EU CAP Network Focus Group 'Alternative solutions for livestock product differentiation'

Starting paper

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Contents

Acronyms

CAP: Common Agricultural Policy

CSA: Community Supported Agriculture

CSR: Corporate Social Rensponsibility

EU: European Union

FG: Focus Group

GMO: Genetically Modified Organisms

GPI: Protected Geographical Indication

ICT: Information and Communications Technology

NGO: Non-Governmental Organisation

OG: Operational Group

PDO: Protected Designation of Origin

PV: Photovoltaics

SO: Specific Objective of the CAP

SPG: Solidarity Purchasing Group

TSG: Traditional Specialties Guaranteed

WTP: Willingness To Pay

1. Objective

The aim of this document is to provide a starting point for discussion during the first meeting of the EU CAP network Focus Group on *Alternative Solutions For Livestock Product Differentiation*. The Focus Group will address the question which innovative solutions are there to differentiate livestock products for enhanced market diversification with the purpose of presenting new business models.
The starting paper will focus on product differentiation along the livestock supply chains; marketing and sales and labelling and quality assurance schemes with product attributes sought by consumers.

2. Introduction

For decades, agricultural development has been led by a modernisation paradigm based on specialisation, intensification and economies of scale. This development model has been supported through price support policies and, often, strong central marketing agencies, which have had a stabilising effect on prices and significantly reduced market risks for a range of commodities. The economic rationale of this model is based on the pursuit of economies of scale and highly efficient technical production. This model has led farmers to increasing their technical capacity and to neglect activities such as marketing, which was delegated to specialised marketing agencies. The weakened economic resilience of such farms has been aggravated by the gradual dismantling of producer price support, leading to increase in price volatility, which has become a near-universal phenomenon for almost all agricultural produce; for this reason highly specialised agriculture benefits from the existence of effective market agencies, and strong inter-branch organisations and/or the prevalence of contract farming to ensure its profitability in unstable market conditions. At the same time as agriculture, similar processes occurred at the value chain level. Both industry and, more recently, distribution have undergone significant concentration and scaling up. This has led to the uniformity and standardization of agricultural products, due to industry demand, and created a more complex and displaced chain between producer and consumer. This is why food now predominantly behaves like a commodity. In this context, farmers face much more challenges trying to differentiate their products, since they have little capacity to influence the whole food chain, at least at individual level.
The increasing market orientation of the CAP, the fragmentation and weakening of marketing agencies, and – last but not least– the growing societal demand for a more sustainable agriculture have led many farmers to rethink their farm development strategies. They are rediscovering farm diversification as one way of reducing market risks, as well as improving the efficiency of the farm's organisation and resource use (de Roest et al., 2018).
The European Green Deal promotes the transformation of the EU food system to be environmentally friendly, socially responsible, capable of preserving ecosystems and biodiversity and contributing to a climate-neutral European economy (European Commission, 2019). It takes a holistic approach by focusing on the entire EU food system, from farmers to consumers, including food production, transport, distribution, marketing and consumption.
The concept of sustainable agriculture is broad as it covers multiple aspects.

Sustainable agriculture can be defined as "the efficient production of safe, high quality agricultural products, in a way that protects and improves the natural environment, the social and economic conditions of farmers, their employees and local communities, and safeguards the health and welfare of all farmed species" (Buckwell et al., 2015); however these different dimensions of sustainability can compete with each other, leading to often leading to conflicting results, depending on which aspect of sustainability is given greater credence (Van Eenennaam and Werth, 2021).

Livestock are essential because they are recyclers by nature, which enables them to contribute to a more efficient agriculture by utilising non-edible biomass and by providing organic fertilizers. Furthermore, livestock farming is about more than food production as it contributes to many of the sustainable developments goals (Peyraoud and MacLeod, 2020).

Nowadays, there is a growing consumer demand for clean, ecological, ethical and local products. This is driven by increasing awareness of environmental and social sustainability, health risks and animal welfare concerns. Therefore, there is a new market trend driven by consumer demand for local, fresh, welfare-friendly, seasonal and organic products and products that are specifically connected or contributing to a territorial identity. Although these types of products are receiving increasing attention, they face some difficulties in access and development within the conventional market. To respond to these trends, the livestock sector must find alternative strategies for product differentiation that can diversify existing markets and foster innovative business models. By developing alternative strategies for product differentiation, it is possible to combine the two sides of the same coin: differentiated products, based on improved and/or alternative production systems, which build a diversified market to respond to new consumer demands and derive value from them.

Product differentiation, in economics and marketing, is the process of distinguishing a product or service from others to make it more attractive to a particular target market. This involves differentiating it from competitors' products as well as from a firm's other products (Chamberlin, 1962).

Sustainable livestock farms can be rewarded by consumers for their positive externalities such as those related to better protection of the environment, biodiversity, landscape and to better animal welfare. For instance, dairy systems using semi-natural pastures are considered as more favourable and sustainable, than crop based dairy systems, for their environmental benefits and good animal welfare while also reducing feed production costs and dependence on off-farm inputs for feed production (Zira et al. 2023).

3. Aims of the Focus Group

The focus group's work is based on the question "Which approaches are there to differentiate livestock products for enhanced market diversification and new business models?"
The question was developed by an ad-hoc group of experts in preparation for the focus group call. The expert group defined the following specific tasks:

- Identify good practices and innovative approaches/strategies/business models for product differentiation in livestock systems (intensive/indoor and extensive/outdoor systems, feeding strategies, breeding, animal welfare including space allowance and environmental enrichment, etc.)

- Identify instruments and tools to help farmers to implement business models for livestock product differentiation (labelling and branding schemes, traceability tools, certification and protocols for sustainability, monitoring and KPI, etc.)

- Collect good examples of communication/differentiation solutions and communication tools to approach the market and deliver objective and evidence-based information to consumers and citizens.

- To identify research needs from practice and possible knowledge gaps related to product differentiation, and propose directions for further study.

- Explore/identify which/how ICT technologies and devices (ie. Fbook consumer networks) could help bridging this gap, especially for producers in remotes areas

- Propose potential innovative actions and ideas for Operational Groups.

These tasks serve as orientation for the thematic focus and the expected outcomes of the work of the focus group.

The FG is addressing three Specific Objective 2 (SO2) of the CAP, dealing with competitiveness and resilience in sustainable livestock systems, including challenges, good practices and innovative solutions in different domains of the entire value chain. It also contributes to SO4 and SO9, i.e. "contribute to climate change mitigation and adaptation, as well as sustainable energy" and "to improve the response of EU agriculture to societal demands on food and health, including safe, nutritious and sustainable food, as well as animal welfare".

This FG also contributes to the Cross Cutting Objective which has, among others, the goal to bridge research and practice and offer a platform to exchange knowledge, connect and foster the collaboration between CAP-funded Operational Group (OG) projects and Horizon-funded multi-actor research projects and thematic networks.

4. Market demand and consumer's preferences for differentiated products

Food companies have a strong incentive to produce quality food to gain or maintain their market share and protect their brand reputation. Nevertheless, the market is characterised by shortcomings and imperfections that limit the production and marketing of quality food that meets the relevant consumer demands. Incentives to produce products with the product attributes that consumers want are weakened if consumers are not readily able to judge quality and make purchase decisions based on quality (Caswell, 2015).

4.1. Market demand for differentiated products

Most meat on the market is sold unbranded and commercially undifferentiated. When encountered, meat differentiation focuses mainly on consumer concerns and preferences (i.e. conventional vs. organic meat).
Market demand can be segmented by identifiable consumer preferences for different production and consumption attributes which are largely reflected in observable prices and are mostly driven by traditional quality and specific credence attributes (i.e. not immediately observable), as perceived at the point of purchase (Henchion et al., 2014).
The process of product differentiation can be promoted successfully to consumers when the product ideas and concept, prototype development and testing, overall marketing development, and finally the launch of the product to market are all consumer-driven (Grunert and Valli, 2001).
Food companies are more focused on communicating high quality attributes of their products that may appeal to consumers, rather than communicating less desirable attributes by, for example, choosing ways of presenting their products that make them look better than they actually are.
Not only food supply chains but also non-governmental organizations, and consumer groups want to have control over the scope of differentiation and how to communicate the quality of food products. In this process, agricultural and food companies have an interest in promoting the type of differentiation/labelling that best suits their production needs.
However, consumers' expectations of food quality can be very different, as can the way they deduce quality from available product information (Grunert and Valli, 2001).
A starting point to understand consumers' expectations can be precisely the analysis of heterogeneous consumer demand to segment the market, e.g. by identifying target consumers, differentiated animal welfare concepts and different price levels. Food preferences can also be differentiated by religion (e.g. halal and kosher slaughtered meat) and by ethnic and social identity (Atkin et al. 2021).
Increasing product differentiation in the food system leads to greater complexity, with benefits but also costs. The resulting new markets mean an at least temporary increase in market power and higher profits for food companies by motivating them to further differentiate their products through mechanisms such as branding or product certification. This also means more choice/variety for consumers, although perhaps at higher prices. This trend of increasing product differentiation looks set to continue with rising incomes and technological progress (McCluskey and Winfree, 2022).

Important quality indications for consumers at the time of purchase can be promoted by so-called extrinsic messaging, such as quality labelling, expiry date and information on the product's origin, as well as production and process attributes. Process attributes of food products are related to the way the product is produced (e.g. respect of animal welfare and/or the environment) and reaches the market.
Figure 1 shows how consumers interact with sustainability labelling at the time of purchase, identifying the main variables influencing their trust in the labelled product and their willingness to pay (WTP) for it.

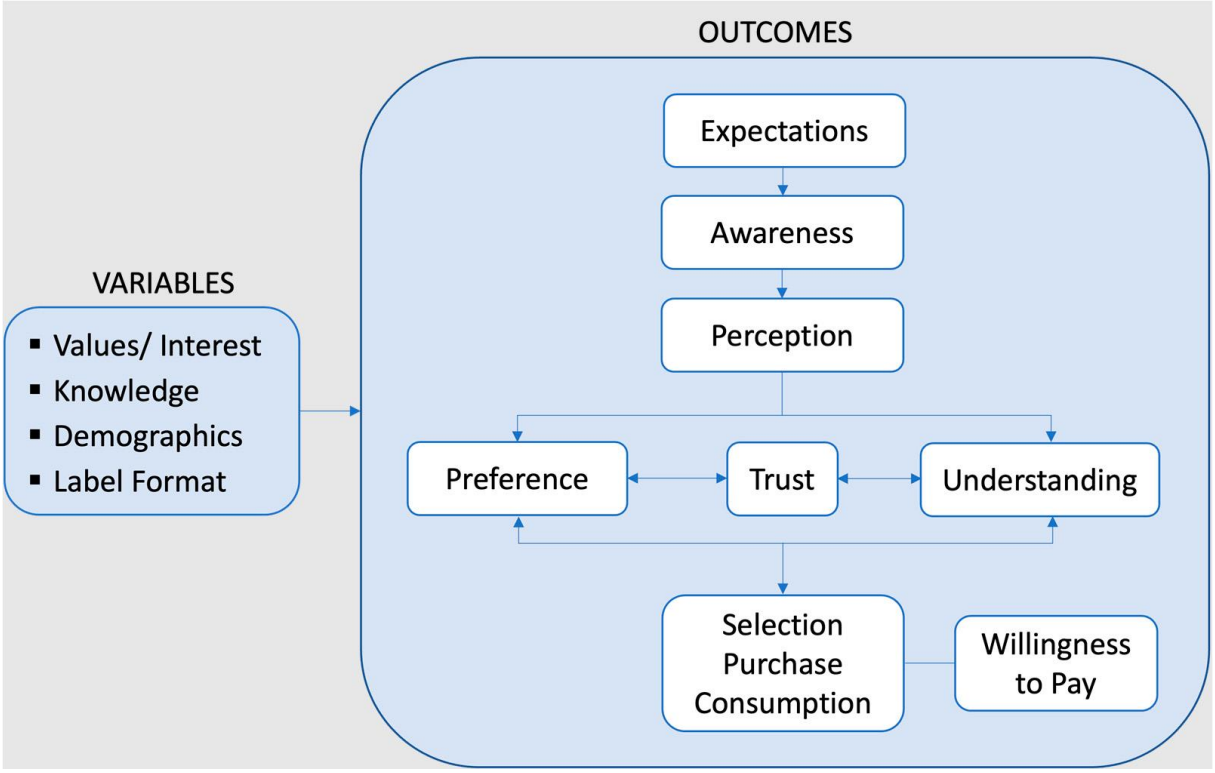

Figure 1. Consumer Interaction with Sustainability Labelling, Source: Cook et al. 2023, adapted from Grunert and Will, 2007.

Consumers' *values*, *interests* and *knowledge* influence their *expectations* and *awareness* of information and labelling claims on sustainably produced food. *Understanding* the *label* and the attributes of the labelled product allows consumers to *perceive* the label and express their *preference* for the label itself and the labelled product. However, consumers may or may not interpret labels correctly. Indeed, consumer confidence in the information, claims and product attributes conveyed by the label depends on how that information is interpreted. If consumers trust the label, they will be influenced by it and may even be *willing to pay* a premium for labelled sustainable food products (Klink-Lehmann et al., 2023).
Trust is very important as many EU consumers are wary of the potential "greenwashing" that food companies can do, for instance by intentionally creating complex labels that the average consumer cannot understand (EIT food, 2021). Greenwashing is defined as "the intersection of two firm behaviors: poor environmental performance and positive communication about environmental performance" (Delmas and Burbano, 2011) or "the act of disseminating disinformation to consumers regarding

the environmental practices of a company or the environmental benefits of a product or a service" (Baum, 2012). The phenomenon of greenwashing has increased with the rise of green markets, highlighting a trust problem as consumers find it harder to identify genuine green claims (Nylasy et al., 2014). Sustainability has become a competitive element among large food companies, many of which invest in green marketing communication to be perceived by consumers as eco-friendly and socially involved. Corporate Social Responsibility (CSR) is "a concept whereby companies integrate social and environmental concerns in their business operations and in their interactions with their stakeholders on a voluntary basis" (European Commission, 2009). More and more food companies are using CSR to advertise to consumers and gain market power, but their CSR should be consistent with the sustainability attributes of the products they offer to consumers.
Level of trust can also depend on regional differences in institutional trust and cultural norms. Social and demographic effects on consumers' perceptions and WTP for different sustainable product attributes have been examined in relation to consumers' age, gender, level of education and income, but the results are often mixed and contradictory, perhaps due to geographical and cultural differences among the consumers interviewed.

4.2. What product attributes consumers are looking for

Consumers diversify their demand according to a range of quality attributes in which they are interested, as well as the extent of their interest in certain attributes, including food safety, nutrition, sensory and organoleptic characteristics, value and function characteristics, and process attributes.
Livestock supply chains can respond more or less effectively to the different dimensions and objectives of sustainability (i.e. food safety, animal welfare and health, environmental and socio-economic). Different farming systems may be more efficient in one than another sustainability dimension. For example, free-range farming is considered a practice that improves animal welfare, although it can be less efficient in terms of productivity and carbon footprint, due to the higher feed conversion ratio, and it exposes animals to a greater health risk of contracting dangerous diseases transmitted by wildlife (e.g. Highly Pathogenic Avian Influenza, African Swine Fever).
Applying higher sustainability standards may cause an increase in production costs, which must then be offset by consumers' WTP for an additional price premium. Thus, it is important to understand consumer's preferences for different product attributes in order to develop strategies for product differentiation.
Meat product attributes perceived by consumers as providing health and safety benefits, such as reduced antibiotic use, were shown to be preferred by consumers, compared with attributes related to animal welfare and or environmental impact and social benefits (Grunert et al., 2018). Other studies show that when comparing different sustainability attributes of animal products, consumers prioritize their personal health over animal welfare, and that the latter takes precedence over environmental benefits (Klink-Lehmann et al. 2023). A recent online survey conducted in five European countries found that information on animal welfare, food safety, health and nutrition is perceived as being more important than environmental sustainability, suggesting that it is unlikely that food choice decisions will be based only on the environmental sustainability of a food product. Nevertheless, this product attribute can be linked to

other sustainability attributes, such as animal welfare, to enable consumers to make more sustainable food choices (Ammann et al., 2024); in this case these two product sustainability attributes may overlap (Moran and Blair, 2021), so care should be taken to ensure that consumers are provided with accurate and clear information to avoid confusion.

When it comes to product attributes related to animal welfare, it must be kept in mind that farm animal welfare is based more on trust attribute for most European consumers, who are not well informed about how farm animals are kept (Alonso et al. 2020). Nevertheless, one study found that consumers perceive the aspect of outdoor access, stocking density and floor type as important for animal welfare (Janssen et al., 2016).

A quantitative online survey conducted in 8 EU countries on consumer perceptions and attitudes towards animal welfare (AW) revealed that the consumers who have the least need for additional animal welfare information through a label are those who have contact with producers/farmers. The survey identified four consumer segments: the pragmatists, the disinterested in animal welfare, the indifferent and the interested in animal welfare. The pragmatists consider the efficiency of agricultural production and farm profit almost as important as animal welfare, while consumers interested in animal welfare are dissatisfied with current food systems and animal welfare standards and consider the introduction of regulatory and policy measures to improve animal welfare to be effective. However, the segments of indifferent consumers and those disinterested in animal welfare were the most numerous among the respondents, so it is unlikely that they are engaged in alternative food networks (Hempel et al. 2023).

The segment of consumers showing animal welfare concern and interest in sustainable livestock products was investigated in Germany, Poland and Belgium, accounting respectively for 31%, 26% and 32% of the respondents (Grunert et al., 2018; Verbeke and Vackier, 2024).

However, price is always considered as an important product attribute, particularly for consumers with lower income and level of education, who result to base their product choice more on affordability and expected taste (Alonso et al. 2020; Grunert et al., 2018). Six out of ten respondents to the last Eurobarometer survey on attitudes of Europeans towards animal welfare, are willing to pay more for products sourced from animal welfare-friendly farming systems and around a quarter (26%) would be ready to pay up to 5% more, while only 6% of them would be ready to pay more than 20% more. Conversely, 37% of respondent are not ready to pay more (European Commission, 2023).

5. Strategies to differentiate sustainable livestock production

The differentiation of the livestock products of a sustainable farm is a process that requires the application of complementary strategies, the choice of which largely depends on the structural, productive and managerial conditions of the farm itself, on the environmental characteristics and on the socio-economic fabric in which the farm is inserted and on the type of market in which its products are placed. The most suitable strategies should therefore be tailored to the farm itself, seeking to promote the values of sustainability and quality of its farm resources and production in the socio-economic fabric in which the farm is embedded. However, developing new differentiated products might be difficult and risky, because many new products launched in consumer markets turn out to be failures. Successful product development is likely to rest on an explicit and coherent new product development strategy that fosters cross-functional communication, learning from the selection and analysis of previous projects and market orientation (Grunert and Valli, 2001). One way that diversified farms can increase their economic sustainability is to partially produce for niche markets thereby generating a higher added value. A mix of products of high quality, possibly from the same production sector, but aimed at different, specific, market segments can further contribute to increasing the overall profitability of diversified farms (de Roest et al. 2018).

5.1. Technology and production strategies which add value in the market

Livestock product differentiation can be achieved across the different steps of the livestock supply chains, starting from the inputs used in the production process (e.g. fodder, feed, antibiotics, pesticides, breeds), in the farming phase and then in processing, packaging and marketing the products.
Product differentiation may include a wide range of options for livestock farms. For instance:

- Extensifying livestock farming;
- Applying the organic method;
- Applying additional animal welfare conditions (beyond legal requirements);
- Use only GMO-free feed;
- Reducing the use of antimicrobials (e.g. to produce antibiotic-free);
- Applying the grass-fed and pasture-raised farming methods;
- Implementing circular economy practices to minimise waste production (e.g. sustainable packaging) and reuse of it (e.g. for energy production or as by-products);
- Carbon balance;
- Producing energy from renewable sources (photovoltaics, biogas, wind energy) to reduce livestock carbon footprint;
- Increasing biodiversity by using livestock heritage breeds.

Sales of meat and dairy products, obtained from livestock heritage breeds or grass-fed and pasture-raised livestock, can be supported by communicating and emphasizing the special taste of these products.
Livestock farmers can also **develop value-added processed livestock products** (e.g. cured meat, charcuterie, cheese, yogurt, ice-cream, functional food, ready to cook portions) through sustainable processing on the farm or in collaboration or cooperation with other farmers and/or partners.

Case 1: Expression of the product: union of local breed, land and men
https://en.pierreoteiza.com/
Strategies for product differentiation: extensification; animal welfare; GMO-free feed; pasture-raised methods; heritage breeds.
The pig farmer Pierre Oteiza from the Kintoa region (FR) joined the Kintoa PDO specifications to produce a high-value-added pork and protect the Basque pig breed (Figure 2), while preserving its territory (intermediate zone of mountains maintained, moors, forests, grasslands) and developing extensive pig farming. He was awarded in 2020 as Ambassador of the EUPIG thematic network for innovation in the European pig sector as best practice provider in relation to the "Meat quality" challenge: "Being competitive in small-scale farming: Developing a niche market for pork".
https://ahdb.org.uk/eupig-expression-of-the-product-union-of-local-breed-land-and-men
Kintoa PDO standards:

- Purebred animals, slow-growing animals (12 months minimum at slaughter);
- Extensive raising for more than 12 months;
- Non-GMO food from the geographical area of the PDO (minimum 70%);
- Pastoral empties 2–4 months after each batch;
- Wooden sheds integrated into the landscape;
- Minimum carcase weight of 100 kg and minimum back fat thickness of 25 mm;
- Kintoa PDO meat characteristics: deep red, very marbled (intramuscular lipids >6% in the loin), white fat and silky touch and tenderness and juiciness after cooking.

In 2017, the average pig price was much higher for Kintoa PDO pigs (3.69 €/kg carcass) than for conventional pigs, due to the high market demand for the intrinsic and extrinsic quality attributes of this meat. At that time the price was also expected to rise to 4.35 €/kg in 2020.
Main challenges:

- Supply of Basque breeding pigs;
- Availability of suitable and accessible land to be equipped with fence and facilities to keep, control and feed the pigs and protect them from wild animals and predators;
- Collaboration with pork processors within the PDO scheme;
- Selection of the marketing channels.

Main opportunities:

- Accessing niche market for high value pork products;
- Creation of wealth for the rural territories through the Protected designation of Origin.
- Preserve the Basque pig breed and promote the Kintoa territory.

Fig. 2. Basque pig for Kintoa PDO, Source: Slowfood.

Case 2: Piggly antibiotic-free pig farm

https://piggly.it/en/

Strategies for product differentiation: animal welfare; antibiotic-free; carbon balance; renewable energy from biogas and photovoltaic (PV) panels.

Piggly is a pig modern pig farm located in the heavy pig production area for the Parma and San Daniele PDO hams. It was built in 2016, aiming at maximising the level of animal welfare and minimising environmental impact and use of antimicrobials. Sheds with optimal insulation for pig thermal comfort and a high roof pitch of 35° with southern exposure for maximum efficiency of PV panels of natural cross ventilation controlled through automatic window adjustment based on the internal ammonia level (max 10 ppm) and carbon dioxide level (max 3,000 ppm). Pig slurry is processed and deodorised in the farm biogas plant.

- Farm capacity: 860 sows with cage-free farrowing pens, 6,000 weaners housed on straw bedded solid floor (0.5 m^2/pig) and 7,000 finishers housed on thermal insulated solid floor inside and on slatted floor outside (1.25 m^2/pig in total);
- Pigs kept with intact undocked tails (98-97% certified antibiotic-free from birth).
- Low mortality rate: 4% in weaners, 2% in finishers;
- Good performances: FCR 3.4, ADG 850 g/day;
- Low carbon print: 1.06 kg CO_2e/kg live weight, compared to range from 0.6 to 6.75 kg CO_2e/kg in pork production (Yang et al. 2023);
- Antibiotic free certification by the SGS certification body.

Piggly was given in 2024 the Good Pig Award from the NGO Compassion in World Farming (CIWF).

Main challenges:

- suitable agricultural land to buy for building the new pig farm;
- financing new pig barns and photovoltaic and biogas plants;
- securing financial turnover in the first years after the start-up.

Main opportunities:

- Accessing niche markets;
- Increased profitability from selling electric energy into the electric grid;
- Reducing the carbon foot print.

Fig. 3. Panoramic view of Piggly farm, Source: BIRLA Società Agricola S.R.L., 2021.

5.2. Marketing and sales

Farmers effective networking can support and contribute to sustainable livestock development.

5.2.1. Chain organization (relationship between the different stakeholders in the chain)

The first question a livestock farmer should ask himself to differentiate his products and offer them directly to his end customer or consumer is, first of all, whether he can close the supply chain on his own or in cooperation with other livestock farmers or operators in the livestock supply chain, such as slaughterers, processors, seasoners, distributors and sellers. Indeed, a first aim of this short supply chain should be to become totally independent from the mainstream processing and marketing system; it also should be organised and its actors involved and contracted in a way that farmer get a fair remuneration for their job and final price is fairly distributed along the supply chain.

Farm shop is not only for selling farm products as it can be considered as the best solution to welcome and host consumers, to directly meet, know and tell them the farm story and values, to let them visit and look at the farm and the animals, whereas possible, and to let them taste the quality before buying. This process can be very effective to achieve the consumer loyalty. Afterwards consumers can order products by email or online once they have become loyal consumers.

Farmers' markets are now a consolidated reality in many cities and offer some of the advantages of the company store (direct contact with the consumer, the possibility of offering information on the company's history and values) but not all of them, as the purchasing times are shorter and consumers do not visit the company and do not see the animals live. Farmer markets are another important sale channel for many livestock differentiated products, particularly for farms located far from urbanised areas.

Solidarity Purchasing Groups (SPGs) can be another alternative sales channel; they are groups of consumers that organize themselves to "do the shopping" together, buying food and products for daily use directly from the producers. SPGs are distinguished from traditional purchasing groups, only aimed at obtaining discounts, because of the criteria used to select the products and the producers.

Alternative distribution networks can maintain or even increase the market power of producers, so that farmers can retain control over the marketing of products and price decision-making power through direct sales. On the contrary, the exclusive marketing relationship with large retailers can be ineffective in strengthening farmers' retail shares and can make them more vulnerable to external pressures. However, the success of product differentiation strategies depends on the capacity for finding a market "niche" and on the establishment of new and accurate alliances between producers and outside stakeholders from other distribution networks or institutions (Brunori and Cerruti, 2008).

Case 3: IRIS organic dairy farm specialised in product differentiation
https://www.agricolairis.it/
Strategies for product differentiation: extensification; organic; animal welfare; GMO-free feed; low antimicrobial use; grass-fed; heritage breeds.
IRIS is a dairy farm in the Parmigiano Reggiano cheese production area (Figure 4) that converted to organic farming in 2002, after building a new barn for moving from the intensive tied stable to the more extensive loose housing system with access to outdoor spaces and pastures. The farm keeps an average of 190 cattle, of which 90 are lactating cows; 20 of these are of local heritage breeds (Pontremolese, Bianca Padana), whose milk is processed separately to produce a specific cheese from those breeds. Milk from pasturing cows is processed separately to start the production of pasture-based cheese as new farm product. IRIS has been collaborating in various local initiatives to promote local agricultural products such as 'Caseifici aperti' (open cheese factories) and the local Rural Festival (https://www.rural.it/festival/?lang=en) with the aim of promoting network and collaboration between local farmers. Thanks to this network IRIS started to process milk from cows of endangered breeds and produce not only Parmigiano Reggiano but also other types of dairy products including a unique whole milk cheese, called 'Pioniere' and other types of hard and soft cheeses, yoghurt, ice cream and single portion desserts. In 2015 the oldest farm building was renovated to create a restaurant/tasting room for 50 people and a cellar for displaying/maturing his cheeses. For online trading, the company has its own website in Italian, also including a blog section with cooking recipes; the English version is being completed.
Sale channels: 40% large retailer; 40% SPGs mainly from foreign countries (FR, BE, DE, ES, PT and CH); 15% farm shop; 5% e-commerce.
Main challenges:

- financing new stable, restoration room, cheese cave and enlargement of the dairy processing plant;
- facing buyers of large retailers, understanding their contracts and needs (e.g. continuous offer, quality and packaging standards);
- organise production, storage and distribution of a number of different dairy products.

Main opportunities:

- Increasing farm profitability
- Building consumer loyalty;
- Accessing niche markets for organic dairy differentiated products.

Fig. 4. Cheese production at IRIS farm, Source: Azienda Agricola IRIS.

5.2.2. Information and communication tools, including labels

E-commerce is increasingly used for the direct sale of processed livestock products. ICT networking technologies (e.g. social media, online sale platforms) create opportunities to influence consumers in the often neglected pre- and post-purchase stages. In this case, farmers equip themselves, either alone or in collaboration with other farmers and actors in the supply chain, with a website including a product sales platform. For this purpose, they usually rely on an external consultancy service that, however, must adapt to the characteristics of the customer to emphasize and enhance the attributes of authenticity, quality and sustainability of the products offered.

Case 4: REKO

https://aitojamakuja.fi/en/what-is-reko/

REKO is a Finnish trading movement (meaning "fair consumption") created by Thomas Snellman, that is essentially a pre-order Facebook based system. The Farmers Market aspect of REKO takes place on Facebook where goods are advertised each week, while the collection provides a social opportunity for all involved. REKO Rings provide support for small scale farmers and cut out the middle man while, for customers, create a convenient way of ordering local, organically produced or ethically raised produce directly (Figure 5). Produce is delivered by the farmer in person to create accountability and relationship. Everything is bought and paid for in advance which means producers only have to take along what they have orders for, and the collection is limited to 1 -2 hours. Customers can have the convenience of cost-effective online shopping with access to fresh, healthy, local produce while supporting ethical/organic/sustainable production values of small scale producers, and collection from multiple producers in one location. Buying directly means customers can build a relationship with the producers and really know where their food comes from. For establishing a reko-ring one person needs to be the moderator for: creating a closed Facebook group; connect food producers and check that all goes fluently. The turnover has multiplied during the first years and in 2019 reached 198 REKO chains in Finland (2019), 500 REKO chains in Scandinavia and additional REKO chains were spread other EU countries (e.g. Italy).
https://www.youtube.com/watch?v=ETHa7MPEl1A

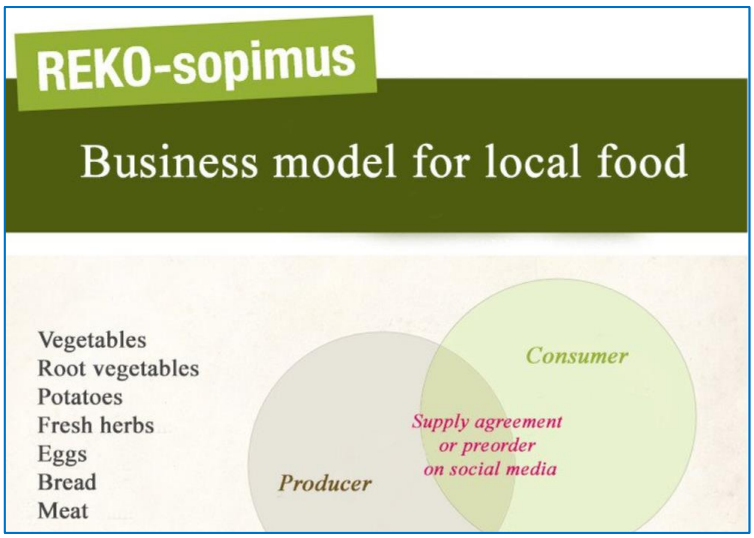

Fig. 5. What REKO is, Source: URGENCI, 2015.

***Case 5: Grutto, Online direct marketing with a focus on sustainability and animal* welfare**

https://www.grutto.com/global/

Strategies for product differentiation: extensification, animal welfare; circular economy practices.

Grutto company is documented by the BovINE EU thematic network for innovation in the beef sector as a good practice to ensure a fair distribution of the final price along the supply/food chain (Figure 6). https://hub.bovine-eu.net/methods-to-ensure-a-fairer-distribution-of-the-final-price-along-the-supplyfood-chain/online-direct-marketing-with-a-focus-on-sustainability-and-animal-welfare

Grutto is the name of a company based in the Netherlands and Germany, since 2024 and 2015 respectively, that only slaughter a cow, a beef or a pig once it is sold by 100%. Customers can place online orders for different parts of meat. Once a whole animal is sold, it is slaughtered, processed and the order is delivered. Another principle is to really sell the whole animal to prevent waste. So, the customer don't only order and share the meat but also processed products like sausages.

Fig. 6. Grutto's advertisement, Copyright: © Grutto.com

Food labels can be used successfully to provide consumers with visible information about the product attributes that consumers can be looking for when making a purchase, particularly the extrinsic attributes would otherwise be difficult to evaluate (e.g. farming method, carbon footprint, nutritional score). Labels can therefore support informed consumer choice in purchasing animal products diversified, based on the level of sustainability of the supply chain from which they originate.
The use of eco-labels or sustainability labels on the market of animal products is increasing by food companies with the aim of providing consumers with information on the sustainability of the production process (Guyomard et al., 2021). Most eco-labels refer to specific certification schemes to ensure consumers about product quality in terms of extrinsic attributes. However, it is important to bear in mind that different combinations of labels on a single product can lead to compromises in the information received by consumers, as sustainability dimensions, such as animal welfare and climate impact, may conflict (Soontag et. al., 2023). Therefore, consumers may be faced with a combination of sustainability labels where not all attributes are positive; therefore, the consumer may be confused by such a conflict if the trade-off achieved between different sustainability dimensions with the aim of improving the overall sustainability of the labelled product is not explained in a clear and understandable way to the consumer.
Ecolabel Index is a large directory of ecolabels, currently tracking most food ecolabels in the world (Ecolabel, 2024); most of them (106) concern to some extent or are particularly focused on livestock production and the vast majority of these (57) serve to identify organic certification.
Organic labelling is the most clear and effective example of strategy to differentiate livestock production. It is acknowledged as effective to ensuring higher level of environmental protection, animal welfare and food safety and is well known by EU consumers although the higher market price of organic, compared to conventional products, limits their choice by interested consumers with limited purchasing power due to lower income. Other examples exist of eco certification and labelling such as, animal welfare, GMO-free, antibiotic-free, grass-fed and pasture raised or low carbon footprint.

The format of the label is also important to effectively facilitate consumer understanding of the label, being simple to avoid information overload and accurate to enable consumers to quickly access the information they need to make their purchasing decision e.g. by using intuitive symbols or traffic light colors.
Sustainability labelling can also interact with other types of product labelling such as marketing claims, production area, schemes of geographical indications (PDO, PGI) and traditional specialties (TSG), ingredients, nutritional characteristics. This interaction can cause information overload, leading some consumers to not perceive the label (Cook et al. 2023).

Product traceability is a good way to ensure consumers about where the product come from. Local Traceable Supply Chains can increase transparency, highlight local sourcing and gain consumer trust. Consumers can benefit from knowing where their food is produced. An increasing number of consumers prefer their food to be produced locally for various reasons including environmental concerns or quality issues. Consumer WTP for food traceability, as reported in the literature, has shown a steady upward trend over time especially among consumers in developing countries and more

so for meat products than for other food categories. Furthermore, WTP was shown to increase if food traceability is linked with other extrinsic credence attributes (e.g. animal welfare), whereas it decreases if traceability is associated with intrinsic attributes (e.g. appearance, taste) (Tran et al. 2024). Blockchain technology for tracking the supply chain can be an effective tool to enhance transparency and build consumer trust. However, the impact of blockchain technology on purchasing choices would be affected by a different level of trust, probably due to the complexity of understanding how it works (Contini et al., 2023). In fact, familiarity with and knowledge of this technology was found to vary widely among consumers according to their background knowledge (Gröppel-Klein and Kirsch, 2023).

Farmers' activities, such as agritourism, catering, culinary experiences, farm shopping, storytelling and farm education in cooperation with local schools can be effective in engaging consumers and strengthening brand loyalty, allowing them to experience first-hand how the farm operates in a sustainable manner. Also, many consumers see this as a local economic development strategy and try to recruit others to buy locally (Winfree and Watson 2021); community involvement through local events, farmers' markets or community-supported agriculture (CSA) can be effective in building consumer's loyalty.

5.2.3 Logistics and product preparation

A very important player for farmers who want to differentiate the meat they produce is the slaughterer who should be suitable to slaughter even a few animals according to customer demand.
Unfortunately, today's slaughterhouses are increasingly large and work at a very fast pace and hardly allow the handling of small batches of a few animals. Smaller slaughterhouses, on the other hand, are also becoming increasingly rare due to the recent increase in energy costs that has caused many to close.
The alternative is to resort to mobile slaughterhouses, for example for poultry, or to set up one's own limited-capacity farm slaughterhouse, which in any case entails a large investment if only one livestock farm is involved.
Meat or milk can be processed by the farmer himself or by a contracted processor who can return the fresh and cured products to the farmers for selling them on farm or through other sale channels.

Packaging and logistics should be organised, suited and managed according to the specificity of the differentiated products. Fresh products, for instance, such as meat and soft cheeses and yoghurt need a cold chain in storage and distribution; in addition, each product must follow HACCP standards which may require processing lines with different hygiene requirements. For this reason, the development a differentiated product should be planned carefully by considering all inputs needed in new production process. At the same time different products may need different packaging solutions to better protect. Packaging sustainability should also be considered to find effective solutions to avoid the use of plastic materials; sustainable packaging can be "sold" as a product additional attribute of environmental sustainability.

Case 6: Grass-Fed Beef

https://oppla.eu/sites/default/files/uploads/ee-grass-fed-beef-final.pdf

Strategies for product differentiation: extensification, animal welfare; circular economy practices.

This case study (CS) of the Pegasus EU Horizon research project (https://cordis.europa.eu/project/id/633814/reporting), is about the whole chain approach (production-processing-marketing) of organic grass-fed beef, targeting biodiversity, landscape, carbon sequestration/storage, rural vitality and animal welfare. The initiative is led by the NGO Liivimaa Lihaveis (Beef of Livonia), established in 2010 by 11 beef producers from different locations across Estonia (Figure 7).

The main aim was to be independent from the mainstream processing and marketing system, to give more added-value to the products and to offer better prices for their members. Since 2014 all members are also certified organic. In 2010, some founders of Liivimaa Lihaveis established also a private limited company (Nordic Beef) whose main function became distribution of grass-fed beef meat under the officially registered trade mark "Liivimaa Lihaveis".

After NGO Liivimaa Lihaveis initiated and developed the national food quality scheme "Grass-fed beef", which was certified by the state in 2014, the good price for this beef encouraged more farmers (up to 43 members in 2016) to join the quality scheme.

- Cattle must be grazed on grassland throughout the grazing period;
- During winter cattle must have the freedom to move freely;
- At least 50% of pastureland used for grazing should be permanent (not ploughed or cultivated);
- Feeding any grain to the cattle is not allowed.

Sale channels: retailers, restaurants/cafes, schools, in more than 150 places in total. Recently they started introducing the products in the HoReCa of Latvia and Sweden. Around 50% of the produce is currently exported. Liivimaa Lihaveis is cooperating with more than 20 well-recognised Estonian, Latvian and Swedish chefs. Very high attention is paid to increasing the consumer's awareness and of the benefits related to this type of production.

Main challenges:

- Setting up the certification scheme;
- Getting the control on the whole supply chain, including slaughter, processing and distribution.

Main opportunities:

- Increasing farm profitability;
- Improving farm economic resilience;
- Environmental benefits related to the management of semi-natural grasslands.

Fig. 7. Grass-Fed Beef of "Liivimaa Lihaveis" brand for retail channels, Source: Argo Peepson

Case 7: Fumagalli Eco friendly packaging
https://www.fumagallisalumi.it/en/
Strategies for product differentiation: extensification; organic, animal welfare; circular economy practices.
Fumagalli Industria Alimentari S.p.A. is an Italian leader company in producing and exporting pork product; it incorporates breeding, slaughtering, meat processing and curing. Fumagalli conducts both conventional and organic pig livestock with high standards for animal welfare and environmental protection; for these reasons it received the Good Pig Award in 2016 from the NGO Compassion in World Farming.
Fumagalli is certified "IFS food", "organic" for its organic production share and "KIWA" for products sold in the UK. In 2019, Fumagalli has released the new Eco-Friendly line realized with more than 75% paper, produced with cellulose from forests managed according to strict environmental regulations (Figure 8); moreover, the packaging has a completely recyclable tray.
Main challenges:

- Selecting sustainable packaging solutions with a good balance between environmental performance and price.

Main opportunities:

- Reducing the environmental impact of plastic packaging;
- Meet market and consumer's demand for sustainable packaging;
- Accessing niche markets for organic dairy differentiated products.

Fig. 8. Fumagalli Eco friendly packaging, Source; Fumagalli Industria Alimentari S.P.A.

5.3. Assurance schemes with product attributes sought by consumers

Certification is widely used as a strategy to address and verify the different dimensions (environmental, social, economic) of the sustainability of animal products, to ensure that product attributes comply with certified standards, to enable consumers to make informed choices in purchasing sustainable food and thus support sustainable food consumption and production.
Quality assurance can effectively support product differentiation through three successive phases (Caswell and Anders, 2011; Boys et al. 2015):

1) **definition of standards** that identify the attributes and levels of quality that must be achieved;
2) **certification mechanism** that verifies products and processes to make sure they meet the standard and can be certified as compliant.
3) **reporting to buyers/consumers** of the quality and conformity of products to the standard, in the form of certificates and labelling.

Certification relies, usually, on third-part attestation that a product or process is complying with the specific standards of the certification scheme. Standard definition and certification mechanism are main challenges in product differentiation based on process attributes. A main point of discussion when a new certification scheme is set up is whether the certification process results into a true and reliable product differentiation by improving farm sustainability, for instance in terms of better animal welfare and/or environment protection (Caswell, 2015).

The number of certification schemes for livestock and aquaculture production has increased rapidly in recent years but there is still a lack of information on their effectiveness and validity. A recent analysis of Dutch certification schemes in egg and dairy production shows a myriad of approaches (e.g. for auditing, scoring and reporting), sustainability indicators and organization structures underlying sustainability certification. As each certification scheme has its own perspective on sustainability, addresses different sustainability questions and uses different sets of indicators, questions are raised about the credibility of the certification outcomes.

Sustainability certification may also need to deal with trade-offs between different sustainability issues and related product attributes. How private certification organizations address these trade-offs and prioritize sustainability issues can have a large impact on the sustainability of livestock production (de Olde and de Boer, 2021).

Farmers can benefit from sustainability certification in terms of higher prices paid for their products and opportunities to access market channels reserved exclusively for certified products. However, while benefits are not always immediately accessible, there are also costs associated with certification.

Case 8: Sustainable Beef and Lamb Assurance Scheme (SBLAS)
https://www.bordbia.ie/farmers-growers/get-involved/become-quality-assured/sustainable-beef-and-lamb-assurance-scheme-sblas/
Strategies for product differentiation: animal welfare, grass fed and pasture raised, carbon balance.
This is one of the Quality Assurance schemes developed by Bord Bia, the Irish state agency, to promote Irish food, drink and horticulture (Figure 9). As part of the Bord Bia audit process, farmers must complete a Sustainability Survey. The data gathered from this survey enables Bord Bia to assess the environmental performance of Quality Assured farms using a carbon footprint calculation. The carbon footprint is the ratio of total greenhouse gas emissions (GHG) to total outputs of the farm enterprise. After the Bord Bia audit, farmers receive a Feedback Report, including the farm's carbon footprint and useful graphs displaying summaries of farm's nutrient management (fertiliser and slurry application), grassland management, and rates of concentrates fed. The scheme aims at demonstrating to customers that quality beef and lamb are produced sustainably, providing a uniform mechanism for recording and monitoring quality assurance criteria and sustainability criteria for beef and sheep farms, to set out the criteria for best practice in Irish beef and lamb farming and to provide an on-going means of demonstrating best practice at farmer level. The Standard is accredited to the International Standard for Product Certification ISO 17065: 20122 by the Irish National Accreditation Board. Farmers can benefit from joining the scheme by achieving a higher price for their products (e.g. due to export), and becoming more aware on the amount of used resources (e.g. energy, feed, water etc.) in order to reduce their use and implement measures that enhance farm environmental performance.

Fig. 9. Bord Bia advertisement, Copyright: © Bord Bia.

Farmers and actors in livestock supply chains need new knowledge and skills to differentiate their product. For instance, **training in food marketing** is key to successfully transitioning from a specialized farm to a diversified farm, including learning skills for marketing high value-added agricultural products, establishing short food supply chains, and rebuilding supportive social and economic networks. The latter is particularly important when farms are too small to diversify effectively individually.

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Annex: Examples of labels

Some European well-known examples of labels are:

The EU organic logo was introduced by the EU on 2010 to label organic products complying with EU legislation.

The Better Life label scheme uses a star rating to indicate the animal-friendliness of the systems used to rear livestock for the production of meat, eggs and dairy produce. The higher the number of stars, the more attention is paid to animal welfare. The Better Life label scheme was initiated by the Dutch Society for the Protection of Animals in 2007. The Better Life label is a chain-wide scheme. This means that in addition to livestock farms, all the other, subsequent links in the chain such as abattoirs, packing stations, processors, packers, etc. must also be inspected and certified. The Better Life label Foundation is the private certification organisation responsible for correctly assuring the Better Life label and for communication with the business sector.
https://beterleven.dierenbescherming.nl/zakelijk/en/

The Label Rouge is a French label, which refers to products which by their terms of production or manufacture have a higher level of quality compared to other similar products usually marketed. At all stages of its production and its development, the Label Rouge product must meet the requirements defined in the specifications, validated by the Institut national de l'origine et de la qualité (INAO) and approved by a ministerial order published in the Official Journal of the French Republic. The monitoring of compliance with these requirements and product traceability is ensured by an independent certification body on the basis of a monitoring plan approved by the INAO. https://www.inao.gouv.fr/eng/Official-signs-identifying-quality-and-origin/Label-Rouge-Red-Label

RSPCA Assured in a well know label in the UK, developed by the English charity Royal Society for Prevention of Cruelty to Animals to identify certified livestock product according to the RSPCA animal welfare scheme. Livestock farms must comply with the RSPCA's stringent higher welfare standards. These standards cover every aspect of the animals' lives from birth through to slaughter.
https://www.rspcaassured.org.uk/