¹¹ Stephane Angles, 2007

decided to apply coupled aid for olive groves, amounting to EUR 103.14 million per year. 450,000 olive growers received aid from the CAP.

European subsidies per beneficiary have strongly decreased in the past five years, as can be seen in the graph below. This has led growers to increase their prices to maintain their profitability.

Figure 53: European subsidies received for olive oil

Year	Total paid for olive oil (M€)	Number of beneficiaries	Total received / beneficiary
2000	974	489 692	1 989
2001	1 030	518 327	1 986
2002	1 010	484 133	2 086
2003	1 039	513 482	2 023
2004	1 021	474 048	2 154
2005	1 028	500 987	2 052
2006	983	477 577	2 058
2007	110	314 411	349
2008	100	299 992	332
2009	96	290 318	331
2010	104	281 868	371
2011	0,6	818	682

Source: www.fega.es

Olive oil in Spain is an organized sector with a strong presence of institutional actors that have an important role in communication and marketing campaigns. There are three main institutional actors involved in the production of olives and of olive oil, which offer technical support for all levels of upstream actors and have a strong influence in global communication campaigns:

- The Olive Oil Agency (Agencia para el Aceite de Oliva)²¹²
- The Olive Growing Foundation (Fundación Patrimonio Comunal Olivarero)²¹³
- The Spanish Olive Oil Interbranch Organisation (Organización Interprofesional del Aceite de Oliva Español)²¹⁴

²¹² Spanish government agency attached to the Ministry of Agricultural, Rural and Maritime Affairs and legally recognised as an independent body with a separate legal personality and private assets. Specialised in olive growing, olive oil and table olives, its prime objectives are to ensure CAP subsidies for the sector are used effectively and efficiently; to ensure the olive oil and table olive markets are transparent; to ensure the sector operates smoothly.

²¹³ Non-profit organisation under the umbrella of the MAGRAMA. Its resources are allocated to achieve long-term objectives of general interest, including to promote olive oil on the domestic and foreign markets and to collaborate in advertising campaigns to boost olive oil consumption; to implement, promote and support research and studies to enhance olive and olive oil production and to contribute to the understanding of the dietary and health properties of olive oil; to provide advisory and information services for olive growers, as well as storage services (provided on a rental, collateral loan or purchase basis), quality control, packing and distribution services.

²¹⁴ Organisation made up of associations representing national producers, processors and marketers. Its chief aims are to promote consumption, to broadcast the benefits of olive oils, to drive research,

Two institutional actors are deeply involved in distribution:

- Olive Oil Futures Market (Sociedad Rectora de Futuros del Aceite de Oliva, S.A. (MFAO): the official Spanish exchange for futures trading in olive oil where futures contracts for olive oil are negotiated. It is the only futures market in the world to trade in olive oil. It was intended to bring more stability in the procurement level but it does not seem to have reached its full potential²¹⁵.
- Price Pool (Pool Red, Sistema de Información de Precios en Origen del Mercado de Contado del Aceite de Oliva): this network receives, stores, calculates and instantly releases data on the prices, volume and characteristics of bulk purchases of olive oil on the producer spot market.

Private labels constitute the majority of the olive oil Spanish market, meaning many manufacturer brands face tough competition to reach end-consumers. For the edible oil (not just olive oil) market, private label market share increased from 40.8% in 2004 to 54.2% in 2012²¹⁶.

Refined olive oil is used as “hook” staple product by many retailers, that is to say, a product that is used by retailers in advertisements to attract customers: this tends to create issues between retailers and producers regarding sales prices, thus profitability. There are even claims of refined olive oil being used as a loss leader product, sold at the lowest price possible, renouncing all possible benefit for producers. Many retailers sell their private label refined oil cheaper than other manufacturing leading brands. A study showed that in 2004, private labels in Andalucía were 18.3% cheaper than others brands²¹⁷. On the other hand, extra virgin private label olive oil is usually more expensive than other leading brands²¹⁸, reinforcing the image of extra virgin olive oil as a premium quality product.

After a few lawsuits from producers to retail chains²¹⁹, the federal government decided to take action. Similar to a deal reached with the milk industry players and retailers, a deal was being negotiated in 2013 by the Agriculture Minister in order to ensure that olive oil is not used as a loss leader product, with the aim to guarantee a benefit to all players²²⁰. The new cooperation framework should help to “improve quality control, promotional activities and consumer information”²²¹. With the situation as it is, most producers complain of high uncertainty in their revenues, as many contracts are made on a yearly basis²²².

But there are also non-price related retailer practices that can have an impact on the sector’s efficiency, and on choice and innovation. These have been analysed by the national authority on competition in Spain, to determine whether or not the situation was impacting consumer welfare. The data is only available for vegetable oil in

development and technological innovation and to track markets in order to stimulate the continuing adaptation of supply to consumer needs

²¹⁵ Based on interviews

²¹⁶ Euromonitor

²¹⁷ Garcia Brenes, Sept. – Oct. 2006

²¹⁸ Garcia Brenes, Sept. - Oct 2006

²¹⁹ For instance, in 2004, the industry filed a complaint against the retailer Dia who was selling olive oil at 1,75 EUR /L when the buying price of olive oil was between 1,89 EUR/ L and 2,30 EUR/L. In June 2009, a producer’s union in Castilla-La Mancha filed a complaint against many retailers: production costs were around 2,30EUR/L and some retailers offered prices below 1,80 EUR/ L. In 2011, Carrefour was sued by producers.

²²⁰ At the time of the study, the deal was still being negotiated

²²¹ <http://www.oliveoiltimes.com/olive-oil-business/europe/olive-oil-loss-leader-deal/33096> no further information was found on the ministry’s website

²²² Based on interviews and Victor J Martin Cerdeño, 2012

general, but interviews have confirmed these findings are relevant to olive oil²²³. They illustrate the tension between retailers and manufacturers regarding price, the quality of the product and the relatively low bargaining power that manufacturers experience when negotiating with retailers. This asymmetry in negotiation has a strong impact the final choice offered to end-consumers, as producers and manufacturers claim they have difficulties in getting retailers to accept new products and references.

Figure 54: Summary of non-price related practices between manufacturers and retailers

Practices	Impact on vegetable oil
Commercial payments: fees that suppliers pay to retailers in respect of a variety of items within the framework of a vertical relationship	Neither the existence of commercial payments nor their magnitude are considered problematic, because they can favour the sector's efficiency: they allow the risks associated with introducing new products to be distributed.
Category management and information exchanges	All of the retailers surveyed assert that they themselves manage the categories autonomously through their own staff, without relying on the services of any outside manager, whether manufacturer or other third party. Suppliers confirm that it is the retailers who handle category management and have the final decision on these matters.
Use of the supplier's image and commercially sensitive information for the benefit of the retailer private label	Unjustified demands for information seem to be quite common in vegetable oils (43% affirmative replies), where half of the respondents say they are subject to such demands sporadically.
Failure to put contract terms and conditions in written form and retroactive modification or breakoff of the contract	This group of practices is frequently reported in vegetable oil goods, which are characterised by a low degree of differentiation and intense price competition. These practices may therefore have a direct and markedly negative impact on the manufacturer's incentives to innovate.
Establishment of most favoured customer clauses	The impact of these practices is relatively larger in vegetable oils (where 43% of suppliers claim they are frequent or occasional), compared to other categories.
Loss leading	Loss leading mainly affects the "hook" products that can serve as loss leaders. Thus, the percentage of suppliers that say this practice is frequent rises to 71% in vegetable oils.
Blind auctions	While 53% of the respondents in the vegetable oils sector say these auctions are frequent, 47% say they never take place: it does put into question the role of the Olive Oil Futures Market.
Establishment of supply exclusivity clauses	Data points to a greater incidence in vegetable oils (where 29% of responding supplies say it frequent) compared to other product categories.
Imposition to purchase goods or services offered by a third party	In vegetable oils, 29% of the respondents say it is frequent and 66% that it occurs occasionally. By type of manufacturer, it appears to affect private label manufacturers more than manufacturer brands, although differences are not significant.
Tying the commercial relationship with the manufacturer brand to the obligation to produce the retailer's private label	This practice has greater incidence in vegetable oils than some other product categories. Its incidence is larger amongst manufacturers specialised in producing their own brands and private labels or mainly private labels, and amongst manufacturers who are not market leaders.

Source: Report on the relations between manufacturers and retailers in the food sector, Comision Nacional de la Competencia

²²³ Report on the relations between manufacturers and retailers in the food sector, Comision Nacional de la Competencia

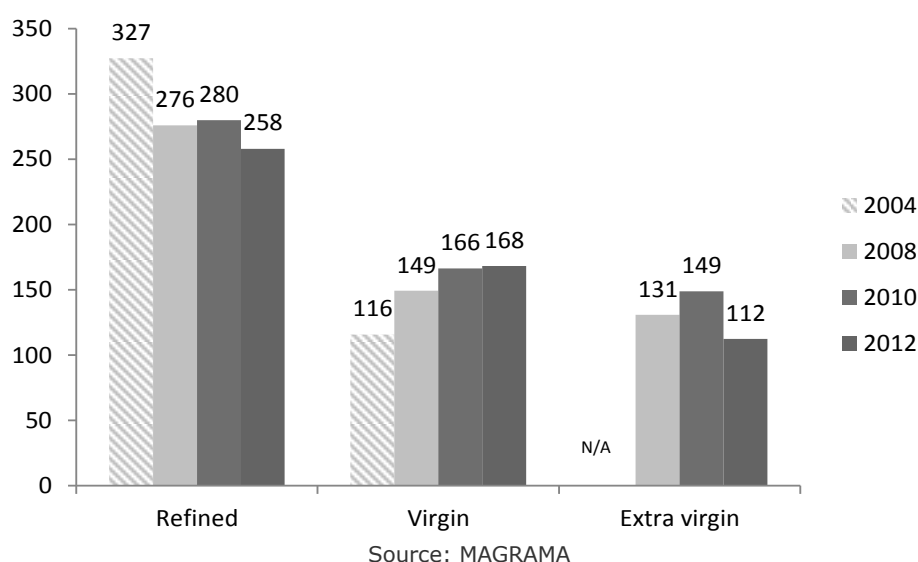
6.3. Characteristics and evolution of choice

6.3.1. Product characteristics

Product characteristics, mainly the type of oil, are an important component of choice. There have been noticeable developments over the past eight years in terms of the sales shares of the different types of oil.

As can be observed in the graph below, the sales share in volume of refined oil has decreased from 2004 to 2012, whilst sales of virgin olive oil have increased over this period. Furthermore, although the sales share of extra-virgin oil has decreased marginally since 2008, levels are much higher than in 2004²²⁴. As a result, there appears to have been a trend since 2004 towards a premiumisation of the product category.

Figure 55: Product segmentation and evolution in thousands of kg sold in the home market



Other product characteristics should also be considered in market segmentation. From a consumer point of view²²⁵, interviewed experts distinguished the choice components for olive oil as follows:

- Brand of the olive oil is one of the first criteria of choice, as it is one of the most visible pieces of information on the label. Consumers can choose between manufacturers' brands or private labels
- Role of consumer price is fundamental to the purchasing decision. Price can be seen as one of the many characteristics of a product which finally determine the perception/attitude of the consumer with respect to that product.
- Packaging / size: 200 ml, 500 ml, 1L, 5 L are the most common formats
- Shape / type of container: bottles, gallons, sprays, cans, boxes
- Material: plastic, coloured glass, uncoloured glass, spray, special nozzles.
- Oil usage: with the development of mono-varietal olive oils, consumers can also choose the most appropriate oil for different usages: specific olive oils for fish, salad, cold dressing, or basic refined olive oil for everyday cooking.

²²⁴ MAGRAMA database does not account for extra virgin olive oil before 2008 since sales level were insignificant

²²⁵ Based on interviews

- Kind of oil: on top of the three “classical” different types of edible oil (refined, Virgin or Extra-virgin), there is also the possibility to choose among other characteristics:
- Variety of olives
- Organic / non-organic,
- Protected Denomination of Origin (PDO)/ Not PDO,
- Regional production/ national production,
- Intensity of the flavour (*intenso/ suave*, which relates to the level of acidity of the olive oil)
- Harvesting techniques (hand -picked/ mechanised) and extraction processes (cold extraction)

6.3.2. Choice evolutions

In analysing the evolutions in choice, it is important to distinguish between the procurement level and the local level. Choice at the procurement level has vastly increased, in terms of references of products, through packaging options, sizes, and price range. The number of references in edible grocery at procurement level has grown exponentially (over 480,000 references in 2013²²⁶ at national level). Furthermore, an ongoing premiumisation of olive oil in Spain has been demonstrated over the last ten years by the increase of the number of better quality products available, with a better traceability of origin. This is reinforced by new types of packaging that can protect the quality of the oil: coloured glass, aluminium containers. At local level, there has also been an important increase in choice over the last decade particularly in terms of number of products and also the variety of prices (range of prices for a given olive oil product).

In terms of number of references, the illustration at the end of this section on a hypermarket²²⁷ from one of the major retail groups in Spain in 2004, 2006, 2008 and 2010, shows increasing choice available for consumers in terms of number of products. In terms of price variety, a sample of three shops of three different banners illustrates that choice has increased. In 2004, the variety of prices for a one litre olive oil bottle ranged from 1.25 EUR/L to 3.39 EUR/L. With that same sample, in 2010, price varied from 1.88 EUR/ L to 13.5 EUR/L ²²⁸ suggesting that a trend towards premiumisation can be observed. The larger scale in 2012 is explained by the difference in the quality of the product: from the very basic refined oil in a 5 L plastic bottle to a 200 mL extra-virgin organic mono-varietal PDO oil in a coloured-glass bottle with a spray for instance. On average, olive oil sold in discount stores is 1 EUR cheaper than in supermarkets²²⁹.

However there are two factors that distinguish the local choice from what is available at procurement level.

Firstly, the predominance of supermarkets in Spain (61% of modern retail shops) may have had consequences on choice proposed to consumers. Considering supermarkets have smaller floor spaces than hypermarkets, store size acts as a limiting factor on the number of references available on shelves. Choices are made to present consumers with a “satisfactory” range and diversity of products, based on the retailers’ strategy. Hypermarkets (from 100 references to 250) offer a larger selection of choices in olive oil than supermarkets (from 50 to 75), which in turn offer a larger selection than discount shops in terms of references at least (from 10 to 20 references).

²²⁶ Based on interviews

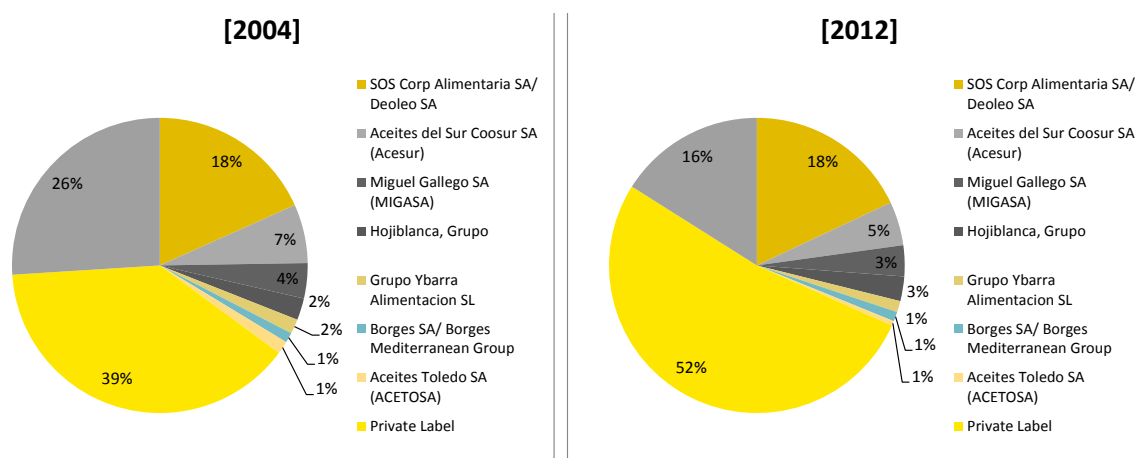
²²⁷ Nielsen database

²²⁸ Nielsen Opus data extractions

²²⁹ Nielsen Opus database extractions

Secondly, the increasing presence of private label in modern retail may have reduced choice in terms of different manufacturer brands the consumer can choose from. There are a decreasing number of brands in 2012 compared to 2004 due to a number of smaller suppliers discontinuing their own brands in favour of private labels, according to experts interviewed. As demonstrated in the graph below, the sales share of manufacturer brands has declined since 2004, whilst there is an increasing market share of private labels (from 39% to 52%). Whilst private labels may potentially crowd out manufacturer brands, new private label options also extend end-consumer choice.

Figure 56: Brand sale share and evolution in M EUR



Source: Euromonitor Passport

Thirdly, oils mills make decisions between the 90 existing varieties of olives times the quality of the oil (premium / non premium, strong flavour / light flavour, virgin, extra-virgin, refined, organic). Choice for oil mills has increased thanks to the growing number of Protected Denomination of Origins developed over the past ten years. The number of virgin PDO olive oils has increased from 6 in 1997 to 31 in 2013. The land area registered as PDO has approached 970,000 hectares, out of which 76% is in Andalucía. Bottlers choose the volume of oil, the different kinds of containers (bottles, cans, sprays) as well as the different materials for those containers. Based on each region of production, not all varieties of olives are available in the quantities required to produce sufficient volumes.

Finally, according to interviews, given the organisation of the olive oil sector and the many existing manufacturers on the market, it appears that the size of the manufacturer will impact its negotiating power with retailers. Smaller manufacturers have expressed more difficulties in getting newer references accepted by retailers, especially since available shelf space is limited.

Illustration: "Example of evolution of choice in terms of product (SKU) and suppliers available on shelves"

When analysing the case of a hypermarket²³⁰ from one of the major retail groups in Spain in 2004, 2006, 2008 and 2010, it is possible to observe the increasing choice available for consumers in terms of number of products and manufacturer brand suppliers

- In 2004,
 - 11 suppliers, almost all national brands
 - 60 SKUs,

²³⁰ Nielsen database

- 25% private label share of SKUs,
- In 2006:
 - 13 suppliers, national brands
 - 67 SKUs
 - 24% private label share of SKUs
- In 2010 (2012 not available):
 - 13 suppliers: DOP, regional brand,
 - 68 SKUs,
 - 32% private label share of SKUs

- There is little observable change in the formats available from 2004 to 2010
- The proportion of 1L bottles increased from 35% to 50%
- The proportion of 500mL bottles from 10% to 20%
- However, the proportion of 5L recipients decreased from 23% to 13%

In 2004, the three main brands were private labels with 25% of all SKUs, Acesur with 20% and Hojiblanca with 10%. In 2010, the private label is still the main brand with 32% of all SKUs, followed by Acesur with 11,8% and SOS Cuetara, with 10,7% replacing Hojiblanca.

6.4. Characteristics and evolution of innovation

6.4.1. Innovation characteristics

Innovation can be perceived directly by consumers (new product, new version of an older product), or it can be unbeknownst to them (cultivation, harvesting or productions techniques).

Perceivable innovation often depends on the consumer's knowledge of the product category.

- For consumers with limited knowledge of the product category: focus is on new kinds of packaging, new formats, new materials, new dispensers, more and new information on the label; as well as new products like sauces with a base of olive oil, oil with ingredients other than olive juice
- For consumers that have more knowledge and better awareness of the product category: focus is on differences in the flavours of olive oils based on the variety of olive and on the production techniques, mono-varietal oils that are destined to specific culinary uses, functional products with added value. In other words, innovation is as much about the product as it is about the marketing and communication surrounding the product.

Innovation unbeknownst to consumers impacts consumers' welfare from a different point of view:

- New cultivation techniques for traditional varieties of olives, in order to reduce the need for chemical entrants and to improve the quality of the olives
- New harvesting techniques, to decrease potential damage to the olive fruit
- New extraction techniques for better quality control, and flavour of the oil
- Improved laboratory test throughout the whole production process.

6.4.2. Innovation evolution in the past ten years

The past decade has seen an increase in the number of innovations in olive oil available on shop shelves in Spain. As an example, in the two-year period from 2005 to 2006, there were 59 new products observed on shop shelves, compared to 121 for the two-year period from 2011 to 2012²³¹. Over the period there has been a push

²³¹ GNPD Database (to be completed with Nielsen analysis)

towards a premiumisation of olive oil, which has occurred through many different innovations.

Among olive oil innovations, most innovations have been registered as new products (57%), a smaller proportion classified as "new variety / range extension (25%)²³², and the remainder are only considered new in their packaging (18%). Private label products account for only a small proportion of total innovations, with most innovations being registered by manufacturer brands. From 2004 to 2012, 63% of all innovations registered by manufacturer brands were labelled "new products" – as opposed to "new packaging", "new variety / range extension" and "relaunch"- , whereas this was only the case for 37% of private label registered innovations²³³. Due to the nature and context surrounding olive oil, most innovations available to end consumers are linked to either the packaging of the oil or the marketing of oil.

Innovations in packaging cover oil dispensers (sprays, non-refillable bottles) as well as packaging materials. The most significant trend is coloured glass (27%) which protects the oil from light, and therefore preserves its flavour. Plastic PET is the second (23%) most used material for new packaging, plain glass third, and metal steel fourth (7%). The most "classic" containers of olive oil in Spain are otherwise made of plastic.

A large proportion of innovations registered (45% of innovations)²³⁴ are mostly **marketing innovations**. They include a claim regarding product characteristics. Most claims relate to the "Premium" quality of their product, "Organic" (and related), Ethical, followed by health related claims (anti-ageing, anti-oxidants, cardiovascular, babies and toddlers). When rearranged into different categories, the new claims are as follows:

- Anti-Ageing, Antioxidant, Cardiovascular (Functional), Digestive (Functional), Brain & Nervous System (Functional) , All Natural Product, Babies & Toddlers (0-4), Children (5-12), Cardiovascular (Functional), Vitamin/Mineral Fortified
- Convenient Packaging , Limited Edition
- Ethical - Charity, Social Media, Ethical - Environmentally Friendly Package, Ethical - Environmentally Friendly Package, Ethical - Environmentally Friendly Product, Ethical - Animal
- Event Merchandising, Event Merchandising, Limited Edition
- No Additives/Preservatives, Organic, Low/No/Reduced Transfat,
- Premium, Carbon Neutral, Kosher
- Seasonal
- Social Media

The following two cases illustrate the two main trends in olive oil innovation: new packaging and premiumisation of the quality and taste of the oil.

Illustration: "Challenges faced in innovating"²³⁵

In 1999, a small enterprise from Andalusia "ArteOliva" started producing olive oil in TetraBrick© from Tetra Pack. TetraBrick© from Tetra Pack is an effective material to avoid adding colorants and taste additive. Studies have shown that TetraBrick© from Tetra Pack lengthens the shelf life of the product, while respecting legal requirements (k270, etc.) Therefore the innovation consists in technically adapting this type of packaging to olive oil. In order to do so, a new packaging supply chain and design required a significant financial investment for a pilot and subsequent implementation.

²³² GNPD Database

²³³ GNPD database

²³⁴ GNPD Database

²³⁵ http://www.arteoliva.com/images/stories/prensa/2011-02-14_MERCACEI_Aceite-de-oliva-en-tetra-brik.pdf

Prior to ArteOliva launching its innovative product, Ybarra, a large olive oil manufacturer, had already attempted to launch such a packaging but it did not succeed commercially, and the product was discontinued. An explanation of this failure put forward by ArteOliva is that previous attempts were launched for low quality oils, based on price. According to ArteOliva, the main advantage of such packaging is to preserve the quality of the oil and thus must be targeted to higher quality oils. The design of the pack was therefore inspired by Italian designs to convey an image of a premium product.

The introduction in the mature Spanish market was complex, because in consumers' minds, TetraBrick is usually associated with lower quality products. A costly communication and marketing campaign was launched but did not prove successful in the Spanish market. ArteOliva therefore changed its strategy in order to develop its business: the main aim became export and diversification of products (sauces, soups made with olive oil). In 2009, 60% of its production was exported: highly mature, the Spanish market did not prove open to such innovations.

Nevertheless, larger producers followed suit on the Tetra Pack innovation. For instance, SOS Carbonell launched 'Tetra PrismaAseptic' packaging, designed to prolong shelf life of products (Vitamin E for instance which otherwise is deteriorated in contact to light). On top of it, TetraBrick packaging is easier to stock and transport in formats of 1L and 500 mL. Production and logistical costs are lower, with savings from 30 to 60% compared to plastic and glass, according to interviews with ArteOliva. Carbonell realized consumer studies and concluded that consumers were satisfied: easy opening, safe, that keeps the product good, eco-friendly.

El Grupo Aceites del Sur (Acesur) launched in 2006 a new range with different packaging 'purepack', but the range was discontinued quickly afterwards without meeting success.

Illustration: "Premiumisation of olive oil"

Functional olive oils, that is to say oils with higher values of vitamins or health related minerals, are a growing trend amongst innovations. Research has demonstrated that extra virgin olive oil is inherently a healthier fat as compared to other types of fats because of its high proportion of mono-unsaturated fatty acids. Research is currently taking place to analyse which variables affect the content of the various minor compounds in it that also provide significant health benefits.

Aceites Campoliva, a company based in the province of Jaen leads research to increase the proportion of molecules providing health benefits in all its oils: hydroxytyrosol (antioxidant), beta-carotene (vitamin A), alpha - tocopherol (vitamin E) and squalene (said to be an antioxidant and anti-cancer agent). Research is focusing on many variables to improve the quality of the oil: the ratio of flesh to pit in the olive fruit, maturity rates, the altitude of the olive trees, and the soil composition, the conditions during the crushing of the olives and then the malaxation of the paste (which allows small oil droplets to combine into bigger ones). These variables differ from one variety of olive to another. The company uses four different olive varieties — Picual, Hojiblanca, Arbequina and Frantoio — each different in its sensory and chemical profiles.

This research for innovation follows other projects from the same company. The company has already worked for many years on increasing the sensory quality of its extra virgin olive oils, particularly to increase the quantity and quality of their fruitiness while also delivering organoleptically balanced but complex oils.

According to interviews²³⁶, this research stems from a driving demand in export markets, where some products already produced by Campoliva have proven to be a success that is yet to be matched on the domestic market.

Innovation also occurs in olive oil based products; that is to say, sauces made with olive oil or olive oil-based products. However it is interesting to note that, between 2004 and 2012, there have only been 22 new references registered²³⁷.

6.5. Drivers of choice and innovation

When considering the evolution of choice and innovation in olive oil, it becomes apparent that the drivers of each are linked. Innovation associated with the increasing premiumisation of the category has served as a driver of growing choice. In terms of

²³⁶ <http://www.oliveoiltimes.com/olive-oil-making-and-milling/olive-oil-producer-profiles/melgarejo-healthier-extra-virgin-olive-oil/36913>

²³⁷ GNPD database

the factors that have driven choice and innovation over the past decade, a select number of *a priori* drivers appear to have had an important impact:

- **Shop size limits the available shelf space**, and therefore acts as a barrier to choice for the final consumer: retailers in general and supermarkets in particular, have to make choices in the number of references and therefore the number of innovations made available to end consumers.
- **Shop type impacts the level of consumer choice available.** Hypermarkets provide the greatest level of choice, followed by supermarkets and discounts stores. Nonetheless, in every kind of shop, the global level of choice has increased over the past ten years, as “hook” products such as olive oil have been used to attract and retain customer loyalty.
- **Socio-demographic characteristics can create incentives for innovation:** whereas a large part of the Spanish population is highly sensitive to price, which has been **heightened by the impact of the economic crisis** in 2009 and 2010, a smaller proportion of the population (urban middle and upper classes) has grown more health conscious and is leading the trend for a change in consumption habits, towards better quality products. These consumer characteristics have pushed both greater variety in products offered at different prices, as well as innovative higher quality products that address health concerns. For instance, some mono-varietal oils are recommended for salads and fish, whereas refined oil is more suitable for fried dishes and use in pastry. This better knowledge of the product category has been a driver for further innovation, as consumers begin to understand the qualities of a range of different varieties.
- **Important competition amongst suppliers, combined with the increasing market share of private labels, has had a minor impact on choice and innovation.** It has mostly led to two main trends: some suppliers have abandoned their own manufacturer brands in order to produce only private labels, therefore potentially reducing innovation, but still offering a wide selection of product options; whereas others have taken the strategy to differentiate themselves from their competitors and increase their margins with high-added value products, with a consequent push towards increased innovation. Both bottlers and manufacturers push for higher quality products and for as much differentiation from their competitors as possible, whether concerning the product or the packaging. This is especially true for smaller producers who cannot lower their cost without suffering adverse financial impacts and are therefore pushing for higher added value. As a result there is a push towards new products, and an extended range of formats, packages, sizes and varieties.
- **There is no clear conclusion on how retail competition impacts innovation and choice:** Price is the strongest argument put forward by retailers to attract customers, but quality and appropriateness seem to be used to create customer loyalty.

Furthermore, there are two drivers specific to the olive oil sector in Spain that have influenced both choice and innovation.

- **Easier access for producers to new process technology:** new processes have driven the premiumisation of the olive oil sector in Spain. New harvesting and extraction techniques are more easily accessible nowadays than ten years ago and have made it possible for producers to control the quality of the olive oil in a way that was not possible before. More equal access to technology has increased the competition to innovate, therefore having a positive impact on choice and the range of new products available to consumers.

- **Investment in marketing by producer organisations to increase the value added nature of olive oil**, in the pursuit of a premiumisation of the market: Producer organisations have played a major role in developing marketing and communication campaigns, both for domestic and international markets, and changing consumers' views regarding olive oil as a basic commodity product. Furthermore, innovation concerning new edible products (sauces) with olive oil bases has been developed by manufacturers looking to increase the range of products available and create more brand awareness. They have also been developed for exports reasons: outside markets have a higher demand for olive oil based sauces.

On the contrary, a priori drivers such as product category turnover, including market size and share of total food expenditure; Region / MS characteristics including access to finance, legal environment, pricing regulation, public health regulation and tax regulations seem to have little impact on choice and innovation.

The role of producer organisations is quintessential for both choice and innovation, at many levels of the production chain. Agricultural cooperatives are at the basis of the olive oil production (see 6.2.1), and as such they are pushing for innovation. Producer organisations of bottlers such as ANIERAC are also the main interfaces between producers and retailers (see 6.2.3), in charge of negotiating new references with retailers. Finally, organisations such as the Interprofesional del Aceite de Oliva have a major role both domestically and internationally for promoting the image of quality of Spanish products.

6.6. Conclusion

Over the past ten years, innovation in olive oil has largely increased, helping create an ever wider choice in olive oil for end-consumers.

The olive oil sector has witnessed a global push towards a premiumisation of the product. This premiumisation occurs through many different innovations: new formats are created; olive oils are differentiated based on the origins of the olives, new packaging (sprays, cans) are set up, there is higher quality packaging and new and different qualities of oil. These innovations have been driven by marketing and promotional campaigns, launched both by producer organisations (e.g. Interprofesional del aceite de olive) and institutional players (e.g. MAGRAMA) in order to develop consumer knowledge on the health benefits of olive oil. These innovations are also facilitated by easier access to new process technology and packaging options. However, despite many innovations registered in the past eight years, not many have proven a commercial success in the domestic market: the demand for innovation is still mostly destined for the export market.

With regards to choice, there are in 2013 many more references widely available to end-consumers than in 2000, mostly in hypermarkets and supermarkets, and in a smaller proportion in discount stores as well. Innovation has been a key enabler for the greater level of choice in recent years: choice increases in part through range extensions and the development of new references. The push is driven mostly by actors in the production chain: manufacturers and bottlers alike are leading the way in creating more products and new products, through mono-varietal oils, new materials for packing, new forms of packaging. This corresponds to an easier access to process innovation, which allows a higher quality of olive oil, new consumption habits that are developing towards more extra-virgin olive oil, as well as the need of producers (in general) to differentiate themselves from the large number of existing producers, and gain access to consumers, whilst still managing to make a profit. Shop size is the main limiting factor, as supermarkets with limited shelf space are the most important retail outlets for olive oil.

Increasing choice also corresponds to the need of retailers to attract and retain customers. With it, their offer is wide enough to satisfy most consumer needs, yet specific enough to be appropriate to the area, due to the great differences in consumption habits in all regions of Spain.

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MAGRAMA (Ministerio de Agricultura, Alimentación y Medio Ambiente)	http://www.magrama.gob.es/es/	

Interviews

TYPE OF STRUCTURE	STRUCTURE	STATUS	ROLE
National organisations & Unions sector	EFEAGRO	Done 23/09	Sector expert
	Interprofesional del Aceite de Oliva	Done 25/09	Sector expert
Producers & Producers organisations	ANIERAC	Done 02/10	Director
	Hojiblanca	Done 30/09	Commercial director
	FAECA	Done 01/10	Technical manager
	FUNDACIÓN C.R.D.O. MONTES DE TOLEDO	Done 26/09	Director
	Infaoliva	Done 5/10	Sector expert
Retailers	Retailer 1	Done 04/10/13	Head of purchasing platform
	Retailer 2	Declined	
	Retailer 3	Declined	
	Retailer 4	Declined	

7. Apple in France

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7.1. Adopted methodology and scope

The objective of this case study is to highlight the main characteristics of the apple sector in France that have had a potential impact on choice and innovation. Starting with a summary of the main characteristics, the study subsequently provides a more specific and detailed focus on each characteristic impacting choice and innovation.

The scope of the study covers only fresh apples that are consumed directly (dessert apples), and excludes all processed apples (such as juice, sauce, dried apples) and cider apples (such as ciders, vinegar).

The analysis and data presented below are based on a literature review and interviews with identified experts and stakeholders. A comprehensive list of sources is presented at the end of this chapter.

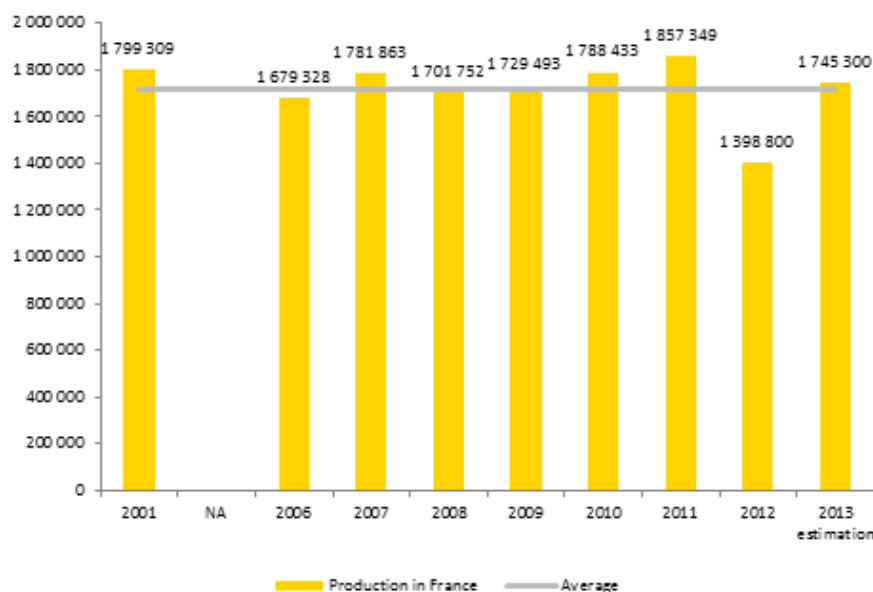
7.2. General characteristics of the market

7.2.1. An evolving production system in France

France is the third producer of fresh dessert apples in the EU, behind Poland and Italy. These three Member States combined account for 60% of EU production. Over the last ten years, the concentration of producer countries in Europe has increased due to the continuing growth of the three main producers and the decline in production in Germany, Hungary and Spain²³⁸.

On the whole, French production trend is rather stable, with an average of 1,720,000 T (excluding cider apples); however this stability can be impacted by climate variations and events. In 2012 for instance, production fell by 25% following the winter freeze. Domestic production is geographically concentrated: the top 5 regions out of 22 (Provence Alpes Côte d’Azur, Pays-de-la-Loire, Midi-Pyrénées, Aquitaine, Rhône-Alpes,) produce up to 75% of French apple production²³⁹.

Figure 57: Evolution of apples production in France in tons



Source: Agreste

²³⁸ Sources : Agreste, Conjoncture Fruits, FAOstat

²³⁹ Source : Agreste, Conjoncture Fruits

During the last decade, production capacity for apples in France has been characterised by a decreasing number of orchards and land area. The number of orchards dropped by 35%, from 7,118 holdings in 2001 to 4,653 in 2010 and the total land area dedicated to apples decreased by 20% between 2000 and 2010, from more than 52,500 hectares to 41,693²⁴⁰. However, production volumes have remained rather stable, particularly due to the higher yields observed in France (up to 44 T/Ha in yearly average). As a comparison, the average yield worldwide is 14.7 T/Ha.

However, production has been characterised by atomicity and heterogeneity. Atomicity is reflected in the high number of producers, and heterogeneity in their size, ranging from few, to hundreds of hectares. Apple holdings were 7.9 Ha on average in 2007, with a quarter of those holdings representing less than 1 ha²⁴¹.

In parallel, producers have joined forces within Producer Organisations (POs), which have increased their market shares. Among the 300 POs for fruit and vegetables recognised by French authorities, about 40 are estimated to produce apples. Recently, the number of POs has increased in line with the trend towards increased producer concentration. More producers have joined a PO since they are encouraged by the Fruit and Vegetable Common Market Organisation that only provides subsidies to POs. In addition to those producer organisations recognised by national authorities, some producers have gathered into producer associations, which are legal forms of cooperation between producers that cannot benefit from the Common Market Organisation's subsidies.

The six largest actors (either producer organisations or producer associations) account for about 30% of production²⁴² in France, which suggests a low concentrated production system.

Figure 58: Six largest producers and producer organisations

Name of player	Production volume	Share	Additional information
Blue Whale	182 KT	~10%	PO that gathers 200 fruit producers, 6 cooperatives, 2725Ha fruit orchards. Produces 14 apple varieties
Pomanjou	95 KT	~5%	PO with several functions: production, storage, packing, trading, import, export Only trader for Honey Crunch in France Produces 105KT fruits (including apples and pears)
Bureau Val de Loire	80 KT fruits (apples, pears, cherries)	<5%	Producer association with 100 fruit producers 3 packing houses
Perlim	72 KT (incl. 68KT of high altitude Golden)	~4%	PO with 200 apple producers and 1,700Ha 2 packing houses Export in Europe: Spain, Portugal, UK, Russia Distribution channels: 65% retail, 35% wholesale
SICA Gerfruit	20-35 KT	~2%	Producer association
Castang	31 KT	~2%	PO with several functions: apple breeding, production, packing, trading. 500Ha fruits orchards

Source: publicly published producer's data from 2009 to 2011

²⁴⁰ Source : Agreste, Structure des vergers

²⁴¹ Source: Agreste, Structure des vergers

²⁴² Based on publicly published producer's data: blue-whale.com, lesechos.fr for information concerning Pomanjou, bvl.fr, perlim.com, mylord.fr (Gerfruit), castang.fr/verger.htm

Apple growing is onerous in terms of the required financial investment and timeframes. Interviewees indicated that tens of thousands of euros were necessary to plant a hectare of apple trees. Apple trees enter full production 3 or 4 years after planting and maintain their maximum production yields for 10 to 15 years. Apple producers take these production cycles into account by renewing and replanting their orchards regularly. Production costs were estimated at 13,500€/Ha for a producer specialised in apples in 2011. By comparison, they were estimated at 8,000€/Ha for a farmer producing several fruits (often cherries, apricots, plums, peaches and apples)²⁴³. Production costs for apples mainly comprise labour costs for maintaining soil condition, pruning, treating the orchards and harvesting.

Furthermore, apple growing seems to create limited profitability which may promote cooperation between actors in order to share risks, linked to the development of new varieties or new management process. Over the past 10 years, average net margins per hectare have been positive for 6 years and have fluctuated from +880€/Ha to -1000€/Ha²⁴⁴.

France produces a large range of varieties which evolve continuously with agronomic research. 19 apple varieties²⁴⁵ (among potentially thousands) are usually cultivated in France. Golden, Gala and Granny Smith are the three most common varieties, representing respectively 33%, 15% and 10% of apple production in France²⁴⁶. The great diversity among apple varieties offers different organoleptic characteristics, adapted to different uses, over a long period of time.

Agronomic research aims at characterising apples, either by improving existing varieties with clone selections or by creating new hybrids. In the first case, agronomic engineers select cultivars with the most interesting characteristics. In the second case, they hybridize two existing varieties to obtain a new variety with potentially new properties. These research activities try to develop apples with more constant agronomic and more attractive organoleptic qualities, such as resistance to pesticides, better storage properties or higher sugar concentration²⁴⁷.

Agronomic engineers may work on public varieties, which can be operated by any actor, or varieties protected by proprietary variety certificates or patents. To obtain commercial rights when developing a new apple, they need to prove that what the new clone or hybrid brings is distinctive compared to existing apples²⁴⁸.

“Public varieties” can be operated by any actor, whereas agronomic engineers and breeders possess the rights for a new apple when they obtain a proprietary variety certificate. By doing so, agronomic engineers and breeders can differentiate themselves by offering producers varieties that are easy to grow, better meet the quality specifications, and are more attractive to consumers.

French public research institutes are historically leaders in developing new apples in France, although some recent innovations have been pushed by international private breeders. Historically, research on apples involves institutes such as Institut National de la Recherche Agronomique (INRA), the French public research institute dedicated to agronomy, which partners with applied experiment centres such as CTIFL, a technical centre for fruits and vegetables. The projects are then tested in the field with collaborative producers. For instance, “Ariane”, a variety resistant to apple-scab disease, was developed following this process and introduced

²⁴³ Source : FranceAgriMer, Observatoire des exploitations fruitières, December 2012

²⁴⁴ Source : FranceAgriMer, Observatoire des exploitations fruitières, 2008, 2009, 2011

²⁴⁵ Source: Association Nationale Pommes Poires (ANPP), www.lapomme.org/varietes/calendrier.htm

²⁴⁶ Source: Association Nationale Pommes Poires (ANPP), www.lapomme.org/chiffres/par-varietes.htm

²⁴⁷ Source : Recent advances in apple breeding, genetics and new cultivars, Susan Brown and Kevin Maloney, New York fruit quarterly, 2005

²⁴⁸ Source : French intellectual property code, Article L623-2

to the market in 2007, after 60 years of development and 8 generations of cultivars on trial²⁴⁹.

New apples have been introduced to the French market by international actors, such as breeders from Italy or New Zealand, with cooperative research programs. Some of those introductions have been successful, such as Pink Lady®, Jazz® or Fuji.

7.2.2. A fruit mainly sold by modern retail

Modern retail accounts for two-thirds of the French fresh apple sales in volume. In 2010, 32.1% of apples were sold in hypermarkets, 21% in supermarkets, 14.4% in discount stores, 14.0% in markets, and 9.2% in local specialised shops and the rest in other distribution channels, such as farm gate sales²⁵⁰.

The importance of the fruit and vegetable section for retailers may be explained by the notion of “staple products”, which are essential to consumer loyalty and banner image. Thus, retailers need to differentiate themselves from competitors by providing value for money, quality and a distinctive fruit and vegetable section. According to a study conducted by Credoc in 2007, 73% of consumers are increasingly vigilant regarding fruit and vegetable prices (69% in 2005). According to market experts, the fruit and vegetable section is the food product category where consumers are most price-sensitive. Considered a popular and affordable fruit by consumers, apples are essential in retailers’ fruit and vegetable assortments.

Retailers have to cope with emerging competition from other distribution channels. Specialised fresh food distributors (such as Grand Frais), markets, local stores, subscription to “fresh baskets”, association between urban people and farmers (Association pour le Maintien d’une Agriculture Paysanne – AMAP) and self-fruit-picking are becoming more and more popular ways to purchase fruits and vegetables²⁵¹. However, the nature of those distribution channels does not allow accurate quantification.

Retailers have contributed to standardisation and new quality charters. They usually require standardised and homogeneous products from producers. Their technical specifications tend to limit any heterogeneity within a product category. Those specifications address calibre, colour, firmness, and defect ranges, among other requirements regarding packaging and shipping conditions. In addition to specifications on the final products, they may also require better production techniques. Their high expectations for apples produced by integrated farming or in terms of traceability can, in some cases, push producers to adopt quality specifications as well. For instance, Carrefour adopted a standard of integrated farming for its apples in 1997. In 2013, 1,500 producers (representing one-third of French apple growers) comply with a quality charter and have adopted the quality process “Vergers écoresponsables”²⁵². Modern retailers have also developed their own private labels for fresh fruits and vegetables, such as Reflets de France by Carrefour in 1999. By contributing to labelling developments, retailers play a role in the evolution of fresh fruit and vegetables.

Although the purchasing function is becoming increasingly centralised at group level for most retailers, the fruit and vegetable section manager in a shop can maintain a large decision power to design assortments on shelves. In the majority of French retailers, the purchasing function for food products is

²⁴⁹ Source : INRA, www.pomme-ariane.com, www.liberation.fr/grand-angle/2006/11/10/ariane-dans-l-arene-des-pommes_56832

²⁵⁰ Source: FranceAgriMer, Bilan de campagne 2011/2012

²⁵¹ Sources : FranceAgrimer and interviews

²⁵² Sources: Association Nationale Pommes Poires and Courrier de l’environnement de l’INRA, « La production fruitière intégrée en France : le vert est-il dans le fruit ? », 2006, S. Bellon, Christine de Sainte Marie, Pierre-Eric Lauri, Mieille Navarrete, Thomas Nesme, Daniel Plénet, Jean Pluvillage, Robert Habib

centralised in a group purchasing organisation which generally operates at national or regional level. Fruit and vegetable section managers, potentially under the supervision of the shop director, procure from those organisations the majority of their apples. However, they may be allowed to complete their assortments with direct orders to wholesalers or traders. They can build a mix with “must-have” varieties such as Golden, Gala, Granny Smith or Red, traditional or local varieties such as one of Reinette family, Belle de Boskoop or Belchard/Chantecler and newest varieties (for instance Pink Lady®, Tentation® or Ariane).

The relationships between retailers and suppliers differ depending on shop type (hypermarket, supermarket or discount store), the concentration level of the purchasing function and the nature of the purchase (regular purchase or for promotions).

At group purchasing organisation level, the relationship between retailers and suppliers is formalised by yearly contracts. In the case of hypermarkets and supermarkets, they represent a legal framework for the commercial relationship rather than a binding description of the product to be purchased. Indeed, yearly contracts for apples generally mention a minimum volume to be purchased, without specifying their variety, calibre or any other information regarding their quality. However they state the logistic conditions (such as delivery deadlines or information to mention on packaging) and penalties in case those conditions are not met. The conditions that are not defined in the contracts (precise quantity, quality and price) are discussed in an informal way during regular meetings between suppliers and buyers. Those negotiations may take place at the production site for the buyer to observe the quality of the year’s harvest. Suppliers may propose new products during those meetings and an agreement can be reached with buyers who are willing to test an innovation. Thus in the case of hypermarkets and supermarkets, yearly contracts allow some flexibility for both retailers and suppliers.

In addition to yearly contracts, retailers may organise promotions and select their suppliers through a call for tender. On those occasions, group purchasing organisations would establish one-shot contracts with the selected supplier, with a precise description of the product.

In parallel with the trend for concentration of group purchasing organisations over the last ten years, local store managers and fruit and vegetable section managers seem to have maintained their decision power. They can decide to buy directly from a producer not listed by the group purchasing organisation under more informal conditions. Although group purchasing would prefer to integrate all the suppliers so they can ensure product quality, direct purchasing from smaller local producers still exists since proximity allows more flexibility and responsiveness.

As for discount stores, the contracts retailers sign with their suppliers appear to be more binding and require increased commitment as the quality, quantity and price are fixed long before harvest, thus prior to knowing the quality of the apples. From the suppliers’ point of view, the risk to sell apples for a less profitable price is compensated by the assurance of selling the quantity of apples defined in the contract.

Final assortments on shelves depend on several criteria:

- **Floor space:** the number of references available on shelves is limited by floor space. The section dedicated to fruits and vegetables represents between 10 and 20% of shop’s floor space²⁵³. This proportion depends on shop type: relatively lower for hypermarkets and higher for supermarkets.

²⁵³ Source : Kantar Worldpanel

- **Period of the year and yearly production:** apples are subject to climate and seasonal variations, which affect assortment in terms of both varieties and number of references: the highest diversity is found during peak season, from October to February. Unlike other fruits, apples can be stored without losing organoleptic qualities, from several weeks to some months. This allows the apple market to adjust the offer, and due to storage, apples can be displayed on shelves for longer periods.
- **Consumer profile:** the consumer's age, socio-demographic situation, household composition and lifestyle matter when it comes to apple consumption habits. While different age categories tend to prefer different varieties, single households or couples with children choose among various packaging choices²⁵⁴, including bags, buckets, trays or loose. Therefore, the assortments can be adapted to the type of population living in the store's catchment area.
- **Regional situation:** variations in apple assortment can be observed across regions, especially producing regions. Canada grise, Pink Lady® and Red are more common in the South-East of France, whereas retailers in the West offer more Elstar and Belchard/Chantecler. Belle de Boskoop and Jonagored are more common in the North of France²⁵⁵.
- **Balance between average basket value and risk of error:** fruit and vegetable managers also bear in mind that presenting a large range of references, from value-priced to premium apples, implies higher risk of error with loose apples when customers weigh the item themselves, which is the case in many shops. They may take a premium variety for a similar but cheaper one, voluntarily or unconsciously. Thus as stated by category managers themselves during interviews, they have to find the balance between securing this risk of fraud with lower price variability and the objective of pushing customers to have more expensive shopping baskets.

Industry and exports have a low impact upon choice and innovation in fresh apples, since efforts in the apple sector are mainly oriented toward the fresh apple domestic market.

Among the apples produced in France, a minor proportion is delivered to the food industry (<10%, representing around 150,000T in recent years)²⁵⁶ to be transformed into juices, sauces or to be fermented into cider or vinegar. Visual qualities are not an important criterion of choice in this case.

Export market requirements are complementary to French requirements as far as consumer preferences are concerned. For instance, British consumers generally prefer more crunchy apples (above 7kg/cm²) and smaller calibres, whereas France exports larger calibres to Spain. Although new markets such as Russia present opportunities, with better contract terms for producers (cash payment for instance), their attractiveness must be weighed against the more complex supply chains which impose higher entry barriers. Even though the share of production dedicated to export may reach 40%²⁵⁷, interviewees agree that exports do not compete with domestic markets but rather complement it.

The **apple supply chain** is characterised by heterogeneity at production and distribution levels even though change is in progress, with increased producer concentration, development of producer organisations and wholesaler concentration.

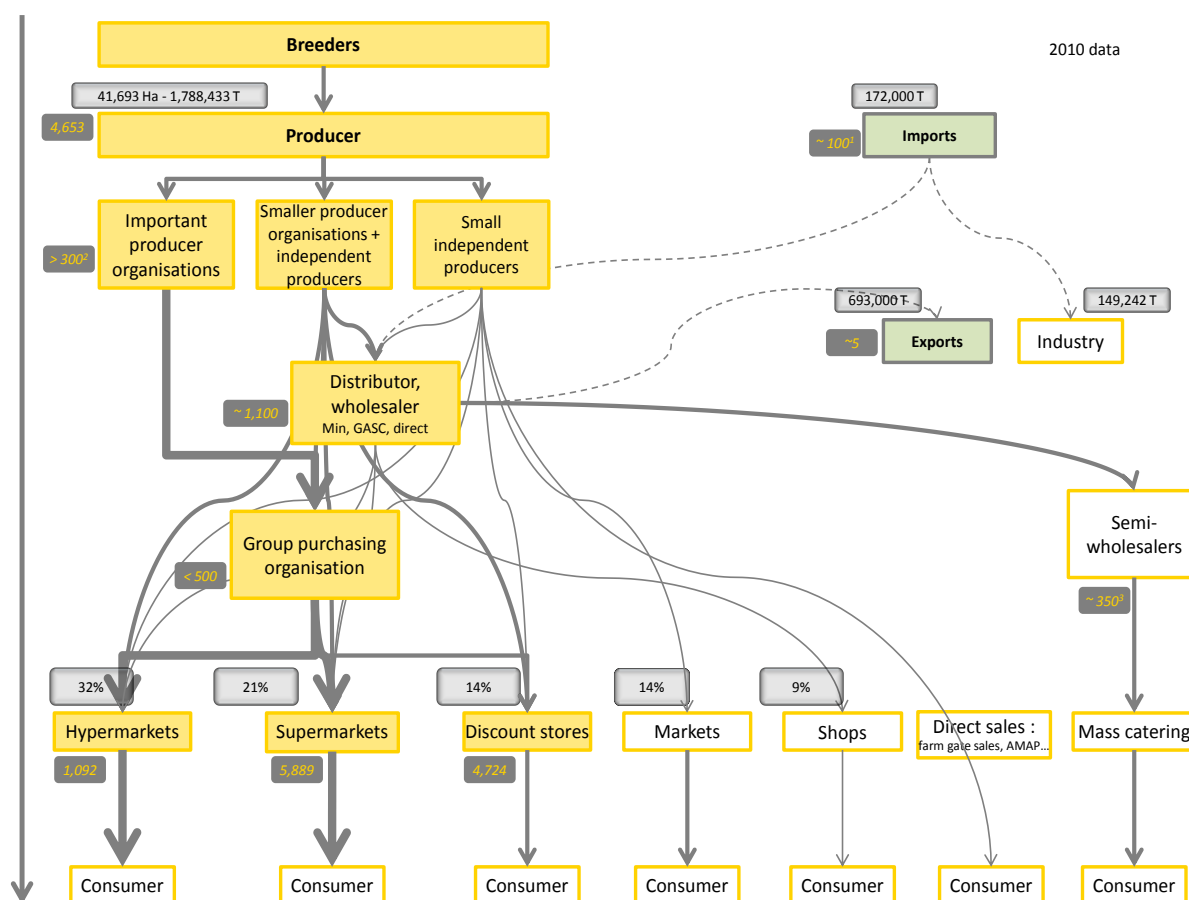
²⁵⁴ Source: CTIFL, Pomme: image, usages – baromètre 2008 and interviews

²⁵⁵ Source : Service des Nouvelles des Marchés, L'offre en pomme au stade détail en 2008

²⁵⁶ Source: Agreste, Structure des vergers

²⁵⁷ Source : FranceAgriMer, Bilan de campagne

Figure 59: Apple supply chain in France



Source: EY based on data provided by Agreste, FranceAgriMer, Kantar, CTIFL

1. Estimations of the number of companies with significant imports, according to Fédération Française des Importateurs de Fruits et Légumes (FFIFL)
- 2: INSEE numbered more than 300 cooperatives
- 3: Estimations by Association Nationale des Expéditeurs et Exportateurs de Fruits et Légumes

The high variability at production level is also present in distribution channels. Whereas large producers assume a trading function and can provide constant and large enough volumes of apples directly to retailers, smaller producers may gather into producer associations who choose the same distribution channel or prefer to sell to wholesalers in “Marchés d’intérêts nationaux”, specialised wholesale markets²⁵⁸. In France, three main wholesalers offer a complete range of services, including storage and shipping. They are called “Grossistes à service complet”.

Trends towards concentration and integration have been observed over the past decade. The number of wholesalers has decreased significantly according to some experts, especially in the case of smaller actors and those without a specialization²⁵⁹. This said, no further quantitative details have been provided.

²⁵⁸ Source : interviews

²⁵⁹ Source : interviews

Integration manifests itself mostly in the 'club' organisation, which represents the most iconic evolution in the apple sector. Club organisations are federations of producers, breeders and traders for the promotion of one variety. Owing the exclusivity for producing and trading that variety, they control its quality and image through marketing operations. They have changed the structure of the apple value chain, by introducing new high-quality apples in a market where innovations went unnoticed to consumers. The iconic example of Pink Lady® apples will be developed below.

7.2.3. Consumers' most consumed fruit

Apples are the most consumed fresh fruits in France with 20.4% of market share in 2010²⁶⁰. On average, a French household purchases 18.3kg of fresh apples per year, which represents about one apple per person per week. Households aged 50+ are the largest apple consumers whereas those aged less than 35 years old consume less than the average²⁶¹ only 7% of people never eat apples.

Apples have a very positive image in France; and likely benefit from the national program for better food consumption habits. The popularity of apples amongst consumers has remained stable at least over the past 20 years²⁶². Apples have an image of traditional fruits; they are easily available in any local store. People eat apples for dessert or as a snack because they are convenient to transport. Apples rank among the highest antioxidant rates among fruits. Dietary fibres, flavonoids and other phytochemicals naturally present in apples help prevent severe diseases such as cancer or heart disease, protect the cardiovascular system and ease digestion and promote weight loss. On top of the healthy benefits, the idea of eating apples for pleasure is cited by more than 80% of people²⁶³.

The French government has been promoting balanced eating habits particularly since the beginning of the 2000s. Through the programme "Plan National Nutrition Santé" launched in 2001, several campaigns urge people to "eat 5 fruits and vegetables a day". However there is no data about the direct effect of this programme on the consumption of apples in France.

When purchasing apples, consumers firstly pay attention to the product's visual characteristics. They decide what to purchase according to three main criteria: visual characteristics (for 61% of consumers), freshness (55%) and variety (53%). Price and colour represent purchasing criteria for 45 and 31% of consumers respectively²⁶⁴.

Although consumers recognize diversity in apples, they only tend to recall on average 5 varieties. More than 90% of consumers recognize that apples may differ by their colours and varieties. The best known varieties are Golden (known by 94% of interviewees), Granny Smith (68%), Reine des Reinettes (61%) and Gala (53%). Consumer knowledge about varieties has slightly changed since 2000. Reines des Reinettes, Requette grise du Canada, Melrose, Requette Clochard are less present in consumers' mind, whereas other varieties such as Gala, Red apples among which Red Delicious, Pink Lady and Fuji have enhanced their reputation. On average, a French consumer was aware of 5.3 varieties in 2008, versus 5.1 varieties in 2003 and 4.7 in 2000.

²⁶⁰ Source: FranceAgriMer, Bilan de campagne

²⁶¹ Source: Kantar Panels in Bilan de campagne, FranceAgriMer

²⁶² Source: CTIFL, Pomme: image, usages – baromètre 2008

²⁶³ Source: CTIFL, Pomme: image, usages – baromètre 2008. In the study, 82% of people interviewed "totally agree" or "rather agree" with the statement "it is a pleasure to eat an apple".

²⁶⁴ Source: CTIFL, Pomme: image, usages – baromètre 2008. Knowledge indicator has been measured through a proposed list of variety names.

Consumer behaviour seems to have evolved. Recently, consumers have been increasingly concerned about residues and environmental pollution. Despite limited distribution, the organic apple market share is increasing, from 2.2% in 2006 to 4.5% in 2010. Organic apples have a limited penetration rate at around 12%²⁶⁵.

Consumers seem to have adopted new lifestyles, especially the younger generation in urban areas, which may look for convenient, ready-to-eat, as well as healthy food. The development of pre-packed washed apples or portions of fresh cut apples aims to meet those new eating habits. However these new higher-priced options have not been adopted by the majority of consumers, possibly due to the strong natural image associated with apples that may be incompatible with prepared ready-to-eat food. 80% assert they “do not plan at all” to buy portions of fresh cut apples²⁶⁶.

Recent innovations are often targeting specific consumer groups. Single upper-socio-economic young consumers are targeted by “tricolour” trays, filled with 3 apples of different colours. Premium products also tend to provide more information about the production on the packaging, about eco-friendly cultivation techniques, local producers or PDOs and PGIs (as in the “Gala du Limousin”). A new type of amusing edible stickers is intended to attract children, who tend to eat fewer apples than older generations²⁶⁷.

7.3. Characteristics and evolution of choice and innovation

7.3.1. Characteristics and evolution of choice

Choice in apples is not only defined by their variety but by several intrinsic criteria. At national level, choice has increased over the last ten years, with more varieties and more packaging types for instance. However, for a given store, choice has evolved, not in the number of SKUs, but in type of references.

From a consumer’s point of view, choice components can be divided into two levels:

- **Colour:** visual characteristics seem to be the first criterion of choice for consumers. Colour is the most visible factor. Consumers can choose between yellow, red, green and bicolour apples.
- **Variety:** closely related to the above-mentioned criterion, variety is an essential aspect of choice for apples. In addition to visual diversity, varieties differ by their organoleptic qualities. Firmness and sweetness are the most important qualities for consumers, followed by juiciness, aroma-intensity and acidity. Some varieties convey an image of tradition and local roots²⁶⁸.

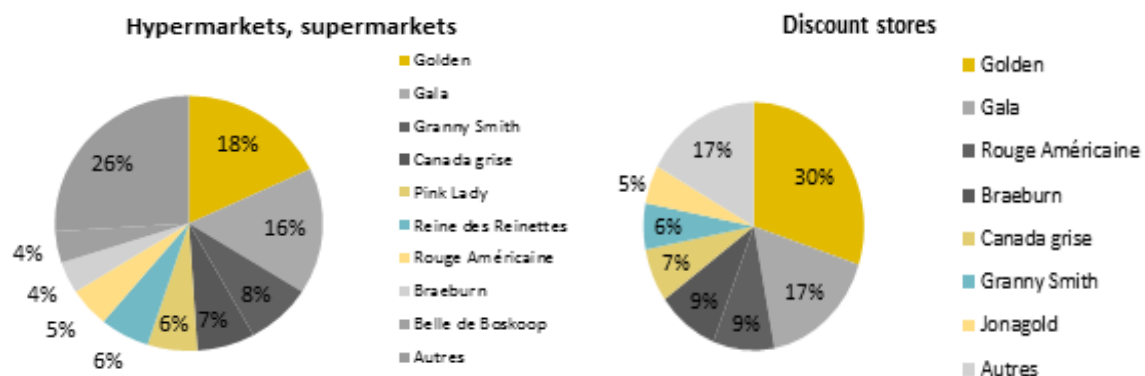
²⁶⁵ Source : FranceAgriMer, Bilan de campagne

²⁶⁶ Source: CTIFL, Pomme: image, usages – baromètre 2008

²⁶⁷ Sources : interviews and on-field observations

²⁶⁸ Source: CTIFL, Pomme: image, usages – baromètre 2008

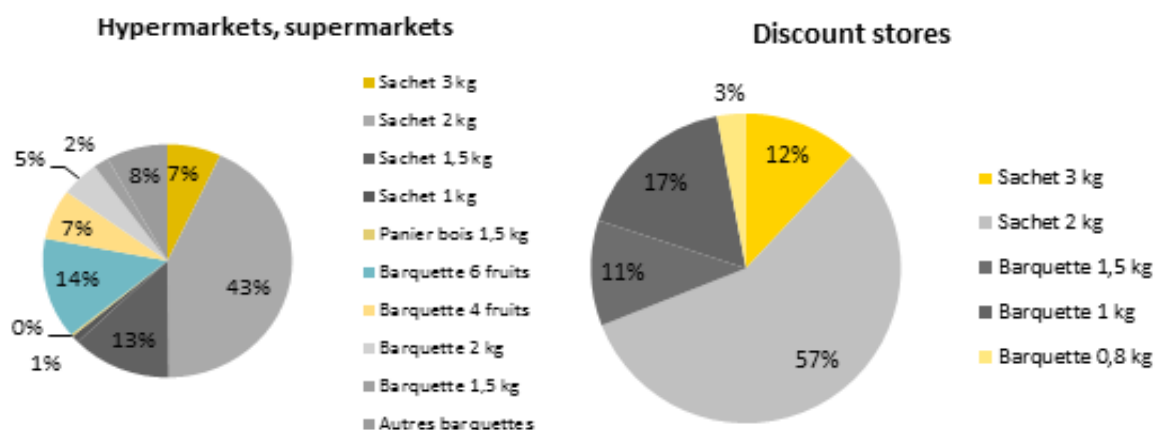
Figure 60: Apple varieties observed on shelves in hypermarkets/supermarket and discount stores



Source: SNM, L'offre en pomme au stade détail en 2008

- **Size:** apples are categorized into calibres - extra, I or II - depending on their weight (and not on size, according to the EC legislation).
- **Packaging:** apples are presented on shelves under various forms. Although loose apples represent the majority sold by retailers, they can also be packed:
 - Bags: 3kg, 2kg, 1.5kg, 1kg
 - Wooden bucket
 - Trays: 6 fruits, 4 fruits, "tricolour"
 - Individual packed washed apples
 - Individual portion of sliced apples

Figure 61: Packed apples observed on shelves in hypermarkets/supermarket, and discount stores



Source: SNM, L'offre en pomme au stade détail en 2008

- **Quality:** this parameter covers maturity stains or other visual defects, size and more generally conformity to calibre range. Out of calibre apples can be found more often in minor distribution channels, such as outdoor street markets, with more attractive prices.

- **Price:** French consumers consider apples as commodities, meaning they are expecting acceptable prices all year round. Even though the range of apples can be broad with different categories of prices (discount, value-priced, basic, premium), modern retailers usually offer at least one low-priced reference on their shelves, despite annual and seasonal variability. Price is directly correlated to variety, size, packaging, quality, availability over the year and national quotation.

Secondary components of choice include:

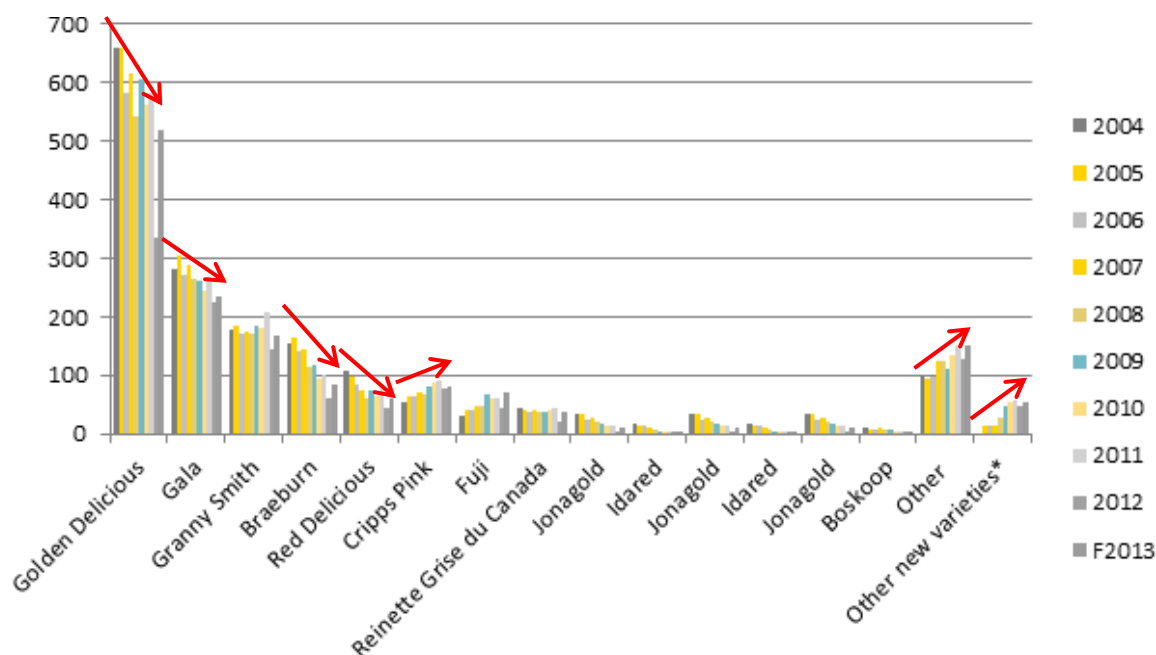
- **Origin:** origin is legal information available for the consumer. The origin choice can be made across extra-EU countries, EU-countries, France and regions.
- **Cultivation technique:** some labels (private or legal) offer products with specific claims regarding their cultivation technique: organic, high altitude, eco-friendly (as in the label "Vergers éco-responsables").
- **Usage/purpose:** the consumer will choose an apple according to its purpose: to bite, for salad, pie, sauce, juice or to bake.

The number of varieties and packaging present on French market has probably increased. However, for a given shop, it is more accurate to describe the assortment on shelves as evolving rather than extending. The extension of assortments is mainly limited by shelf space. Thus the integration of a new apple SKU often causes a phenomenon of cannibalisation, with the withdrawal of an existing reference. Assortments have evolved in terms of varieties and packaging. Some varieties have shown a decline in their production in France. Cox Orange or Eroman for instance have almost disappeared. The share of packed apples increased from 24% in 2007 to 34% in 2008. Bags represented 64% of packed apples (mainly Golden and Gala) in hypermarkets and supermarkets, but 80% in discount stores²⁶⁹.

The following graph illustrates the evolution of variety production, which may reflect the evolution of varieties available on shelves. The decline of some basic varieties such as Golden, Gala or Braeburn is clearly shown. In parallel, the production of new varieties has increased over the decade. It is the case for Cripps Pink, which is the variety name for Pink Lady®, and other new apples such as Ariane, Honey Crunch, Jazz, and Tentation.

²⁶⁹ Source: Service des Nouvelles des Marchés (SNM), L'offre en pomme au stade détail en 2008

Figure 62: Evolution of apples production by variety, from 2004 to 2013 (estimated data for 2013)



Source: ANPP

The stability in number of references in an assortment is illustrated by the example below.

Illustration: "Example of the evolution of choice in term of products (SKUs) available on shelves"

An example is given for a large hypermarket with a floor space over 15,000 sqm². The fruit and vegetable category manager provided numbers of SKUs for 2005 and 2012.

The huge size of the store and of the fruit and vegetable section explains the great number of SKUs in apples with an average of some 20 references. 56 references were listed in 2012, among which less than half (24 precisely) were loose apples. All those references were not displayed on shelves over the year. The number of SKUs available on shelves reached a peak during on-season period, and culminated in January with 33 references. It lowered in summer when apples are off-season and compete with summer fruits, with a minimum of 13 references in July.

The proportion of around 45% of loose apples was maintained all over the year. There were 14 and 7 references of loose apples in January and July.

By comparison, the same hypermarket listed 55 references in 2005 with the same pattern of seasonal offer. More detailed data have not been kept in the database, preventing further comparison.

This example specific to hypermarkets may be completed by advice provided by CTIFL, the technical centre for fruit and vegetables. Over the past 10 years, it has published each month a proposed number of references in shelf assortment, depending on shop type and floor space. They advise to offer an average of 10 references for hypermarkets, 7 for supermarkets and less than 4 for discount stores²⁷⁰.

²⁷⁰ Source: CTIFL, *Détail*, bulletin d'information technique pour la distribution, n°187 - 196, and n°286 - 296, 2002 and 2012

7.3.2. Characteristics and evolution of innovation

The last decade has seen innovations introduced to the market, either innovation in varieties, in packaging or innovation not visible to the consumer. In addition to product innovation, clubs organisations constitute another key development.

Innovation can be perceived directly by the consumer or it can be unbeknownst to them. Although being a traditional product without industrial processing, professionals are working on it permanently.

Innovation that can be perceived by consumers includes:

- **New distinctive variety, obtained by hybridization:** the most iconic example is Pink Lady® with its rosy colour and its sticker that makes it easily recognisable. In addition, Pink Lady® has specific taste characteristics (crunch, sweetness and flavour). It is important to bear in mind though that a new distinctive variety is difficult to obtain for two reasons. First, hybridization research takes several decades to create a new variety. Second, apples do not allow a large innovation range. With existing yellow, red, green, rosy and bicolour varieties, professionals are facing the issue of finding visually distinctive apples.
- **New packaging:** In addition to the variability of packaging (bags and trays of various fixed weight or number of apples), recent years have seen the introduction of new presentations: for niche markets - portions of sliced apples for nomadic use; for children - trays with amusing edible stickers. Economic actors have attempted to develop packaging that can display more information about production processes.
- **New marketing events:** Pink Lady® was the first variety to be presented in television advertisements, radio campaigns and in-store animations. It was also associated to Valentine's Day with specific advertising slogans.
- **Better cultivation techniques:** some labels (private or legal) enhance specific claims regarding their cultivation technique: organic, high altitude, eco-friendly (as in the label "Vergers éco-responsables")

Innovation unbeknownst to consumers:

- **Better cultivation techniques:** some producers can improve their cultivation techniques without mentioning it. In addition, storage conditions have also been improved during the last decade, with the "smart fresh" techniques, for longer storage without deteriorating apples' organoleptic qualities.
- **New clones of existing varieties:** breeders and agronomic research institutes are continuously improving existing varieties by developing clones with better organoleptic qualities (even though hardly noticed by consumers) or more constant qualities. Gala is a typical example of varietal improvement. Professionals have developed several clones (Royal, Tenroy, Galaxy) for their brighter colour, higher sugar concentration and more consistent characteristics. The Gala apples bought by consumers nowadays are quite different clones from those purchased 10 years ago, without consumers necessarily noticing the changes.
- **New organisation of economic actors:** interviewed experts stated that the factor that has changed the apples sector in France most is indisputably the creation of club organisations. Before clubs, numerous innovations were proposed to the market without any structure to adequately promote them.

Club apples are the innovation that has marked a turning point in apple market in France. That new type of collaborative organisation between breeders, producers and traders has supported all the recent new varieties, such as Pink Lady®, Tentation®, Ariane®, Cameo®, Honey Crunch® or Jazz®. By sharing the risks and

controlling the value chain, clubs organisations were able to push and manage innovation from its origin to the shelves.

The following detailed example of Pink Lady® addresses three key considerations:

- An innovation needs to bring clear benefits to producers, retailers and consumers to succeed.
- Club organisations can push an innovation to customers more easily than conventional organisations since clubs bring together the majority of supply chain levels.
- Relationships between actors at different levels may not be smooth all the time but long lasting collaboration in the clubs is needed for the product's success.

Thus club apples represent a blend of product, marketing and organisational innovations which have the combined effect of supporting the introduction of a new apple variety.

Illustration: "The success story of Pink Lady®"²⁷¹

Main dates:

- 1973: development of new Cripps Pink variety, by hybridization from Golden Delicious and Lady Williams, by the Australian breeder Apple and Pear Australia Limited and the Department of Agriculture of Western Australia
- 1988-1991: experiments to acclimatize the variety in South of France
- 1992: the breeder Star Fruits® obtains exploitation rights for Cripps Pink variety and for Pink Lady® brand for Western Europe, North Africa and Middle-East
- 1993: first sales of Pink Lady® in France
- 1994: Star Fruits® accredited 3 traders: Cardell, Fruivial and Gerfruit
- 1995: first tree plantations
- 1997: creation of Association Pink Lady® Europe (APLE)
- 2000: Star Fruits® obtains exclusive rights for Europe
- 2003: 15 traders, 2800 producers in France, Spain and Italy

Pink Lady® is a success story enabled by the convergence of several positive drivers, among which its attractive genetic characteristics, its original and distinctive aspect, combined to a solid organisation.

It started in 1988 with the trader Fruivial who was intrigued by a new Australian variety Cripps Pink that was quite successful in British market. After validating the qualities of the variety in Australia, it launched the new variety with an innovative approach developed in cooperation with Star Fruits®, an association of 5 breeders. The European Pink Lady® Association was established in 1997 based on that idea and gathered traders, breeders and producers.

A high-quality, constant and distinctive product

First Pink Lady® apples were sold in 1993 and since then, they managed to maintain their high qualities, which has been crucial to their success. This was permitted by the respect of strict specifications. Moreover thanks to the same quality standards in various producing countries and imports, consumers will find same quality Pink Lady® all year round. This new variety was attractive to consumers with its rosy distinctive colour, its firmness and its aroma.

A long lasting cooperation

The association worked out thanks to a compromise reached by all its members, although it meant more restrictive and binding rules. It also integrated retailers into their preparatory discussions.

Some experts have also analysed the long-lasting cooperation between the club's members as a factor for success. Contrary to some clubs, Pink Lady® Association members stayed gathered and focused on their objective. That collaboration contributed to their success. It is embedded in a global network of actors. In the case of Cameo®, disagreement between its members may explain why the club didn't succeed, but it

²⁷¹ Sources : Les Cahiers Pink Lady®, Végétale n°230 janvier 2007, supplément ; Clubs, la bonne réponse ?, L'Arborical, n°10 printemps 2005

is also true that the lack of success didn't help the members to maintain their unity.

An innovative distribution and marketing strategy

The association hired a marketing manager who had nothing to do with fresh fruit market and brought his fresh look to the organisation. Pink Lady® was marketed not as another new apple variety but a new premium product. At that time, several new varieties had been introduced to the market but without sustainable success. Pink Lady® has been object to ambitious marketing campaigns, combining multi-channel ads and in-store events, which represented an opportunity for retailers to promote their entire fruit and vegetable section.

How does the organisation work?

Star Fruits® is considered to be at the heart of a solid system. On the one hand, it has signed a contract with the Australian breeder. On the other hand, it is linked to producers, traders and importers who work with Pink Lady®, via its contract with the Association Pink Lady® Europe (APLE), a non-profit federal organisation. APLE manage communication and marketing activities, as well as guarantee apple's constant qualities, whereas Star Fruits® supervises the brand exclusivity and royalties paid by producers.

7.3.3. Drivers of choice and innovation

Innovation in apples is mainly driven by the search for economic added value, impacting different levels of the value chain. At breeder and institute level, added value means the development of clones or hybrids protected by proprietary variety certificates, which require proof that the new cultivar brings clear benefits compared to existing ones. As a consequence, research efforts tend to increase innovation. Nevertheless, one has to keep in mind the long cycle time to develop a new apple, considering the research process (especially in the case of hybridization), and the need for stabilization before producing on a larger scale.

At producer level, although investing in an apple orchard requires a high level of financial and time investment, planting new apples may be attractive if better agronomic properties can compensate for the risk. The potential benefits of apples include advantages such as higher yields (newest varieties can produce more than 50T/ha whereas some traditional apples produce around 30T/ha), better resistance to diseases (thus requiring less treatment) and more reliable organoleptic qualities. These benefits have a positive effect on producer revenues.

Producers and traders can also increase the added value of their products through more sophisticated packaging. A premiumisation strategy can be established through packaging of more sophisticated materials and messages (about the growing techniques, the producer's specificity or a trademark) displayed on them. However, packed apples account only for a minority of apples sold in France over the past years, though their shares are increasing.

Retailers tend to favour high quality premium-priced apples for their potentially higher margins. However this trend is limited by consumer price-sensitivity to fruits and vegetables.

Innovations must benefit all players in the value chain. A new apple will enter the market and remain in the final assortment only if its characteristics provide benefits to breeders and institutes, producers, traders, retailers and consumers. In other words, sufficient uniqueness to justify an intellectual property for breeders and institutes, satisfying agronomic qualities for producers, capacity to be manipulated and stored for traders and retailers, attractive and good-tasting for consumers.

Innovation is common in clubs since the high risk involved is shared between club members. This innovative type of integration in the value chain is based on exclusivity rights and joining forces for marketing and promoting a distinctive product. Clubs seem to be a win-win model for all three types of participants: breeders, producers and traders. The history of some clubs has shown that the keys to success are a great product, an ambitious marketing strategy and ongoing collaboration between members.

In addition to the above mentioned drivers, the impact of the other important drivers of the econometric study on innovation is assessed as follows:

Driver	Impact on innovation
Concentration of retailers	<p>Representing two-thirds of apples sold in France, modern retail is indisputably a major driver. Its impact on innovation is complex and may be considered from a number of perspectives.</p> <p>Although varietal innovation is not initiated by retailers, they have contributed to promote new quality charters. In doing so, they have positively impacted innovation in cultivation techniques.</p> <p>Retailers' requirements for standardised and homogeneous products tend to limit novelty in apples, but at the same time they encourage breeders and researchers to develop varieties that better match their specifications, in terms of calibre, colour, firmness, and defect ranges, among other requirements regarding packaging and shipping conditions. From this point of view, retailers contribute to innovation in clones of existing varieties.</p>
Shop type and size	<p>The number of references in assortments is closely related to shop size, and thus shop type. It seems that the larger the floor space allocated to apples, the more likely retailers can add new references to the assortment. Therefore product innovation would be favoured by larger shops.</p>
Socio-demographic characteristics	<p>Among the innovations visible to consumers, new varieties, packaging and cultivation techniques tend to develop products with higher value. Therefore, those innovations are more expensive than on average. They are more likely to be accepted by wealthier socio-demographic classes.</p>
Supplier concentration	<p>Rather than concentration, it is rather the integration of upstream actors (as seen in club organisations) that positively influences innovation.</p> <p>It seems also reasonable to perceive supplier concentration as a share of risk between organisations' members when they launch an innovative product. As described earlier, innovation in apples requires a high level of investment that can be achieved by bigger actors (as a result of concentration).</p>
Ratio of concentration of retailers compared to concentration of suppliers	<p>As described, suppliers may propose new products to retailers during their informal regular meetings, without any constraints in the contracting system. Thus the ratio of concentration of retailers and suppliers does not seem to have an impact on innovation.</p>
Private label share	<p>Private labels are concerned by the constant development of new clones, as well as national brands. However there do not seem to be specific innovations developed specifically for private labels, thus private label share has no specific impact on innovation in apples.</p>
Product category turnover	<p>Being the most consumed fruit in France, apples benefit from strategies to maintain and develop their market shares, through visible innovations such as new varieties, packaging or cultivation techniques for instance. Thus, the popularity of apples contributes to product innovation.</p>
Region	<p>As described above, proprietary variety certificates require proof that a new cultivar brings clear benefits to existing ones. As a consequence, this legal rule contributes to the development of more distinctive products, through hybridisation. In doing so, it contributes to innovation.</p>
Economic crisis	<p>Although the economic situation may have impacted consumer budgets and their willingness to buy more premium products, as well as the investment dedicated to agronomic research, the study carried out through literature review or interviews doesn't identify economic crisis as a barrier to innovation. This may be explained by upstream actors' strategy to develop distinctive products targeting niche consumers.</p>

Choice in apples is characterised by five parameters:

- the introduction of new products in the market
- the consumption trends
- the decision of the buyer at buying group level or of the fruit and section manager at shop level
- the available space on shelves
- the atomicity at production and distribution levels.

Choice proposed to consumers has been extended by innovation. As discussed in the presentation of drivers of innovation, upstream actors have been pushing innovation continuously, increasing total choice offered to consumers. Economic actors have observed that assortments have been renewed by the introduction of either new varieties, varieties linked to a traditional image or new packaging.

Choice has evolved with the need to adapt to consumer trends. Retailers tend to offer “greener” products to consumers, which tend to prefer local production or more environment-friendly cultivation techniques. Production of organic apples is limited by technical expertise. Apples are subject to several diseases which can alter their visual qualities (stains and defects) and can be prevented only by chemical treatments. This explains why producers have preferred “integrated techniques” which take environmental considerations into account.

Assortments are also adapted locally, according to consumer preferences, either identified by retailer knowledge of consumer behaviour or refined by trial-and-error process by the section manager in the field. This local adaptation explains some regional variations in the varieties displayed on shelves.

In modern retail, the decision of the buyer at buying group level or of the fruit and vegetable section manager at shop level is key in determining choice offered to consumers. In some retail organisations, although group purchasing organisations have a recommendation power, the final assortment in a given store is determined by the fruit and vegetable section manager, who may decide to introduce local varieties.

Choice displayed on shelves is limited by the availability of space. Although choice has increased when considering the market as a whole, the number of references in assortments has not necessarily increased. It is closely dependant to floor space dedicated to the product category, thus correlated to the shop type and shop size. The larger the store is, the greater the choice usually offered to consumers.

The atomicity at production and distribution levels impacts choice. Although the apple sector has undergone changes towards a more structured and concentrated system, heterogeneity and atomicity remain high for producers and distributors. Retailers may be supplied by large producer organisations as well as local independent producers who grow specific apples, they may purchase through their group purchasing organisations, through wholesalers or directly from producers.

In addition to the above mentioned drivers, the impact of the main drivers of the econometric study on choice is as follows:

Driver	Impact on choice
Concentration of retailers	Concentration of retailers and the trend to centralise purchasing functions within group purchasing organisations tend to limit choice, since they build a portfolio of references that all the stores at regional or national level select from. However this negative impact on choice is usually dampened by the role of the local store section manager, who defines the final assortments by complementing references from the centralised portfolio with additional references purchased directly from local producers. Thus he adds a range of extra choice.
Shop type and size	Part 7.3.1.2 shows that shop size plays an important role in the number of references available on shelves. The larger the shop, the greater the choice available. This also means that shelf space limits the number of references displayed.
Socio-demographic characteristics	As described earlier, final assortments depend on the consumer profile. Their socio demographic profile influences their apple consumption habits. As a consequence, the section manager will take this factor into account when defining the choice available on shelves. Socio-demographic characteristics have an impact on choice, but not necessarily in introducing more or less choice.

Supplier concentration	On the one hand, some producers have joined to develop specific apple varieties or production techniques. In this case, products show homogeneity within one producer organisation, thus limiting choice at a local level. On the other hand, other producers base their strategy on distinctive products and are allowed so by being gathered in collaborative organisations. Thus at national level, producer concentration results in increased choice.
Ratio of concentration of retailers compared to concentration of suppliers	The relationships between suppliers and retailers are mainly informal when negotiating. Retailers decide which products to purchase based on suppliers' proposals. The balance between supplier and retailer concentration does not seem to have a particular impact on choice.
Private label share	There is no precise and comprehensive data concerning private label apples. However, it doesn't seem that private labels introduce more choice in product range or price.
Product category turnover	The share of apples in the fruit and vegetable market maintains a certain level of choice in all stores all year round. It seems reasonable to assert that the importance of apples has contributed positively to choice.
Region	Although France is promoting the consumption of fruits and vegetables through its national health program, it does not seem to have a direct impact on choice in apples.
Economic crisis	Economic crisis may have influence upon buying habits. In a zone more impacted by economic crisis, consumers are more likely to prefer affordable products. As a result, fruit and vegetable section manager may adapt the assortments on shelves with a larger proportion of basic references and less of higher added value. The choice would be different from the one in another zone. This factor has thus an impact on choice, but not necessarily by increasing or limiting choice.

7.4. Conclusions

Apples are mainly sold to consumers in France by modern retailers. Although choice seems to have increased at national level mainly with new varieties and packaging, assortments on shop shelves have evolved rather than extended. Limited by shelf space, the number of apple SKUs has not necessarily increased in parallel with the introduction of new products, implying new SKUs have replaced existing ones.

The diversification in apples offered to consumers and the growing share of packed apples and more innovative packaging are in line with trends for clearer segmentation and targeted premium positioning. Those trends observed at retailer's level echo the efforts made at production level to grow apples with more distinctive characteristics, for the consumer to have clearer choices, and produce apples with higher added value.

Product innovations are initiated and pushed by upstream actors. Agronomic institutes and breeders continuously develop new apples, by clone selection or hybridization. In a commodity market, it is more attractive for those actors to develop high added value apples that can be protected by a proprietary variety certificate, all the more when such agronomic research requires several decades to develop and stabilize a new variety. Their innovations must meet three conditions to be successful and remain on the market: it must provide benefits to producers with high agronomic performance and constant qualities, benefits to retailers with long storage properties and easy to transport and manipulate characteristics for example, and benefits to consumers with a recognizable, distinctive and attractive visual aspect and taste.

In addition to product innovations, some evolutions have generally gone unnoticed by consumers, especially those concerning production techniques. More environmental friendly cultivation techniques or longer storage properties have both impacted choice for consumers, with "greener" apples and an extended presence on shelves during the year.

The organisation of the value chain has tended to be more concentrated over time. The decreasing number of suppliers and their assembling into producer organisations does not seem to have had a negative impact on choice or innovation. At retailer level,

even though group purchasing organisations are important, the final assortments on shelves are often determined locally by the fruit section manager, who can take into account local characteristics.

Nevertheless, integration in the organisation has played a major role in the apple sector in France. Club organisations have represented a turning point. The collaboration between breeders, producers and traders has enabled risks to be shared and control from production to commercialisation to be gained. All the newest varieties have been supported by a dedicated club, which limit production to member producers, fix a minimum price and manage the product positioning by leading marketing activities. Pink Lady® is the most iconic example of club and has been followed by several clubs with more or less success.

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Interviews

TYPE OF STRUCTURE	STRUCTURE	STATUS	ROLE
National organisations & Unions sector	FranceAgriMer	Done 10/09/13	Sector expert
	ANPP	Done 20/09/13	Chief economist
	ANPP	Done 20/09/13	Marketing manager
Producers & Producers organisations	Perlim	Done 04/10/13	Technical director
	Pomanjou	Done 30/09/13	Technical manager
	Pomme Tentation	Done 23/09/13	Manager and consultant
	SICA GERFRUIT	Done 24/09/13	Sales manager
Wholesalers	Pomona Resaly	Done 26/09/13	Sector manager
	Blampin Fruits	Done 23/09/13	Director
Retailers	Retailer 1	Done 04/10/13	Category manager
	Retailer 1	Done 11/10/13	Lead buyer
	Retailer 2	Done 04/10/13	Category manager
	Retailer 3	Done 24/10/13	Category manager
	Retailer 4	Done 28/10/13	Marketing manager and lead buyer

8. Preliminary findings

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This section presents the broad overall findings of the case studies. It is important to highlight that we present here a summary of common findings, across a range of different product categories examined in a particular national and local context, rather than conclusions, which cannot easily be drawn across such distinct cases. These main findings will subsequently be revisited in light of the results of econometrics analysis to enable overall conclusions for the study to be drawn in the draft final report.

8.1. Choice has evolved over time, increasing in some instances, and no examples of a notable reduction

On the whole, we have observed noticeable evolution in choice available at procurement level and to consumers at shop level. Four overall observations can be made: Firstly, there are several instances where choice has extended over time, both in markets where choice has traditionally been high (Milk in Finland) and low (Pork in Germany). Secondly, there are markets where choice appears to have merely evolved rather than noticeably increased (Apple in France and Cheese in the Netherlands). Thirdly, evolution in choice at shop level appears to have reflected the evolution of choice at procurement level, with the exception of Apples. Finally, there is no evidence pointing to a notable reduction in choice across the six case studies.

The variety of different situations relating to choice at the procurement and shop level can be summarised as follows:

Product category	Level	Evolution	Observation
Milk in Finland	High	Positive	Choice has historically been high, and appears to have extended over recent years through growth of private label products, which are offered on shop shelves alongside branded premium and speciality products. Increased choice at procurement level is reflected at the shop level.
Pork in Germany	Low	Positive	Choice has historically been low, due to consumer price-sensitivity, which seems to have slowed down suppliers' innovation pace. Nevertheless there is some evidence choice has extended, particularly through packaging options and discount stores extending the range of products at different prices.
Tomato in Belgium	Medium	Positive	Over the last decade a number of new products have appeared on the market, significantly extending choice.
Cheese in the Netherlands	High	Stable	Consumer choice is high but has been relatively stable over the past decade. There is a broad range of brands, both domestic and imported, as well as a growing number of private labels, however choice has not noticeably extended.
Apple in France	Medium	Stable	Choice seems to have increased at procurement level mainly through new varieties and packaging options, whilst choice at the shop level appears to have evolved rather than extended, with new products tending to replace existing ones at shop level.
Olive oil in Spain	High	Positive	Choice at the procurement level has vastly increased (480,000 references in 2013 at national level), through packaging options, sizes, and price range. At the shop level, there are more olive oil references in 2012 than 2000, through the emergence of new product sizes, packaging and quality products.

8.2. Innovation trend has generally been stable or positive

We have observed that all the product categories analysed have benefited from a notable number of innovations available to consumers. Across the case studies, the degree and nature of the innovations have varied. The innovation trend has generally been stable or positive, mostly in the form of new varieties and new packaging.

An overall trend towards premiumisation appears to have supported growth in innovation. We have observed sectors where a willingness to premiumise the market has collectively been supported in order to generate greater added value at different stages of the value chain. This has particularly been the case for Olive oil in Spain, Tomato in Belgium, Milk in Finland, and Apple in France.

The variety of innovation trends is outlined below.

Product category	Level	Evolution	Observation
Milk in Finland	High	Stable	Finland has traditionally been a very innovative market for milk products due to consumer expectations for high quality specialised and functional milk products. This said, it appears as though innovation has been stable over the past decade.
Pork in Germany	Low	Positive	Despite little incentive to innovate due to consumer price-sensitivity, there is evidence of increased innovations over the past decade in the form of packaging innovations and 'convenience' products
Tomato in Belgium	Medium	Positive	Increased research and development over the last decade has contributed to an accelerating stream of new varieties.
Cheese in the Netherlands	High	Positive	Innovation in cheese has increased over the last decade despite cheese being a traditional product. There have been efforts to make cheese production more efficient and to develop and improve existing products, adapting them to new and evolving consumer preferences/needs.
Apple in France	Low	Positive	Product innovations have been initiated and pushed by upstream actors, through club organisations. Innovation appears to have undergone positive growth over the past decade.
Olive oil in Spain	High	Positive	Premiumisation of the sector has occurred through different innovations: new formats, origins, new packaging, new quality products. The positive trend in innovation was supported by new process technology and packaging options.

8.3. Innovation has increased due mainly to upstream supply organisation and consolidation

The key driver of positive innovation evolution over the past decade across the six case studies is the organisation of the supply chain. This is particularly the case for fresh non-barcoded food products, where the upstream is responsible for pushing innovation onto the market. For Tomato in Belgium, seed houses have initiated new product development, thanks to increased research and development effort. The Producer Organisation, VBT, has consolidated the production sector, regulating the flow of innovation. For Apple in France, Club Organisations have been the key factor in providing the conditions for introducing new varieties.

This trend has also been seen for Cheese in the Netherlands, where the organised and well-structured sector, in combination with government subsidies, has strongly supported innovation activity. Furthermore, the high concentration of Finnish milk

production appears to have had a positive impact on innovation through strong research and development investment levels. Finally, innovation in olive oil has been driven mostly by actors in the production chain, including manufacturers and bottlers. On the other hand, retailer concentration does not appear to have had a noticeable effect on the innovation evolution.

8.4. Increased choice has been enabled through innovation and enhanced through retailer competition and the need for lower consumer prices

In traditional sectors, increases in choice appeared to be led by innovation in terms of new varieties and new packaging. This is particularly the case for Olive Oil in Spain, and Tomato in Belgium. In Spain, innovation efforts towards the premiumisation of the sector have resulted in a noticeable increase in references available at both procurement level and shop level. In Belgium, the stream of new, often high-margin varieties, has extended consumer choice available.

Retailer competition appears to have had a positive effect on choice. For Pork in Germany, a product that has traditionally been consumer price-sensitive, the development of packaged meat, in part due to the introduction of discounters over the past decade, has resulted in a situation where new convenience products and extended packaging options are offered. For Tomato in Belgium, the high concentration of retail appears to have had a positive effect on choice, due to competition amongst retailers to select, source and propose the most attractive range of products. For Olive Oil in Spain, due to price competition, retailers use increased choice to attract and retain customers. Finally, for Apple in France, whilst group purchasing organisations are important, assortments on shelves are often determined locally to take into account regional characteristics.

Finally, the growing emergence of private labels, in part due to the increased presence of discount stores appears to have played a role in the evolution of choice. This phenomenon has resulted in increased options for consumers, and an increased choice of products at different price levels. For Cheese in the Netherlands, there has been a growing popularity of private labels providing additional choice, due in part to the difficult economic climate. Milk in Finland is also seeing a rising share of private labels alongside the usual branded products, which, in addition to extending the choice for consumers, seems to have driven the main actors to differentiate their products through product type innovation.