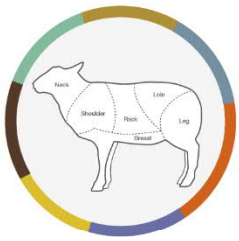
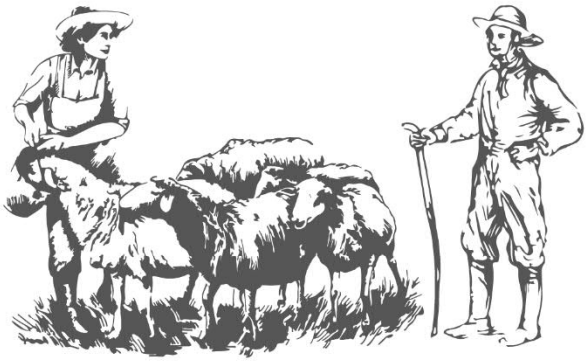


IDENTIFICATION OF BARRIERS AND OPPORTUNITIES IN THE EXTENSIVE SHEEP/GOAT FARMING VALUE CHAIN



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EXECUTIVE SUMMARY

Extensive livestock farming functions within a very complex reality, producing quality food in a way that is sustainable and compatible with animal welfare, as well as fundamental public assets at a social, environmental and economic level. From the moment the livestock products leave the farm and until they reach the end consumer, they must complete a long journey plagued with obstacles and difficulties that have negative consequences for the financial profitability of this type of farm.

The objective of this study is to examine the different ways of processing and marketing products from extensive livestock farming, identifying the barriers and bottlenecks and also the opportunities and existing initiatives that have an impact on the economic sustainability of extensive livestock farms.

In order to do this, a predominantly qualitative methodology was used, based on conducting in-depth telephone interviews with 18 key agents in the sector involved in the value chain.

The analysis of the information collected in the interviews and from the review of secondary sources reflected the complexity of the value chain and the existence of important problems in the processing and marketing process that affect both meat and dairy products, although the barriers in the case of meat seem to be more numerous and of greater importance. The results of this analysis are represented in three graphics included in the annexes of this document.

Among the barriers identified, four stand out as the main bottlenecks: (1) the lack of differentiation for extensive livestock, (2) the low consumption of lamb and goat meat, (3) the current model of slaughterhouses and (4) the health-hygiene regulations.

Despite the existence of these very complex problems, this study has identified opportunities and initiatives that can be used as drivers of change or proposals for improvement that reduce these bottlenecks and thus alleviate some of the most important problems affecting the economic sustainability of extensive livestock farming. Among these opportunities, the following should be highlighted:

- Working to make the health-hygiene regulations more flexible: An interpretation of these regulations that takes small scale producers into account, as well as developing the possibilities for a more flexible implementation allowed for in the European regulations themselves, would represent an important advance towards the economic sustainability of extensive sheep/goat farms, for both milk and meat production.
- Promoting and revitalising other models of slaughterhouse and cutting plant: The current model for slaughterhouses (few and very large) causes serious damage to small farms that operate without belonging to large cooperatives. Viable proposals have been identified in the study, such as mobile slaughterhouses or the recovery of municipal slaughterhouses, depending on the local circumstances of each area, which would alleviate this problem.
- Promoting new consumer habits: In addition to the valuable existing private initiatives, a real involvement of public authorities in promoting the consumption of local products from extensive livestock farming is required. In order for this to happen, among other things, it is essential to make progress in the characterisation of extensive livestock in all its different aspects. Once the activity has been characterised, new certifications, quality seals or labels could be established to differentiate products in the market.

Another opportunity identified is the promotion of wool, since, although this is not linked to the main bottlenecks, it could lead to an improvement in the financial profitability of livestock farms.

Finally, it should be noted that the barriers detected drive livestock farmers into choosing courses of action where they lose control over their products. However, this analysis seems to indicate that participation in the processing and marketing process, either individually or through association

initiatives, can have a positive impact on the economic sustainability of the farms. The courses of action in which the livestock farmer maintains their decision-making power may involve more work, dedication and effort, but they allow the farm itself to benefit from the added value, thus improving its financial profitability.

1. INTRODUCTION

People who dedicate themselves to extensive sheep and goat farming work to produce sustainable and quality food, while generating fundamental ecosystem services, are a confronted with a very complex reality. From the moment the livestock products leave the farm and until they reach the end consumer, they must travel down a long chain plagued with difficulties and obstacles that have consequences for the financial profitability of this type of farm.

This study aims to identify and examine the different paths that products from extensive sheep and goat farming follow from the livestock farm to the end consumer, identifying both the obstacles and the opportunities and existing initiatives that may have an impact on the economic viability of such farms.

In order to do this, a study area made up of the Autonomous Communities of Andalusia and Extremadura has been selected, and the study has been carried out in this area, where the sector under consideration is of great socio-economic importance, with the following main objectives:

- Definition of the different paths along which products from extensive sheep and goat farming travel between leaving the farm and reaching the end consumer.

- Identification of the barriers and main bottlenecks present in the value chain of products from extensive sheep and goat farming and that have an impact on the economic sustainability of farms.

- Identification of opportunities and existing initiatives that can improve the economic profitability of extensive sheep and goat farms.

The report is organised as follows: chapter 2 addresses the methodology followed in the study; in chapter 3, a review of the initial problems of extensive livestock farming is carried out; and in chapter 4, the results obtained in the study are presented. Finally, the conclusions and recommendations are presented in chapter 5. Another fundamental part of this study has been the development of three graphics: a flow diagram of value chains (Annex 2), a diagram showing the identification of barriers (Annex 3) and a diagram with the identification of opportunities (Annex 4).

2. METHODOLOGY

The methodology used in this study was predominantly qualitative. The choice of this approach was appropriate for the proposed objectives, since it allowed the identification of the multiple causes of problems with sustainability in extensive sheep/goat farming in the study area (Andalusia and Extremadura), as well as the possible opportunities for their improvement or drivers of change. The qualitative approach is preferable to the quantitative approach when the aim is to gain an in-depth understanding of the complexity of a social situation and it is intended to do this "from the inside" of the phenomenon itself, i.e. understanding how people and groups build the world around them (Flick, 2015; Spencer *et al*, 2003). Following this approach, the in-depth interview was chosen as a qualitative technique[1] that allowed the identification of the problems of extensive livestock farming – and the possible solutions – through the actual agents involved in the value chain.

The information gathering process had two phases: an initial phase consisting of a review of the existing literature (reports, studies, communications from scientific congresses, etc., referenced in the bibliography); and a second phase of field work, consisting of the 18 interviews with key actors in the study area, as well as with other actors from other territories who are experts in the topics of interest and/or were able to share knowledge about success stories applicable to the study area. Annex 1 presents the list of people who participated in the study. The interviews were conducted in May 2020 and lasted between 30 minutes and 1 hour.

The selection of the interviewees was carried out taking into account four criteria: (1) knowledge of and/or experience involving the subject under consideration; (2) heterogeneity of profiles (profession/position and gender) in order to collect the necessary variety of experiences, concerns and points of view and thus obtain a broader vision of the phenomenon being studied. On this basis, great efforts were made to cover a wide variety of profiles: farmers, public sector officials with expertise in the current legislation, cooperative professionals, and representatives of organisations or associations belonging to the value chain; (3) prior trust, based on the recommendation of other interviewees and study advisers (snowball sampling); and finally, (4) adaptation to the requirements of the research, which varied throughout the process, until all the information gaps were filled (saturation point of the research).

The following tables summarise some of the characteristics of the profiles of the people interviewed:

[1] The methodology designed at the beginning of the project envisaged carrying out two or three exploratory interviews, plus the preparation of a discussion group with different key actors to jointly analyse the problem under consideration, which could also be complemented with a number of subsequent interviews in the event of unanswered questions. But due to the Covid-19 pandemic, the methodology was adjusted to the new situation, cancelling the organisation of the focus group and considerably increasing the number of interviews. However, all of the interviews had to be carried out by telephone.

		No. INTERVIEWS
STUDY AREA	Livestock farmers	5
	Organisation representatives	5
	Public sector	1
	TOTAL	11
OUTSIDE the STUDY AREA	Livestock farmers	4
	Public sector	2
	Organisation representatives	1
	TOTAL	7
TOTAL		18

Table 1: Distribution of profiles of the people interviewed inside and outside the study area

		No. INTERVIEWS
Women	Livestock farmers	3
	Organisation representatives	4
	Public sector	2
	TOTAL	9
Men	Livestock farmers	6
	Organisation representatives	2
	Public sector	1
	TOTAL	9
TOTAL		18

Table 2: Participation of women and men in the study

The secondary sources review phase made it possible to identify the different paths within the value chain of extensive sheep/goat farming in an exploratory way, as well as the current problems and potential opportunities in the value chain. Based on this information, and the knowledge gaps that remained, the script for the semi-structured interviews was prepared[2]. The interview phase allowed us to identify new barriers and opportunities, confirm the information that we had obtained from the literature and achieve a deeper understanding of the problem and the relationship between the different actors and processes that interact in the value chain. Finally, we proceeded with the analysis of all the information collected through the secondary and primary sources and with the production of this report where we present the main results of the analysis.

[2] A uniform interview script was followed for all interviews, since using the same interview design means that the situation in which the data are obtained is similar and the responses comparable. However, the structure of the interview was not closed, but could vary according to the development of the interaction and the requirements of the research.

3. STATUS OF EXTENSIVE LIVESTOCK FARMING

Extensive livestock farming can be defined as a production system that takes advantage of the natural resources of the area, with a low use of external inputs and mainly through grazing. In general, it is characterised by the use of species and breeds of livestock adapted to the territory and the use of diverse pastures, adjusting to their spatial and temporal availability, and respect for the environment which supports them (Ruiz *et al*., 2017). This definition can be established as a starting point, at the same time bearing in mind that extensive livestock farming is not currently a formally characterised or recognised activity. This lack of characterisation, and therefore of definition, makes it practically impossible to distinguish it from other production systems both at the market level and in official statistics. Therefore, the products from this type of livestock farming are generally indistinguishable from those from radically different systems such as intensive or industrial livestock farming.

Extensive livestock farming is the basis of the most common High Nature Value (HNV) systems at the European level (Keenleyside *et al*., 2014) and is also of great importance in Spain, both at national and local level (Oñate *et al*., 2003; Iragui *et al*., 2012; Zabalza *et al*., 2018). HNV systems are agricultural and livestock systems that maintain areas where the abundance of biodiversity dependent on agricultural activity has been demonstrated. Extensive livestock farming is therefore essential for the conservation of semi-natural meadows and pastures, and their associated biodiversity. In fact, EU data show that one of the main causes of deterioration of biodiversity in Europe is the abandonment of pastoral practices (European Environment Agency, 2015). Although the definition of these HNV systems is based on their potential to maintain biodiversity, these systems are also key for the conservation of natural resources such as soil and water, contributing in turn to the fight against climate change (Zabalza *et al*., 2017). Grazing is the most efficient form of livestock production in terms of the use of forage resources, water and energy, and one of the most sustainable food systems on the planet (Manzano and Salguero, 2018). Extensive livestock farming, despite the confusion generated in the media in recent times, is not an activity that causes climate change, but is a victim and also part of the solution to this problem (Herrera, 2020).

In addition to playing a fundamental role in the maintenance of ecosystems that are of great value in terms of the environment and the landscape, it must be added that this livestock activity, together with transhumance, constitutes an important cultural, social and ethnographic heritage that should be conserved. The principal example of this heritage is found in the *Red de Vías Pecuarias* (Network of Livestock Routes) in Spain, unique in the world for its size and degree of conservation (Herrera, 2020).

This type of livestock farming helps to keep people in the most disadvantaged rural areas, since it can be carried out in environmental conditions where other productive systems are not possible, contributing in turn to the prevention of fires through the control of combustible material. In addition, it should be remembered that it also produces high quality food through processing that is truly compatible with animal welfare, and without competing with human nutrition.

In the following figure (Figure 1) the important benefits of extensive livestock can be seen.

Figure 1: Benefits generated by extensive livestock farming

Extensive livestock farming is an ideal tool to achieve compliance with the recent "Farm to Fork Strategy" of the European Commission published in May 2020. This strategy is committed to supporting those productive systems that have a neutral or positive environmental impact, that can mitigate and/or adapt to climate change, protect soil and air quality and reverse the loss of biodiversity. In addition, it places special emphasis on improving animal welfare, which means that extensive livestock farming should be a priority within this strategy, whose ultimate objective is the development of a fair, healthy and environmentally sustainable food system.

To achieve long-term sustainability of both agriculture and livestock and the environment, this European strategy ("Farm to Fork Strategy") must work in conjunction with the new Common Agricultural Policy (CAP) and with the EU Biodiversity Strategy for 2030 also published recently. This Biodiversity Strategy recognises the essential role that people who work in agriculture and livestock play in conserving biodiversity, and therefore the need to support and encourage the transition towards sustainable productive systems and agricultural practices. It also acknowledges the importance of bringing back at least 10% of agricultural area under high-diversity landscape features, many of which have been created and maintained by extensive livestock management.

Despite all of the above, the situation of extensive livestock farming, like that of the rest of the HNV systems, is very delicate. Although there is general recognition of the need to maintain this type of activity, both extensive livestock farming and HNV farming as a whole face multiple and important challenges to achieve socio-economic viability (Beaufoy and Marsden, 2013).

Figure 2 shows the main problems currently faced by extensive livestock farming.

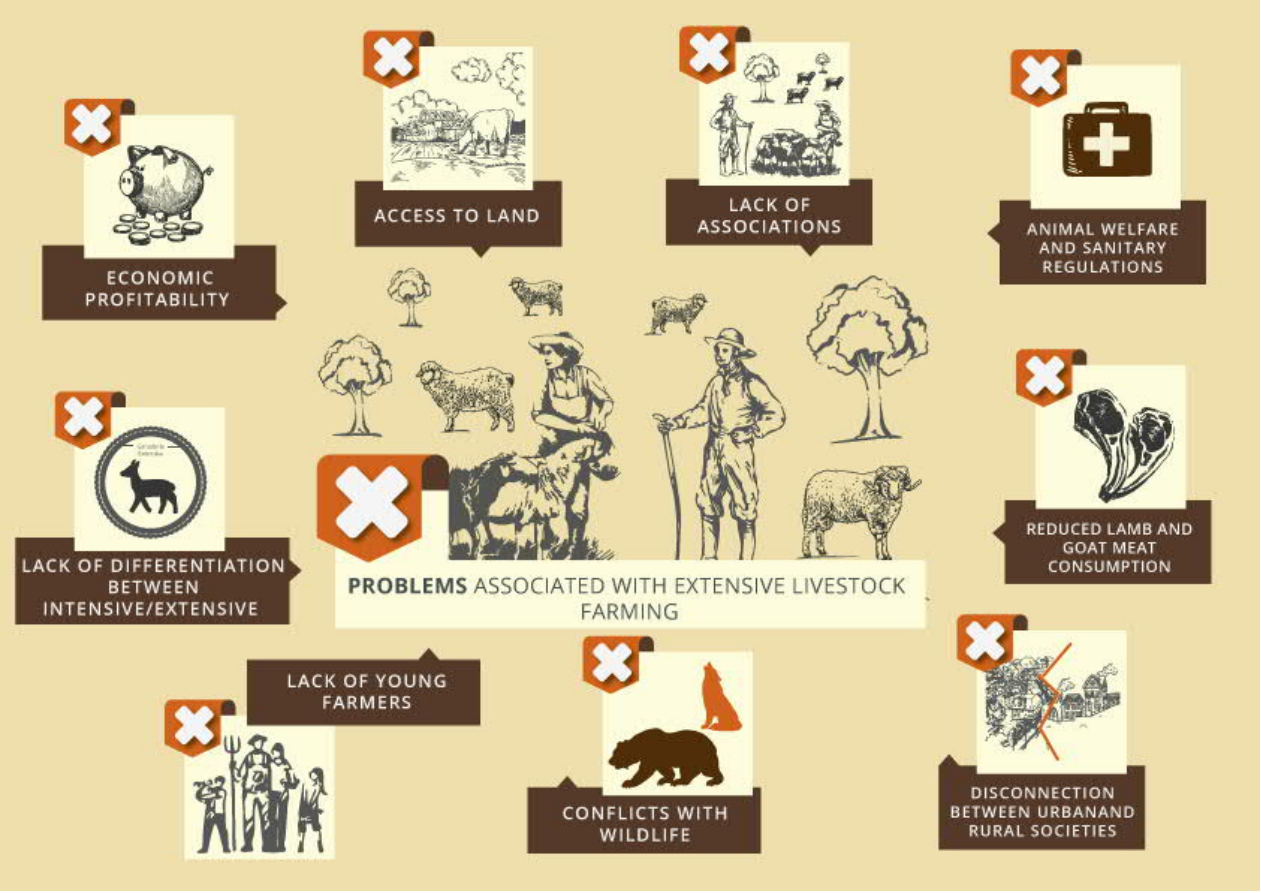


Figure 2: Problems associated with extensive livestock farming

As mentioned above, one of the main challenges facing extensive livestock farming is the need to differentiate itself from other livestock production based on intensive management with no links to the specific territory. This intensive handling results in cheaper products compared to the higher quality of those from extensive livestock farming. The differentiation would allow consumers to choose what to buy and would provide more information and promote greater awareness in society in general, which could favour the viability of extensive livestock farms (Herrera, 2020).

Another problem that compromises the future of this activity is the absence of generational renewal, closely linked both to the depopulation of the rural environment and to the low financial profitability of this type of farm, since the final prices of the products are very low and do not reflect all the public assets generated through their production. To this is added the fact that the activity is extremely demanding and the lack of social recognition enjoyed by those who dedicate themselves to extensive livestock farming as a consequence of the growing disconnection between the rural and urban world and the lack of adequate support for this type of production through the Common Agricultural Policy (CAP).

In addition, the absence of association networks in the extensive livestock sector leads to a lack of representation of this type of production in the official channels of negotiation of aid, standards, prices or any other issue that affects the sector.

If we focus on the production of sheep and goats in extensive farming, a notable difficulty is the decline in the consumption of this type of meat, mainly in favour of cheaper meats such as chicken and pork, generally produced industrially. To this is added the problem that the consumption of lamb and kid involves a high seasonal factor that hinders the production and marketing of these meats which is also linked to a high percentage being for the HORECA (Hotels, restaurants and bars) channel and a relatively small amount for consumption in households. Also, all the health-hygiene regulations for

production, processing and marketing are designed for agribusiness and do not correspond to the reality of extensive livestock farming, which results in damage to its products.

Finally, it must be remembered that in certain areas this delicate and fragile environment is compounded by the problems arising from coexistence with wildlife, especially with large carnivores, in which sheep and goats are more vulnerable.

This is the complicated scenario within which people dedicated to extensive livestock farming work, obtaining sustainable products whose processing and marketing process is not always easy. This study focuses on this marketing phase and the results are presented below.

4. RESULTS

This chapter presents the results produced by the study. The results obtained are presented in three main sections, each one with its corresponding annex:

- Flow diagram of the value chain (Annex 2), where the different flows, processes and actors involved in this value chain are defined
- Identification of barriers (Annex 3), which shows the main bottlenecks and other obstacles present in the value chain and that affect the financial profitability of livestock farms
- Identification of opportunities (Annex 4) in which the opportunities and existing initiatives identified that are relevant from the point of view of the economic sustainability of livestock farms are presented

4.1. Value chain flow diagram

Starting from the bibliography consulted and based on the information collected through the telephone interviews, the flow diagram of the value chain of sheep/goat products from extensive farms was defined (Annex 2).

Although there are many different types of farm, where in addition to sheep and goats, different species of livestock and crops can be combined, in this study we will only talk about sheep and goat products, without taking into account other possible production within the same livestock farm.

Extensive sheep and goat farming are mostly classified into two “types of farming”:

- **Sheep, goats and other herbivores for meat**, whose main product is meat.
- **Sheep and goats for milk**, whose main product is milk.

Therefore, in the description of the value chain and in the flow diagram that represents it (Annex 2), two different paths are shown that start from the livestock farm: the flow for meat and the flow for dairy products.

In addition to these two fundamental products, sheep/goat farming generates another series of products, generally regarded as “by-products”, and which follow their own processing and marketing paths.

The different flows with their respective actors and processes are described below. It should be remembered that the flow chart and the report include both the most common paths and those where there are relevant opportunities and initiatives for livestock farmers, and there may be others of minor importance not addressed here.

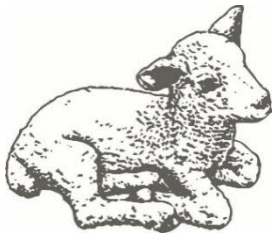
To facilitate the understanding of the description of the value chain, it is advisable to accompany the reading of the text with the viewing of the flow diagram presented in Annex 2 and the key to this defined in Figure 3.

Figure 3: Key for interpreting the flow chart (Annex 2)

4.1.1. Flow for meat

Once the lambs and kids are ready to leave the livestock farm, the processing and marketing chain can start by following one of two different paths. The livestock farmer can (a) sell or deliver their animals live to different types of intermediaries or actors, losing control over their product, or (b) participate in the process by taking their animals to slaughter.

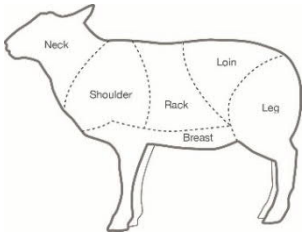
a. Sale of live animals: The lambs or goats are sold alive to dealers, butchers, private feedlots or slaughterhouses. The most common practice is that the person or entity that buys the animals live is in charge of transporting them, although sometimes the livestock farmer is responsible for this expense. As soon as the lambs and kids leave the farm, contact with and control of the product is lost, ending the participation of the farmer in the value chain.



If the farm is part of a cooperative, the lambs or kids are delivered to the cooperative live, and from then on it is the cooperative that makes the decisions about the product. This path has its peculiarities: firstly, because it is a cooperative, of which the farmer himself or herself is a part; and, secondly, because each cooperative has its own characteristics and peculiarities. However, for the purposes of product flow, it is similar to the other cases of sale of live animals. It is important to note that the vast majority of the livestock farms in the study area are part of cooperatives.

Lambs already in the hands of the actors listed above (dealers, butchers, cooperatives, feedlots or slaughterhouses), after going through a period of fattening up or not, can be exported live (organised by feedlots or cooperatives) or enter the processing path through slaughter. In this process, one of the most important in the value chain, this path intersects with that of animals for slaughter that is presented below.

b. Animals for slaughter: The livestock farmer decides to participate in the process of processing and marketing their product. For this to happen, the animal must inevitably be slaughtered. Two main ways have been identified depending on the way the slaughter is carried out: slaughter on the farm and slaughter at the slaughterhouse.



i. Slaughter on the farm: The lamb or kid is slaughtered on the farm itself, where it can also be cut up and prepared to be sold directly to the end consumer. Another option is that once slaughtered it goes to a butcher where the cutting up and processing and sale is carried out. This direct path from the livestock farmer to the consumer is currently a minority option due to the great difficulties in being able to comply with the health-hygiene regulations in force, but there are ongoing cases that will be presented in the following sections.

ii. Slaughter in the slaughterhouse: This is currently the most common path. The animals are transported to the slaughterhouse for slaughter by the livestock farmer. It should be

remembered that lambs and kids that have been sold or delivered live to dealers, butchers, slaughterhouses, feedlots or cooperatives also arrive at this point in the value chain. Therefore, the processes and actors that appear below may be connected with the livestock farmer (i.e. they are still in contact with their product and participating in its marketing) or not (if they sold it live, or at some point the transaction ends before reaching the end consumer). In the slaughtering of the animal, in addition to the meat carcass, the hide and other offal are obtained. This will be discussed later.

Once the carcass is obtained, the cutting and processing is carried out, which can take place in the slaughterhouse itself, in a butcher's shop or through the meat industry or in cutting plants.

In the butcher's shop, once it has been prepared, it is sold to HORECA (distribution channel for HOtels, REstaurants and CAfés) or to the end consumer. If the cutting or processing is carried out through meat industries, cutting plants or slaughterhouses, the meat can go to wholesalers or large distributors from where it is distributed to supermarkets and department stores or to the HORECA channel. These wholesalers or large distributors can also export meat (packaged or frozen) and also import lamb meat, especially at times of high demand such as Christmas.

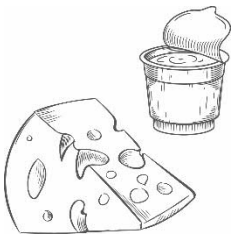
It is important to be aware of the fact that when the live animal is delivered to the cooperative, although the path followed by the product is the one described above, there is a very important difference, since the processes and the actors that participate are part of the cooperative itself. In other words, the cooperative structure usually has a feedlot, slaughterhouse, and cutting and processing plant, and carries out the distribution and marketing of the product. Therefore, it is the cooperative that manages the processing and marketing chain and has decision-making power throughout. In the case of large-scale cooperatives, whether they are large primary cooperatives or secondary cooperatives that group together primary cooperatives, the distribution is carried out mainly through wholesale outlets and there is also exporting of meat. At the same time, many cooperatives carry out retail sales, having physical shops and increasingly selling through the internet to the end consumer on a regular basis.

If the livestock farmer continues to be present in the value chain of their product, the cutting and processing is carried out by hiring the service from one of the previous actors (generally the slaughterhouse or meat industry, although there are also those who work with butchers). Subsequently, the meat is sold ready to eat, through direct sale to the HORECA channel or to the end consumer. Online platforms play an important role in this direct sale, either with a solely promotional function or for the management of the entire sales process. The final sale can be made to individual customers, or through groups or consumer cooperatives.

4.1.2. Flow for dairy products

Sheep and goat milk farms can sell their milk or process it into dairy products (mainly cheese and yoghurt) on the farm itself.

a. Rural cheese factory (processing into dairy products on the farm itself): In order for the livestock farmer to process milk to produce cheese and other dairy products, as well as sell milk directly to the end consumer, it is imperative that they have the authorisation and health registration for dairy production. This type of dairy production where the livestock farmer or farmers are also those responsible for processing has been called rural cheese factory in the flow diagram[3]. In these cheese factories, an artisanal production of dairy products is carried out, which are generally marketed through the HORECA



[3] Terminology used by QUERED (Spanish network of rural and artisan cheese factories)

channel, specialist traditional shops and businesses and/or to the end consumer, either directly or through consumer groups or cooperatives. Online platforms are increasingly important in this direct sale of cheese and other dairy products. This is the path in which the livestock farmer maintains control of their product throughout the entire or almost the entire value chain.

b. Sale of milk: The livestock farmer can sell the milk produced on their farm to the dairy industry or to traditional small cheese factories that this study refers to as artisan cheese factories[4]. Another option would be to deliver the milk to the dairy cooperative to which the farm belongs.

i. Artisan cheese factory: These buy milk directly from the farmer and make cheese and dairy products in a traditional way. As they have the appropriate health registration for dairy production they can also sell milk. The products of artisan cheese factories are mostly sold in short channels through specialist stores, the HORECA channel or direct sales (consumer groups, consumer cooperatives or the end consumer). To a lesser extent, these dairy products may also be present in supermarkets and department stores.

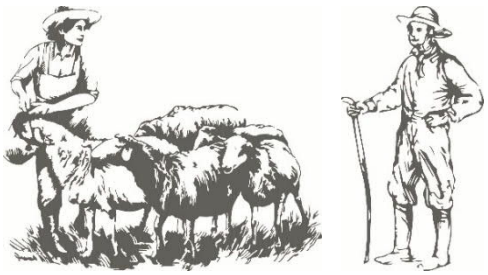
ii. Industry: If the milk is sold to the dairy industry, after being collected from the farm it goes through a process of industrial production of dairy products. These products are marketed mainly through wholesalers in supermarkets and department stores.

iii. Cooperative: There are dairy cooperatives that collect milk from their member farms and then sell it to the industry. There are also cooperatives that carry out the industrial production and subsequent marketing of their cheeses and dairy products. Depending on the characteristics of the cooperative, the sale of milk to artisan cheese factories or the artisan production of dairy products could also occur. The type of production generally defines the marketing path of the products.

Both in the process flows for cooperatives and in that of industries, the exporting of products occurs at different points in the chain (for milk, dairy products and cheese, with or without the participation of wholesalers or large distributors). Milk is also imported. This is always linked to industrial processing.

On dairy sheep/goat farms, lambs and kids are also produced. These animals can follow the different paths of the meat process flow depending on the decisions made by the livestock farmer about their sale and marketing.

Both in the flow for dairy products and in the flow for meat, the livestock farmer can lose control of the product in different phases of the value chain, depending on the processing and marketing decisions that they take. With the aim of expressing this idea in the flow chart (Annex 2), the livestock farmers appear on the paths where they can continue to participate in the marketing process.



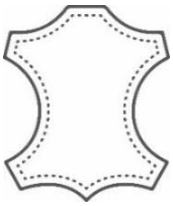
[4] Terminology used by QUERED (Spanish network of rural and artisan cheese factories)

4.1.3. Other products or "by-products"

As mentioned above, in addition to meat and milk, livestock farms generate another series of products:

a. Wool: The wool collected on the farm by shearing varies greatly in quality depending on both the breed of the sheep and the handling. Merino sheep wool (very important in the study area) is the highest quality. In the study area there is a secondary cooperative created exclusively for the management of merino wool. This cooperative (Comercial Ovinos S.C.L.) collects wool from farms associated with its base cooperatives and also from non-member farms. This wool is sold dirty or is standardised according to quality parameters and this is followed by washing and carding and subsequent processes, finishing with textile manufacturing. This large cooperative is the principal actor with respect to the merino sheep wool value chain in the study area, but there are other types of experience involving small-scale artisan wool production and designers making merino wool garments, controlling the entire process from the farming of sheep to the final sale, in collaboration with livestock farmers.

b. Hide: The hide is a product that is generated at the time of slaughtering the animal. According to the information from the telephone interviews, it is very rare that the farmer has decision-making power over the hide of their animals or receives financial compensation for its sale. When working as part of a cooperative, it is the cooperative that manages the sale of the hide (through auction or other means), but it seems that in most cases this sale does not have an economic impact on the livestock farm from which the animals come. The interviews have allowed the identification of inconsistencies between the responses and ignorance on the part of some livestock farmers about what happens to the hides, which could be due to a lack of transparency in the sector.



c. Cull ewes: Until recently, there was very little market for cull ewes, since the consumption of and demand for this type of meat is scarce, although there are traditional dishes made with mutton in specific parts of the country. It is currently becoming a more valued product since the meat of these animals is used to prepare the chunks of meat used to make kebabs, and establishments of this type of fast food have proliferated in recent years.

d. Others: There is another series of products that are generated both in the management of livestock on the farm and in the slaughter, but they have less economic importance for the livestock farmer. An example is manure, but this product is generated in greater quantity in the feedlots than in the farms themselves, since extensive management generates little manure or, in the case of rotational grazing, practically none at all. Other products include the offal from the slaughterhouse. There are also initiatives for the production and marketing of compost from manure, slaughterhouse waste and agricultural waste.

4.2. Identification of barriers

Through telephone interviews with different key actors in the sector, the main problems that represent important barriers affecting the financial profitability of extensive sheep and goat farms were identified. The barriers identified have been represented in Annex 3: *Identification of barriers in the value chain*, with those that constitute the main bottlenecks being larger in size.

The simple observation of the diagram identifying the barriers allows us to clearly appreciate that the problem is greater and more serious in the flow for meat than for dairy products. The farms dedicated to the production of meat face greater difficulties to achieve economic viability than the farms producing milk products. This situation can lead to a migration from meat to dairy farming, in search of greater financial profitability. This change from meat to milk can be regarded as an opportunity, but it

is also a threat, since it threatens the survival of a much more extensive production model involving practices such as transhumance, which are not really viable for the livestock farming focused on milk production and which in many cases represent the last reservoir for some native breeds.

Among all the barriers identified, four stand out as the main bottlenecks and have very important consequences for the economic sustainability of sheep and goat farms. Some of these bottlenecks that are presented below coincide with the problems associated with extensive livestock farming mentioned in the introduction. It is, therefore, confirmation that these major problems faced by extensive sheep and goat farming operations also notably affect their economic viability.

4.2.1. Lack of differentiation of extensive livestock

As mentioned previously, extensive livestock farming is not currently defined or characterised properly, which has consequences in all aspects of the activity. Extensive livestock farming is indistinguishable at all levels, from official statistics to final consumption, since the products from this type of livestock cannot be differentiated in the market from those from intensive farms with no links to the specific territory, with the exception of pork products.

As a consequence, the recognition of all the benefits of this type of livestock is lost in the value chain, and this often occurs at the moment the product leaves the livestock farm. It is also a clear barrier when it comes to directing specific aid to the sector, such as aid from the CAP.

In the same way, zootechnical management, the regulations, health checks and the calculation of greenhouse gas emissions, to give several examples, are not designed based on the conditions that exist in extensive livestock farming, which leads to important management and operational problems at the farm level and also confusion at the consumer level.

This barrier was identified by most of the actors interviewed, especially by livestock farmers, the OCA (Regional Agrarian Office) technician, representatives of producer associations and NGOs. The trade association of butchers also highlighted the lack of knowledge, both at the consumer and butcher level, about the difference between extensive and intensive livestock farming, and the implications of this difference, which is a clear consequence of the lack of differentiation. It is a fundamental problem of extensive livestock farming, which affects the entire value chain.

In cases where the farmer is involved in the marketing process, the direct relationship with the butcher or consumer means that there is a greater flow of information about livestock practices and forms of production, which somewhat alleviates this lack of differentiation and helps to spread the benefits of extensive livestock farming.

4.2.2. Low consumption of lamb and goat meat

The consumption of lamb and goat meat has been in continuous decline over recent years. This low consumption in Spanish homes is a very important barrier in the sector that has consequences in all phases and processes of the value chain. In the opinion of all the stakeholders interviewed, this is a very important bottleneck and as such leads to various problems. For example, it results in seasonal and irregular income and may mean failure to cover the costs of the operation.

The consumption of lamb and goat meat has decreased at a greater rate than the consumption of meat in general, with a decrease of 26.2% between 2006 and 2012 (Ikerfel and Interovic, 2014). According to the people interviewed, there are various causes for this decrease in consumption of lamb and goat meat:

- Higher price than other meats

- Discrimination on health grounds due to the relationship between red meat and cardiovascular problems. This discrimination, however, has not occurred with pork, which is much cheaper than lamb and kid, highlighting the importance of the price factor.
- Meat associated with holidays and family gatherings, not linked to daily consumption at home.
- Loss of culinary culture, as less and less time is spent cooking and lamb meat is associated with complicated, time-consuming recipes or with grilled roasts and barbecues.
- Association of meat consumption with pollution and climate change: This cause is a clear consequence of the previous barrier (differentiation of extensive livestock farming products), since in the discourse on the climatic consequences of meat consumption a distinction is almost never made between the different forms of livestock farming, despite the fact that in addition to not being a problem that causes climate change, extensive livestock farming is actually a victim of it and should be part of adaptation and mitigation strategies (Herrera, 2020).

The low demand in Spanish households and the type of consumption habits means that marketing largely depends on the HORECA channel and on exporting to other countries as a way to find a market for Spanish production.

Also, the seasonality of consumption, concentrated especially around Christmas, makes it very difficult to meet the demand at those specific times with national lamb, which leads to the importing of lamb from other countries.

This problem is further aggravated in the case of organic lamb. According to several of the people surveyed, it is very difficult to sell certified organic lamb, so it is common for certified lambs to go into the conventional market once they leave the farm. This same problem was raised by representatives of sheep cooperatives, highlighting the frustration of selling lambs in the conventional market after the effort invested in certifying the livestock farm as organic. This problem has led to the implementation of interesting initiatives for the marketing of organic lamb in different areas of Spain, which will be discussed in the following sections of the report.

These consumption problems cause difficulties throughout the value chain, since priority is given to other meats with greater demand, which are those that dominate activity in infrastructures such as slaughterhouses, which represent the next bottleneck.

4.2.3. Slaughterhouse model

The issue of slaughterhouses is recurrent in most of the interviews carried out and, in the opinion of all the interviewed livestock farmers whose farms are not incorporated into cooperatives, it is a key problem with a direct impact on the financial profitability of the farms. This barrier therefore affects those producers who wish to participate in the processing and marketing process without being part of one of the large cooperative structures currently predominant in the study area.

In addition to the livestock sector, this problem is identified by other key actors such as the trade association of butchers and veterinary technicians from the public sector, working in the areas of both animal health and organic livestock farming, and associations of producers and processors.

Although the problem of slaughterhouses is very complex, it essentially revolves around the fact that there are fewer and fewer slaughterhouses and these are larger and larger (industrial model), due to the closure of many small facilities, mostly municipal slaughterhouses, which provided a local service to the livestock farms in the area. The cause of the disappearance of these slaughterhouses goes back to the so-called European “hygiene package”, which specifies health requirements that are very difficult for small facilities to meet, since they involve investments that are beyond their means given their volume of slaughter. This hygiene package was novel because it consists of regulations that are

direct and mandatory[5], whereas until that time the EU had set directives that each country had to include in their own legal regulations for their implementation. This set of regulations was created as a result of the major health crises (mad cow disease and dioxins, for example) and despite the fact that the origin of these was never in small farms or low-capacity slaughterhouses, it has ended up having a great impact on these. That is to say, a regulation was designed because of a series of problems generated by intensive and industrial livestock farming and was then designed tailored to this type of farm and the associated facilities, ignoring small-scale production.

In principle, there should be no differences in the application of these regulations between the different autonomous communities, but in practice there are. Some autonomous communities have been very strict (Madrid and Aragón, for example), which has led to the disappearance of all municipal and small-capacity slaughterhouses, and others were more flexible, which meant that some slaughterhouses of this type were kept open, as is the case of the Community of Valencia and Catalonia. But, according to the people interviewed from the public sector, even in these regions where implementation has been less strict, only 5%-10% of the municipal and small-capacity slaughterhouses that existed before the hygiene package came into force have survived.

The consequences of the current model for extensive sheep/goat farms in the study area are as follows:

- Slaughterhouses very distant from the farm: With the corresponding costs for the transport of animals (fuel and time) and damage to animal welfare.
- Little availability for sheep/goat slaughter: Most of the slaughterhouses specialise in beef or pork and devote at most one day a week to sheep and goats. This greatly complicates management and handling, as well as coordination with cutting plants. Furthermore, if the number of lambs to be slaughtered is small, it is difficult to find a slaughterhouse that offers the service at all.
- Lack of certified organic slaughterhouses: If organic slaughter is required the difficulty is even greater. Sometimes the certified organic slaughterhouses are at an unaffordable distance from the farm, both in economic terms and in terms of animal welfare. There are livestock farmers who decide to slaughter in a conventional slaughterhouse due to difficulties in accessing a certified organic slaughterhouse. These lambs, after being raised organically, therefore join the conventional market once they arrive at the slaughterhouse. It seems that the demand for organic slaughter is not sufficient for slaughterhouses to take on the costs of certification. Several livestock farmers interviewed and the veterinary technicians from the public authorities reported that there are livestock farmers who take on the administration, cost and management of the organic certification of the slaughterhouse closest to their farm because this is the best possible way to maintain the traceability of their animals and hence the added value of organic production.

In summary, the regulations do not take into account or adapt themselves to small-scale producers, which has led to a model of centralised slaughterhouses. This impacts on the economic sustainability of those farmers who are not part of sheep cooperatives or who wish to participate in the process of processing and marketing their product.

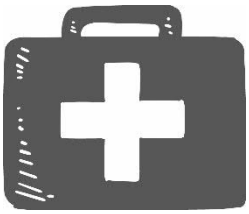
According to the veterinarians interviewed, there is complete agreement that the food safety of the products that are consumed must be guaranteed, but that this should be done without abandoning common sense, so that a specific model of livestock farm or a form of processing and production of food is not damaged. This hygiene package affects all food processing, but the impact of the

[5] The regulations that make up the hygiene package can be consulted using the following Ministry of Agriculture, Fisheries and Food link: https://www.mapa.gob.es/es/ganaderia/legislacion/legislacion-comunitaria-letra-Q.aspx

regulations relating to slaughterhouses is greater, since all livestock products have to go through the slaughterhouse if their meat is to be put up for sale.

The regulations have therefore encouraged the current model of slaughterhouses, creating a barrier to which other elements are then added, making the problem much more complex, as explained below.

4.2.4. Health-hygiene regulations



In addition to being the cause of the situation with regard to slaughterhouses described above, the health-hygiene regulations represent a barrier at other points in the processing and marketing chain, such as slaughter on the farm, cutting and processing, the artisanal production of dairy products and the sale of milk from the livestock farmer to the end consumer.

The majority of livestock farmers interviewed, as well as the trade association of butchers, the network of rural and artisan cheese factories and the veterinary technicians responsible for animal health and organic livestock all regarded these regulations as a bottleneck that affects the financial profitability of livestock farms and of other actors in the value chain.

As mentioned in the discussion of slaughterhouses, the roots of the problem lie in the European hygiene package, for both meat and milk production. But it seems that the barrier is not in the regulations themselves but in their interpretation or in the absence of the political will to explore the possibilities of making the health requirements more flexible in a way that the regulations allow in certain circumstances, something which has been done in other countries of the European Union.

As already mentioned, this bottleneck is present at different points in the value chain, both in the flow for meat and for dairy production:

- Slaughter on the farm: This is currently not allowed, although a study on suckling lamb in the Basque Country estimated that, in 2004, 40% of lambs were slaughtered in this illegal way (Mediano *et al*., 2004). Some of the people surveyed believe that this figure may be even higher today in some areas of Spain, driven by the problem of slaughterhouses presented in the previous section. Under these same regulations, this option is legal in other European countries thanks to the above mentioned relaxation of health requirements for small-scale producers, and in Spain it is also authorised exceptionally for very specific cases, such as the celebration of the “festival of the lamb” in the Muslim religion. This demonstrates that it is possible and could therefore be an alternative for certain types of sheep farm, which at this time are paralysed by the lack of political will to address the issue of making the regulations more flexible.
- Slaughter in the slaughterhouse: The current slaughterhouse model has been driven by the regulations, generating the bottleneck already discussed in the previous section.
- Cutting and processing: The problem is very similar to that of slaughterhouses. The health requirements are not designed for small-scale production, and even less so if these are organic. Therefore, if a livestock farmer wants to carry out cutting and processing on their farm, the current requirements demand a level of infrastructure and investment that is not within the reach of a small-scale producer. This situation forces the subcontracting of the cutting and processing service to the meat industry. Once again, the problem seems to be one of interpretation and political will, since in other European countries and even in some autonomous communities such as Catalonia, small cutting plants on farms, with more affordable requirements, have been authorised.
- Artisan dairy production: According to the network of rural and artisan cheese factories (QUERED), the problem of health regulations in the case of the artisan production of dairy products and cheese is clearly one of interpretation. European regulations are not an obstacle in themselves, but the way they have been interpreted in Spain has made them a fundamental

barrier for small cheese factories. This association (QUERED) is carrying out essential work to overcome this barrier, which will be discussed in the section on opportunities.

- Sale of milk to the end consumer: In Spain, the sale of milk from the livestock farm directly to the end consumer is prohibited without health registration for dairy production. The actors from the dairy sector interviewed regard this as very unfair, especially considering that, according to the interview with the representative of QUERED, this is allowed in at least 16 European countries. The current situation with regard to the regulations in Spain and the minimum requirements necessary for the sale of milk to the consumer directly from the farms were discussed in a document produced by QUERED and WWF (https://www.redqueserias.org/wp-content/uploads/2020/06/Venta-leche-El-Boalo-WWF_feb20.pdf).

The interpretation of the health and hygiene regulations together with the absence of the political will and work necessary to implement the health requirements in a more flexible way for certain exceptional circumstances allowed by the European regulations themselves therefore present a major obstacle, especially for those livestock farmers involved in the processing of their product.

4.2.5. Other barriers

In addition to the bottlenecks presented above, another series of barriers have been identified:

i. Loss of traceability

This is a barrier closely linked to the lack of differentiation and in some cases to the slaughterhouse model. It is a recurring theme in interviews with different actors and from different points of view, especially in the meat value chain:

- Organic production: Both livestock farmers whose production has organic certification and cooperatives raise the problem of loss of traceability in this type of product. In some cases this is due to the absence of the necessary infrastructure for certification (slaughterhouses, cutting plants) but in others it is the lack of demand that causes lambs and kids from organic production farms to go on to conventional feedlots where they are no longer differentiated from animals raised in a conventional way, thus losing the added value of organic certification.
- Local products: According to INTEROVIC (interprofessional organisation for sheep and goat meat), the greatest barrier related to traceability is the absence of a clear differentiation in the market between products produced in Spain and those that have been imported. It is often difficult to identify the origin of lamb meat at the time of purchase and this causes considerable damage to the sector, despite the fact that indicating the country of origin and the place of slaughter on the label is already mandatory. It is essential that the consumer can make a choice based on knowledge of the product, and for this to happen information about the origin is key.
- Sale of live animals: In general, when animals are sold live, contact with the farm and with the livestock practices carried out is lost, whether this involved organic certification, grazing animals, holistic or transhumant management. In the phases that follow, these animals are mixed with others, and in the words of a representative from the public sector interviewed, they simply become “lambs”. There are no longer lambs from extensive farming or pasture reared lambs, and in many cases not even organic lambs, and it becomes impossible to differentiate between animals that have been raised in pasture with the highest level of biodiversity from those coming from a feedlot by the side of a motorway.

ii. Verticalisation and centralisation of the sector

Most of the sheep and goat meat farms in the study area are part of primary cooperatives, which in turn are grouped into secondary cooperatives. Within the cooperative structure, the veterinary services, technical advice, feedlots and marketing of feed are centralised, as are the slaughterhouses, processing, marketing and distribution of the product.

According to the actors interviewed on behalf of the cooperatives, these structures are necessary to increase product volume, which translates into cost reduction and the ability to undertake activities such as internationalisation projects. However, according to several of the farmers interviewed, in most cases they also represent a loss of decision-making capacity for the livestock farmer about their product.

A number of the livestock farmers interviewed also reported experiences of belonging to large cooperatives for many years and then deciding to leave them and work independently due to a variety of reasons:

- Lack of control over the product and by-products.
- The benefits generated by the management of large volumes were not enjoyed by the original livestock farm.
- Lack of differentiation, such that every associated person received the same payment and quality professional work was therefore not rewarded.

In theory, the cooperative model offers many advantages and positive features for the livestock farmers that make up the cooperative, and it also plays a very important role in the necessary structuring of the sector. The problem arises in certain large cooperatives where the word itself has lost part of its meaning and livestock farmers have lost control and the ability to make decisions.

iii. Lack of awareness and information at the consumer level

Some of the people interviewed, especially livestock farmers, but also veterinarians who work for the public authorities, the representative of the trade association of butchers and the representative of INTEROVIC, highlight the lack of information and awareness at end consumer level as a major problem.

There is little awareness of the benefits of extensive sheep/goat farming or of the difficulties faced by those involved in the activity, or the animal welfare problems associated with the current model of slaughterhouses. This barrier is explicitly linked to the lack of differentiation with regard to extensive livestock farming and the low consumption of lamb and goat meat.

In the case of dairy products, especially cheese, this problem is not so important. Consumers perceive sheep and goat cheese, especially that produced within Protected Designations of Origin (PDO), as a quality product, and based on the acceptance of the value of this high quality they are willing to pay higher prices for it. But it must be remembered that in most cases the PDOs are linked to certain breeds, and do not regulate the handling of livestock, so there is no reason for them to be linked to extensive farms.

iv. Dependence on exports

The low consumption of lamb meat in Spanish households makes it necessary to search for other markets in order to be able to market national production. A large number of sheep are exported live from Spain, especially to Arab countries, along with packaged and frozen meat. In order to carry out live export, a certain health status is necessary which usually has an impact on the requirements for the rest of the sector, aggravating the barriers faced by the smallest and most extensive farms either due to lack of resources or because they operate in an uncontrolled environment.

The dependence on the foreign market is very high and in some cases, especially in live sales, the sale of the entire product in certain areas depends on agreements with countries in very unstable situations, which makes the sector very fragile.

The OCA (Regional Agrarian Office) of Baza – where the guides to farming practices for the feedlots are issued to the border inspection posts necessary for live export – insists that this market is currently keeping sheep production in Spain afloat, but at the same time it represents an important weakness for the economic resilience of farms.

v. Price of the product

At the consumption level, it seems that price is one of the main reasons that consumers offer for not buying lamb meat (Ikerfel and INTEROVIC, 2014). Livestock farmers, meanwhile, complain about the precariously low final price at which they sell their product, sometimes influenced by the low price of lamb meat imported from other countries such as Italy, Greece and France, precisely at the times of highest demand. This imported meat is very cheap and generally of low quality, since it usually comes from intensive dairy farms where the lambs are fed with milk substitutes. The influence of meat imports on the price of sales seems undeniable, but its importance is not viewed in the same way by the different actors who have participated in the study. While the livestock farming sector and the veterinarians from the authorities have no doubt about the damage caused by the importation of meat at very low prices, INTEROVIC considers that it helps to control prices at the peak of demand that occurs especially at Christmas, and identifies the problem as the need for the end consumer to be able to differentiate between the different origins of the meat at the time of purchase.

vi. Dependence on the HORECA channel

The consumption of lamb and goat meat is closely linked to celebrations and festivities, often held outside the home, in restaurants. This fact, together with the low consumption of lamb meat in homes generally, means that the marketing of this product depends to a large extent on the HORECA channel, which has manifested itself as a clear weakness as a result of the crisis caused by Covid-19, requiring the request and implementation of temporary exceptional measures.

vii. Mentality

The mentality or beliefs of different actors in distinct phases of the value chain is an obstacle for marketing, especially of lamb and goat meat.

The beliefs of consumers (meat associated with being unhealthy and linked to pollution, mistreatment of animals, etc.) are closely connected to the lack of information and the lack of differentiation and result in the low consumption of these meats. Most of the actors interviewed (livestock sector, INTEROVIC, dairy processing sector, trade association of butchers and cooperatives) speak of this barrier in the telephone interviews.

Other actors such as INTEROVIC highlight the barrier posed by the mentality of butchers, who continue to believe that lamb and goat are only suitable for celebrations, or for roasts and barbecues, and are not making any effort to adapt this product to the current market, creating a vicious circle with consumers (they do not offer the product because it is not demanded and since it is not demanded they do not offer it).

Finally, in certain interviews, the mentality of the technicians from the public authorities is discussed, especially when interpreting and applying health and hygiene regulations. This is a concern for the artisanal dairy processing sector, the livestock sector and the veterinarians from the public authorities interviewed.

viii. Breakdown of the wool market

Merino sheep wool is a high-quality wool, and Spain is an important producer. But the abandonment of genetic improvement and management aimed at obtaining quality wool has placed national wool production in a difficult situation, which means that it cannot compete in either price or quality with merino wool from other sources, which has a negative impact on the economy of livestock farms and on the competitiveness of the Spanish textile sector (Marsa *et al*., 2009).

This loss of value of the product has led to the weakening and breakdown of the entire wool processing and marketing chain, hindering its exploitation and economic performance. Remnants still remain of the sector as it was and the knowledge has not yet been lost. There are also initiatives that favour the recovery of this value chain, but there is still a long way to go.

This barrier is not only cited by livestock farmers who work with the merino breed, but also by associations such as Trashumancia y Naturaleza, and by cooperatives that are working to promote the use of wool.

ix. Lack of R&D

In addition to the merino breed, there are other breeds in the study area whose wool is not of such good quality for making textiles. In many of these cases, wool is a problem rather than a resource at farm level. It is an expense, due to the need to pay the cost of shearing the sheep, but the wool that is obtained has no market outlet and sometimes farmers even have to pay to have it removed from the farm.

The livestock sector, associations related to the "segureño" breed and organisations such as ALVELAL are calling for a greater investment in R&D for the use of these "non-textile" wools, so that at least the cost of its management and withdrawal from the farm is covered. Some of the possible applications for these wools are thermal and acoustic insulation (already in a very advanced stage of development and even implemented in some cases), filter panels and mulching techniques in agriculture (used in regenerative agriculture).

x. Lack of control of the by-products

Despite the fact that the information collected through the interviews carried out has not provided much clarification regarding the management of by-products such as the hide and other offal, it seems that the benefits obtained from their sale very rarely has an economic impact for the livestock farmer.

Those who actively participate in the meat processing and marketing process have the greatest control over these by-products, which can sometimes have significant economic value. In general, the control and economic benefit of these by-products is enjoyed by the meat industry or the cooperatives.

Table 3 shows the list of barriers identified:

LIST OF BARRIERS IDENTIFIED
LACK OF DIFFERENTIATION of extensive livestock
LOW CONSUMPTION of lamb meat
SLAUGHTERHOUSE MODEL
HEALTH-HYGIENE REGULATIONS
LOSS OF TRACEABILITY
VERTICALISATION AND CENTRALISATION of the sector
LACK OF INFORMATION AND AWARENESS of the end consumer
DEPENDENCE ON EXPORTS
PRICE OF THE PRODUCT
DEPENDENCE ON THE HORECA CHANNEL
MENTALITY
BREAKDOWN OF THE WOOL MARKET
LACK OF R&D
LACK OF CONTROL OF THE BY-PRODUCTS

Table 3: List of barriers identified. The four bottlenecks with the greatest impact on the profitability of farms are highlighted.

4.3. Identification of opportunities

In the same way, through interviews with key actors in the sector, opportunities and initiatives that already exist that could improve the economic profitability of extensive sheep and goat farms were identified. Sometimes these opportunities arise in response to the barriers presented in the previous section.

These opportunities and initiatives are also represented in Annex 4: *Identification of opportunities in the value chain.*

The identified opportunities can be summarised as follows:

i. More flexible implementation of the health-hygiene regulations

As mentioned above, the European hygiene package, consisting of mandatory regulations in the EU member states, incorporates the possibility of making the requirements more flexible in certain circumstances, which could include small-scale production. This possibility of flexibility, which has already been applied in other European countries, is regarded by the people surveyed from the public sector (veterinarians), the artisanal cheese making representatives, and other associations (ALVELAL and Trashumancia y Naturaleza) as an important opportunity to resolve the bottleneck caused by the regulations in various processes in the value chain, both in the flows for meat and for dairy products. Livestock farmers who work outside the cooperatives also demand this flexibility in the implementation of the regulations since they believe it would provide an opportunity to improve the economic and also the social and environmental sustainability of their farms.

This opportunity has been identified in the following processes in the value chain:

- Slaughter on the farm: This is an option that is already being implemented in other European countries and a farmer in Girona has managed to start up a sheep and goat slaughterhouse on his own farm, with all the necessary permits and authorisation. According to this farmer, who was interviewed for the study, this type of initiative can even attract financial aid from the public authorities, which highlights the different interpretation and/or political will between the different autonomous communities. According to the public sector veterinarian interviewed, it is evident that this cannot be the generalised alternative for supplying the market, but it could be a very important outlet for those farms that make direct sales to the end consumer or consumer groups and similar figures in the local market, while also bearing in mind the benefits it brings to animal welfare.

- Cutting and processing on the farm: This is similar to the case of slaughter on the farm. A more flexible interpretation or adaptation of the health requirements would allow the authorisation of small-scale cutting plants on the farm itself or cutting plants with low capacity for associations of livestock farmers, which would allow the processing of the meat for sale. In this way, livestock farmers who market their product could gain autonomy by ceasing to depend on external actors and inputs, such as subcontracted cutting plants. Again, this alternative already exists in other EU countries and in Catalonia, for example, the livestock farmer interviewed who has changed her herd over from meat to milk is building a small meat factory alongside her cheese factory in order to prepare the kids she produces for sale. In the study area, however, the investment necessary to establish a legal cutting plant on the farm is not considered feasible by the livestock farmers interviewed.

- Sale of milk from the livestock farm to the end consumer: The sale of milk directly to the end consumer is only possible if the producer is in possession of the health registration for dairy production. It is therefore prohibited for the livestock farmer to do it. The QUERED association, which was interviewed as

a representative of the artisan cheese-making sector, regards this as completely unfair and not based on health criteria. In other EU countries it is legal, which clearly suggests that it is not prohibited by the European regulations.

- Production of artisan cheese and dairy products: In the case of cheese factories, the problem lies in the interpretation of the regulations, so greater interpretive flexibility, taking into account small-scale production, represents a considerable boost in terms of financial profitability for this type of producer. The network of rural and artisan cheese factories (QUERED) has achieved several successes in this area, establishing a dialogue between this sector of artisans and the public authorities and establishing agreements with considerable importance and impact for artisan cheese factories. The work carried out by QUERED will be referred to again under the section on other opportunities identified

Steps are currently being taken towards achieving this flexibility. The Spanish Agency for Food Safety and Nutrition (AESAN) has reported that there is a draft Royal Decree for the regulation and implementation of a more flexible interpretation of the EU provisions on hygiene in the production and marketing of food products. This draft Royal Decree is in an advanced stage of the official procedures. The bad news is that in this draft the sale of milk directly from the livestock farmer to the end consumer continues to be illegal. The existence of this Royal Decree in the approval process and its importance for small-scale producers came up in interviews with the QUERED association and with both veterinarians from the public sector.

ii. Other slaughterhouse models

Slaughterhouses have been identified as a key bottleneck which has a major impact on the economic sustainability of livestock farms. Consequently, much has been said about this issue in the interviews, facilitating the identification of possible alternatives to the dominant industrial slaughterhouse model in the study area. According to the public sector veterinarian, these alternatives, together with slaughter on the farm, in addition to improving the financial viability of livestock farms, maximise animal welfare, which is one of the basic pillars of extensive livestock farming.

Two opportunities for easing the bottleneck posed by the slaughterhouses have been identified: mobile slaughterhouses and the recovery of the network of municipal slaughterhouses. Among other things, both cases would require a more flexible interpretation of the regulations in order to implement them.

On the issue of slaughterhouses, the importance of the draft Royal Decree intended to provide more flexibility in the application of the European provisions on hygiene and food safety should be highlighted once again, since in addition to including the definition of "small-scale slaughterhouse" it makes specific reference to mobile slaughterhouses in article 5.

Mobile slaughterhouses are slaughterhouses installed in mobile infrastructures, which travel through different areas offering slaughter services in the vicinity of livestock farms. According to the interviews, this solution is favoured by many of the livestock farmers who operate without joining cooperatives. Veterinarians in the public sector are also advocates of this model, although they are also aware of the obstacles that would have to be overcome in order to implement it. In any case, it seems clear that mobile slaughterhouses could contribute to the viability of small livestock farms and that they also offer advantages for animal welfare and the development of short marketing channels.

Municipal slaughterhouses are small-capacity slaughterhouses that used to provide a service to farms in the area. As mentioned previously, most of these closed due to the regulations included in the European hygiene package and its interpretation in Spain. The capacity that this network of slaughterhouses would have to improve the sustainability of the farms was highlighted in the interviews with the trade association of butchers, the public sector (veterinary staff) and, of course, the livestock farmer sector. In the autonomous communities where the application of the regulations has been less strict (mainly Catalonia and the Community of Valencia), some of these slaughterhouses continue to operate, either under the management of the town councils or with management assigned to associations of butchers or of butchers and livestock farmers. Many of these facilities that were closed could be reopened without major investment, always on the basis of making the regulations more flexible, and, of course, complying with all the requirements for the health of consumers.

Both people in the livestock sector and those in the public sector (veterinary staff responsible for organic livestock and health) agree that the most appropriate alternative for each area depends on the specific local characteristics. In other words, if there are municipal slaughterhouses that can be started up, this would reduce the need for mobile slaughterhouses.

Both options, and especially the mobile slaughterhouse, present difficulties in terms of implementation, but in both cases it seems that the financial profitability of the facilities themselves is the fundamental barrier to putting them into practice. In the same way, the lack of certified organic slaughterhouses also seems to be due to economic causes. For this reason, in several interviews, the need to view slaughterhouses as an essential public service has been suggested. This would facilitate the provision of slaughtering close to the farm, certified as organic if necessary, thus improving both animal welfare and the sustainability of the livestock farms and their economic viability. It would also contribute to employment in rural areas and to generating benefits at consumer level and thus for society in general.

iii. Partnership working initiatives

In contrast with the model of the large-scale sheep/goat cooperatives operating in the study area, especially for the processing and marketing of meat, the interviews identified a series of partnership working initiatives on a smaller scale which can have positive effects on the financial profitability of the farms. Some of these initiatives are outside the study area, but they are significant because they are experiences that could be reproduced in other places.
The initiatives related to the flow for meat identified in the study are presented below:

- Pasture-raised meat (national): Grouping of livestock farms that produce meat based on grazing (https://www.lacarnedepasto.com/). This is a common platform that serves to advertise and promote both their method of production and direct sales. They are working to establish a form of official certification because so far the relationship with the customer is based on consumer trust through the signing of a commitment called the "compromiso de yerba" ("grass commitment"), based on production protocols that livestock farmers commit to comply with (https://www.lacarnedepasto.com/compromiso-de-yerba/)
- Organic livestock farms of the EA group cooperative (study area): Within the EA group secondary cooperative, an initiative has been launched that has arisen in a group of organic livestock farms and has been incorporated into the primary cooperatives. In order to maintain the traceability of organic lamb and market it jointly, the brand "Cordero Organic" ("Organic Lamb") has been created, which will also be discussed under new quality seals and labels.
- Ramats de Foc (Rebaños de Fuego, Girona https://www.ramatsdefoc.org/es/): Through a fire prevention project promoted by the Pau Costa Foundation, a group of livestock farmers have formed a partnership and sell directly to the butchers that are also part of the project.
- APAEMA (Associació Producció Agrària Ecològica de Mallorca https://apaema.net/): The organic producers of Mallorca have created this association from which they have launched an interesting initiative to market organic lamb (Mè ecològic de Mallorca, discussed later).
- Foro Asturias Sostenible, a forum to promote knowledge and development of the rural environment: This is an association of producers in Asturias (not only those in agriculture and livestock, but also from the processing sector) who, among many other activities, carry out direct sales of their products.

Regarding the dairy sector, the Spanish network of rural and artisan cheese factories (QUERED), referred to on numerous occasions throughout the report, stands out. This association groups together rural cheese factories (located in a livestock farm with its own herd), artisans (who buy milk from a farm or farms in the local area), future cheesemakers and collaborating organisations. Through this associative network, the small-scale cheese factories have come together with the aim of establishing a dialogue with the public authorities and working to achieve changes in the sector that help to make progress in the solving of its main problems. They have achieved remarkable results:

- Document on the interpretation of health regulations in small cheese factories: This was agreed with the 17 autonomous communities and with AESAN. The cheese-producing livestock farmers interviewed highlighted the work carried out by QUERED, especially the work required to obtain this document, because of its great importance and the big impact on the sector.

- HACCP (Hazard Analysis and Critical Control Points) for artisan cheese factories at European level: HACCP is a health hazard control system that is mandatory in every food establishment. Thanks to the fact that this network of artisan cheesemakers is organised at the European level, this system has been adapted to small cheese factories.
- Change in the Royal Decree on analyses for raw milk operators: This was a great relief for small-scale producers as the Royal Decree represented a significant economic and bureaucratic burden which did not add any value in this type of cheese factory.

QUERED, therefore, provides a fundamental impulse for the resolution of complex problems by achieving representation and dialogue with the public authorities, in addition to creating knowledge and support networks among producers and future producers, which strengthens the sector itself.

iv. New quality seals and labels

The existing labels, based mainly on the origin or provenance of the products, such as Protected Geographical Indications (PGI) and Protected Designations of Origin (PDO), are not helping to differentiate extensive livestock farming. Instead, they often generate more confusion in the consumer, suggesting a higher quality or more sustainable products when this may not be the case.

The Ministry of Agriculture, Fisheries and Food has also promoted the establishment of the logo "Raza autóctona 100%" ("100% native breed") for products from this type of breed. This label is often also linked to PGIs. The use of native breeds is one of the typical characteristics of extensive livestock farming, and it is an indicator of a local product, so this might be regarded as a useful initiative, but it is not enough. (https://www.mapa.gob.es/es/ganaderia/temas/zootecnia/razas-ganaderas/arca/raza-autoctona.aspx)

In the case of cheese, PDOs are much more well established in the market. The majority of consumers are aware of them and they are assumed to be synonymous with quality.

Although PGIs and PDOs are of some value because they can sometimes be used to identify or differentiate national products from the imported products, a number of other existing initiatives for the marketing of products from extensive sheep/goat farming in a way that differentiates them from the rest are presented below:

- Labels or brands related to organic certification: Organic certification can be a way of differentiating products in the market and achieving added value for sheep and goat products, especially meat. However, as already noted in the report, the marketing of this meat as an organic product is not easy. The demand is low, and it is common that many of the animals raised organically lose their certification when they leave the livestock farm, being sold in the conventional market.

  In order to address this problem, the initiative "Cordero Organic" was launched, based on the need to differentiate this type of production by farmers from Extremadura and Andalusia. Its objective is to market products highlighting the added value that organic lamb implies in an easily identifiable way and to solve the problem of those farmers whose products are certified as organic but who are forced to sell them as conventional. All the products marketed under the "Cordero Organic" brand come from farms incorporated in primary cooperatives grouped within EA Group (secondary cooperative). Cordero Organic takes advantage of all the infrastructure and human resources of EA Group, from the slaughterhouses and cutting plants (certified as organic) to all the personnel and marketing and distribution structure. Once the lambs leave the farm, they follow the same path as conventional lambs (without losing traceability), with the difference that the organic lambs do not go through the feedlots. Operations began in August 2019, with 52 producers, and they currently market between 11,000 and 12,000 lambs. According to an interview with a person involved in the initiative, it is a complex process, because the entire structure of EA Group was only geared towards the conventional market, and the organic market is different in many ways.

  Another interesting initiative (this time outside the study area) is Mè Ecològic de Mallorca (organic lamb from Mallorca https://www.meecologic.com/). This initiative has been promoted by APAEMA (Association of Organic Producers of Mallorca). Organic livestock farms have been associated under the umbrella of Mè Ecològic, with the idea of marketing their lambs together. They hired a coordinator, who is also a butcher and is in charge of preparing the meat in a shared cutting plant. They also share other types of service such as live transportation to the slaughterhouse, subsequent transportation to the cutting plant, and distribution and marketing. They do door-to-door sales to end consumers, butchers and hotels, and the assessment by

all the stakeholders is very positive. Marketing as a brand means that they reduce the costs of direct sales at the individual level and the coordinator saves farmers from having to carry out this task, leading to a higher quality service. Under the umbrella of this brand there are around 30 Mallorcan sheep farms, and they have signed an important agreement with hotels on the island, which in addition to ensuring their sales, represents an important boost to the promotion and awareness of the organic lamb of Mallorca. It is a small-scale cooperative model where the people belonging to it control the entire process.

- Pasture-raised meat: As mentioned previously, this currently involves a private label based on a relationship of trust between the consumer and the livestock farmers of the association who have signed a commitment called "De Yerba" ("Pasture Raised"). This commitment includes aspects of livestock management, marketing and an open-door policy on the farm. According to the livestock farmer interviewed who is a member of this platform, work is being carried out to establish a simple official certification that turns this commitment into something with legal status and certified by independent entities. The associates include livestock farms that are certified as organic and others that are not, as well as meat from other species in addition to sheep and goats.
- Calidad trashumante ("transhumant quality"): The Trashumancia y Naturaleza association has this trademark registered that they use to differentiate the products that come from transhumant herds moving on foot. Permission for the use of the trademark must be requested from the association and there is a validation process. It was launched to showcase the practice of transhumance, its social and environmental benefits and the high-quality products produced by this type of herd.

Despite the existence of these interesting initiatives, it is important to highlight the fact that in order to differentiate products from extensive livestock farming in the market, progress must be made in the characterisation of this activity. Worthy of note in this regard is the work carried out by the Fundación Entretantos and the Plataforma por la Ganadería Extensiva y el Pastoralismo in 2017 and the document produced by the Sociedad Española de Pastos, Trashumancia y Naturaleza and WWF in 2020, with the aim of making progress in the characterisation of the livestock sector in a way that provides a competitive advantage for extensive livestock farms (both in the bibliography of this report).

v. New cuts and meat preparations

The Interprofessional Agroalimentaria de Ovino y Caprino (INTEROVIC) is implementing an interesting project with the aim of promoting new cuts of lamb adapted to the current market (http://www.interovic.es/medicion-de-resultados). They followed considerable research work on these new "modern" cuts with the training of butchers throughout the country so that they would include them in their establishments, also proposing new, simple and quick ways of cooking them. The aim of this study is to challenge the belief that the only way to consume lamb and goat meats is by grilling or roasting, in preparations that require long cooking times and are therefore linked to celebrations. The new cuts demonstrate that lamb meat is versatile and can be adapted to current culinary habits and practices.

vi. Promotion of new consumer habits

In addition to the project for the promotion of new cuts of lamb, INTEROVIC is responsible for another series of campaigns both to promote the consumption of lamb and goat meat and to identify national lamb as opposed to imported lamb.

These types of campaign are important and necessary to try to reverse this downward trend in lamb consumption. But in several interviews, especially with livestock farmers, the need for a genuine involvement of the public authorities in this problem is highlighted. According to them, for a real and lasting stimulation of consumption it is necessary to promote new habits and the involvement of the public authorities in this activity is essential. In this regard, the introduction of local lamb and goat meat in all kinds of public dining rooms (schools, homes for the elderly, hospitals, etc.) and in public purchasing procedures would have an important

impact. In this way, it would be possible to begin to re-educate palates, so that this meat becomes part of the regular consumption in Spanish homes.

The providing of information to the customer is also identified as an opportunity. If the consumers are aware of the environmental and social benefits of extensive livestock farming and specific aspects of management, this may encourage them and lead to a commitment to buying the products. In this regard, the work of the OVIPOR cooperative in the study area deserves to be highlighted. This cooperative has held conferences to showcase the extensive livestock production of its farms to its national and international customers, with the aim of raising awareness about the work being carried out in the areas of conservation of the environment, biodiversity and rural areas. This same work is carried out by the livestock farmers interviewed who receive visits to their farms, in some cases as part of rural tourism routes organised by the public authorities.

vii. Promotion of merino wool and various uses for other wools

In various interviews with merino sheep farmers, the fact that the price of merino wool is on the rise has been mentioned. In recent years, wool management has gone from being an expense to covering shearing expenses and even to becoming a source of income, although not one of importance for the farm's economy. However, the pilot projects under way seem to show that there is a market for products made with merino wool since it is a resource from which high quality, attractive and versatile sustainable garments can be made.

In addition to promoting merino wool, there are projects working to revitalise the market for wool from other breeds of sheep.

In order to address the problems of the lack of structure of the value chain and market for wool, a natural and sustainable product, the European Wool Exchange (EWE) has been formed. This is made up of very diverse members who aim to boost the role of wool in the context of a sustainable and circular economy (https://www.ewe.network/home).

The following table (Table 4) presents the opportunities and existing initiatives identified in the research:

LIST OF OPPORTUNITIES AND INITIATIVES IDENTIFIED	
MORE FLEXIBLE IMPLEMENTATION OF THE HEALTH-HYGIENE REGULATIONS	
OTHER SLAUGHTERHOUSES AND CUTTING PLANTS	RECOVERY OF THE NETWORK OF MUNICIPAL SLAUGHTERHOUSES
	MOBILE SLAUGHTERHOUSES
PARTNERSHIP WORKING INITIATIVES	
NEW QUALITY SEALS AND LABELS	
NEW CUTS AND MEAT PREPARATIONS	
PROMOTION OF NEW CONSUMER HABITS	
PROMOTION OF MERINO WOOL AND VARIOUS USES FOR OTHER WOOLS	

Table 4: List of opportunities and initiatives identified

Finally, Table 5 shows both the barriers and the opportunities and initiatives related to each of these, which represent progress along the path towards solving each of the problems identified.

BARRIERS IDENTIFIED	OPPORTUNITIES AND INITIATIVES IDENTIFIED
X Lack of differentiation of extensive livestock	✓ New quality seals and labels ✓ Partnership working initiatives ✓ Progress in the characterisation of extensive livestock
X Low consumption of lamb meat	✓ New cuts and meat preparations project ✓ Promotion of new consumer habits
X Slaughterhouse model	✓ More flexible implementation of the health-hygiene regulations ✓ Mobile slaughterhouses ✓ Recovery of the network of municipal slaughterhouses
X Health and hygiene regulations	✓ More flexible implementation of the health-hygiene regulations ✓ Partnership working initiatives
X Loss of traceability	✓ Partnership working initiatives ✓ New quality seals and labels
X Verticalisation/centralisation of the sector	✓ Partnership working initiatives
X Lack of awareness and information	✓ New quality seals and labels ✓ Promotion of new consumer habits ✓ New cuts and meat preparations project
X Dependence on exports	
X Prices	
X Dependence on the HORECA channel	✓ Promotion of new consumer habits ✓ New cuts and meat preparations project
X Mentality	✓ Promotion of new consumer habits ✓ New quality seals and labels
X Breakdown of the wool market	✓ Promotion of merino wool (pilot projects) ✓ Partnership working initiatives
X Lack of R&D	
X Lack of control of the by-products	✓ Partnership working initiatives

Table 5: Relationship between the barriers identified and the opportunities and initiatives. The barriers that represent the main bottlenecks are shown in bold.

This table shows that opportunities and/or initiatives already being implemented have been identified that address the main bottlenecks in the study, and that most of these opportunities and initiatives address more than one of the barriers identified.

5. CONCLUSIONS AND RECOMMENDATIONS

The value chain of the products obtained in extensive sheep/goat farming is complex and includes important barriers that affect the sustainability of this type of farm. Although problems have been identified in both the flow for meat and dairy production, the information collected clearly suggests that the processing and marketing of meat faces greater difficulties than that of milk and dairy products.

Among the barriers identified, there are four main bottlenecks with important economic consequences for people dedicated to this type of livestock farming: (1) the lack of differentiation for extensive livestock, (2) the low consumption of lamb and goat meat, (3) the model of slaughterhouses and (4) the health-hygiene regulations.

Through carrying out this study, both opportunities and existing initiatives have been identified that can be used as drivers of change or proposals for improvement that reduce the main bottlenecks and thus alleviate the most important problems that affect the economic sustainability of extensive sheep/goat farming. These improvement proposals can be summarised as:

- Working to make the health-hygiene regulations more flexible: Work carried out by associations together with the public authorities can lead to important advances in overcoming the major obstacle posed by these regulations, especially for small-scale producers. As an example, the work carried out by QUERED (Spanish network of rural and artisan cheese factories) in the case of the artisan production of cheese and dairy products is worth highlighting. An interpretation that takes into account the different realities of production, together with developing the possibilities for a more flexible implementation allowed for in the European regulations themselves, would represent a fundamental opportunity to improve the situation of extensive sheep/goat farms, for both meat and dairy production.
- Promoting and revitalising other models of slaughterhouse and cutting plant: There are fewer and fewer slaughterhouses and these have become larger and larger, as a result of the application of the health-hygiene regulations. This model damages those small farms that operate without belonging to large cooperatives in many ways. The study has identified viable proposals that would promote a more favourable system of slaughtering for the economic sustainability of these farms. The starting up of mobile slaughterhouses and the recovery of the network of municipal slaughterhouses, depending on the local circumstances of each area, are the most widely proposed opportunities to make progress towards the resolution of this problem. In both types of slaughterhouse, it is also necessary to work towards the relaxation of the health regulations.
- Promoting new consumer habits: In addition to interesting initiatives from the private sector such as the work to promote new cuts and preparations of lamb carried out by INTEROVIC, a real involvement of the public authorities is necessary to promote the consumption of lamb and goat meat as well as local products from extensive livestock farms, within the recommended framework of the World Health Organisation for a sustainable diet, with less meat consumption but of higher quality. In order to do this, it is very important to ensure that consumers are well informed and know the real benefits of this type of livestock, and also, of course, to make progress on the differentiation of extensive livestock in all areas.
- Launch of new certifications for products from extensive livestock farms: Products from extensive livestock farming are not distinguishable in the market, and this is prejudicial to people who are dedicated to this type of livestock, since all the benefits and public assets linked to its production are lost in the processing and marketing process. To resolve this problem, it is essential to work towards the differentiation of extensive livestock farming and its products, and certifications or labels represent tools to make progress in that direction. Successful experiences have been presented in the study, sometimes linked to organic

certification and sometimes not, which serve as a starting point for a differentiation of products from grazing animals, reared through extensive farming, i.e. “pasture-raised meat”, “pasture-raised milk” or “pasture-raised cheese”. The differentiation of extensively farmed livestock is a very complex issue and it is not enough to create a new certification, but this could be a first step towards the promotion of these types of farm and their products.

Although it is not directly related to the main bottlenecks, the promotion of wool could be an important measure to improve the profitability of livestock farms. Spain is an important producer of quality wool, so this opportunity should be used to work towards the transition of wool from a by-product to a product in itself and on the structuring of its value chain.

However, conducting interviews has allowed the identification of another series of problems, for which related opportunities or initiatives have not always been identified. An example is the lack of control over certain by-products such as the hide, where the information collected in this regard involves contradictions and shows a lack of knowledge among some farmers about what actually happens with this product. The European organisation EWE (European Wool Exchange) represents a positive step forward in this regard.

Finally, it should be noted that the barriers identified drive livestock farmers towards courses of action where they lose control over their products. This analysis seems to indicate that participation in the processing and marketing process, either at an individual or associative level, can have a positive impact on the economic sustainability of extensive livestock farms, since the added value remains in the farm, and the opportunities identified in this study may encourage that participation.

6. ANNEXES

Annex 1: Information on the telephone interviews conducted

The following table shows the description and characteristics of the people interviewed:

No.	PERSON INTERVIEWED	DESCRIPTION POSITION/INSTITUTION	AREA OF ACTION
1	Livestock farmer from Andalusia	Farm with merino sheep, pigs and cattle	Study area
2	Livestock farmer from Andalusia and association representative	Segureño breed sheep farm with organic certification Member of the association *ALVELAL* https://www.alvelal.net/	Study area
3	Livestock farmer from Extremadura and cooperative representative	Merino breed sheep farm Representative of *Comercial Ovinos S.C.L.* a secondary cooperative located in Badajoz whose objective is to centralise wool management http://www.comercialovinos.com/	Study area
4	Livestock farmer from Extremadura	Long-distance transhumant flock of sheep (merino breed) and goats	Study area
5	Livestock farmer from Andalusia and association member	Merino breed sheep farm, member of the platform “La carne de pasto” (“Pasture-raised meat”) https://www.lacarnedepasto.com/	Study area
6	Livestock farmer from Girona	Farm with sheep, cattle and pigs Has succeeded in starting up a sheep and goat slaughterhouse on his own farm	Outside the study area
7	Livestock farmer from Girona	Goat farm With experience in the process of transforming her farm from meat goats to dairy goats, both certified organic	Outside the study area
8	Livestock farmer from Asturias and organisation representative	Farm with cattle and sheep Has extensive experience in associative work and in initiatives that promote extensive livestock farming and direct sales to the consumer through the Asturias Sostenible forum	Outside the study area

No.	PERSON INTERVIEWED	DESCRIPTION POSITION/INSTITUTION	AREA OF ACTION
9	Livestock farmer from Navarre and association representative	Has set up a rural cheese factory on the family dairy sheep farm Representative of the Artzai Gazta association (shepherd's cheese) and member of QUERED	Outside the study area
10	Veterinarian in the Autonomous Community of Madrid	Veterinarian in the Department of Health and Social Services of the Community of Madrid with extensive knowledge of regulations, especially in relation to the situation of slaughterhouses	Outside the study area
11	Veterinarian in the Autonomous Community of Catalonia	Veterinarian in the Department of Agriculture, Livestock, Fisheries and Food of the Catalan Regional Government with extensive knowledge of mobile slaughterhouses	Outside the study area
12	Representative of the association	*Asociación Trashumancia y Naturaleza:* Association for the promotion of transhumance along the traditional livestock migration routes. http://www.pastos.es/	Study area and national
13	Representative of the association	*QUERED:* Spanish network of rural and artisan cheese factories https://www.redqueserias.org/	Study area and national
14	Agricultural technician	*Baza District Agrarian Office*: Live export. Headquarters in Granada	Study area
15	Representative of associations/cooperatives	*ANCOS – Asociación Nacional de Criadores de Ovino de raza Segureña.* http://www.ancos.org/	Study area
		PGI (Protected Geographical Indication) Segureño Lamb https://www.igpcorderosegureno.com/la-igp/	
		COSEGUR – Comercializadora Segureña: Cooperative of segureño breed sheep farmers (Granada) https://cosegur.es/es/cordero-segureno-cosegur-igp-cordero-segureno/	
16	Representative of secondary cooperative	*Cooperative EA-Group – Cordero Organic (Organic Lamb)* initiative https://www.eagroup.coop/	Study area

No.	PERSON INTERVIEWED	DESCRIPTION POSITION/INSTITUTION	AREA OF ACTION
17	Representative of the association	*INTEROVIC – Interprofesional Agroalimentaria del Ovino y Caprino* http://www.interovic.es/	Study area and national
18	Butcher and representative of the trade association of butchers	Girona Trade Association of Artisan Butchers and Cured Meat Butchers *(Gremi Carnissers i Xarcuters Artesans de les Comarques gironines)*. http://gremicarn.com/	Outside the study area

Table 6: Description of the people interviewed

Annex 2: Flow diagram of the extensive sheep/goat value chain

VALUE CHAIN - EXTENSIVE GOAT PRODUCTION

Manure for fertilizer
Cull older sheep
Wool
Sales of live animals
Animals for slaughter
Wool
Cull older sheep
Manure for fertilizer

ANIMALS FOR SLAUGHTER
SALES OF LIVE ANIMALS
MILK

INDUSTRY
COOPERATIVE

Slaughter of animals on the farm
Slaughter of animals in the abattoir
Skins and offal
Meat cutting in the farm

DEALER
ABATTOIR
BUTCHER
COOPERATIVE
FATTENER
Export

BUTCHERS
MEAT INDUSTRY
Meat cutting / Transformation
WHOLESALERS
Import
HOTELS, RESTAURANTS AND BARS
SUPERMARKETS, SHOPPING CENTRES AND LARGE DISTRIBUTORS
ONLINE SALES

FARMHOUSE CHEESE
ARTISAN CHEESE
Artisan production
HOTELS, RESTAURANTS AND BARS
TRADITIONAL SPECIALIZED SALES
ONLINE SALES

Collection
Export
Industrial production
Import
WHOLESALERS
Export
SUPERMARKETS, SHOPPING CENTRES AND LARGE DISTRIBUTORS

FINAL CONSUMPTION

Annex 3: Identification of barriers in the value chain

IDENTIFICATION OF BARRIERS IN THE EXTENSIVE SHEEP AND GOAT PRODUCTION VALUE CHAIN

Manure for fertilizer
Cull older sheep
Wool
ABSENCE OF R&D
UNSTRUCTURED MARKET
SALES OF LIVE ANIMALS
MILK
Selection of animals
Animal slaughter
ABSENCE OF R&D
UNSTRUCTURED MARKET
Wool
Cull older sheep
Manure for fertilizer
INDUSTRY
COOPERATIVE
LEGISLATION
ABATTOIR TYPE/SYSTEM
LOSS OF TRACEABILITY
DEALER
ABATTOIR
BUTCHER
COOPERAT
ATT
VERTICALIZATION, CENTRALIZATION
FARMHOUSE CHEESE
ARTISAN CHEESE
Collection
Export
Industrial production
Import
Slaughter of animals on the farm
Slaughter of animals in the abattoir
LOSS OF CONTROL
LACK OF DIFFERENTIATION
Artisan production
LEGISLATION
BUTCHERS
MEAT INDUSTRY
DEPENDENCE ON EXPORT
WHOLESALERS
Export
NEGATIVE ATTITUDE
Meat cutting in the farm
Meat cutting / Transformation
WHOLESALERS
Import
PRICES
HOTELS, RESTAURANTS AND BARS
TRADITIONAL SPECIALIZED SALES
SUPERMARKETS, SHOPPING CENTRES AND LARGE DISTRIBUTORS
LEGISLATION
DEPENDENCE ON HOTELS, RESTAURANTS AND BARS
HOTELS, RESTAURANTS AND BARS
SUPERMARKETS, SHOPPING CENTRES AND LARGE DISTRIBUTORS
ONLINE SALES
ONLINE SALES
LOW CONSUMPTION
NEGATIVE ATTITUDE
LACK OF INFORMATION
FINAL CONSUMPTION

Annex 4: Identification of opportunities in the value chain

IDENTIFICATION OF OPPORTUNITIES IN THE EXTENSIVE SHEEP AND GOAT PRODUCTION VALUE CHAIN

Manure for fertilizer
Cull older sheep
Wool
INCREASE THE VALUE OF MERINO WOOL
Calves for veal animals
Animals for slaughter
Wool
INCREASE THE VALUE OF WOOL
SALES OF LIVE ANIMALS
MILK
INDUSTRY
COOPERATIVE
MORE FLEXIBLE LEGISLATION
MOBILE ABATTOIRS
SLAUGHTER OF ANIMALS ON THE FARM
Slaughter of animals in the abattoir
NETWORK OF MUNICIPAL ABATTOIRS
INITIATIVES TO CREATE ASSOCIATIONS
DEAL
ABATTOIR
FARMHOUSE CHEESE
ARTISAN CHEESE
INITIATIVES TO CREATE ASSOCIATIONS
Collection
Export
Industrial production
Import
Artisan production
MORE FLEXIBLE LEGISLATION
WHOLESALERS
Export
Skins and offal
BUTCHERS
MEAT
NEW QUALITY BRANDS AND LABELS
Export
Meat cutting in the farm
Meat cutting / Transformation
WHOLESALERS
Import
NEW QUALITY BRANDS AND LABELS
HOTELS, RESTAURANTS AND BARS
MORE FLEXIBLE LEGISLATION
SUPERMARKETS, SHOPPING CENTRES AND LARGE DISTRIBUTORS
MORE FLEXIBLE LEGISLATION
NEW CUTS AND PROCESSED PRODUCTS
HOTELS, RESTAURANTS AND BARS
SUPERMARKETS, SHOPPING CENTRES AND LARGE DISTRIBUTORS
ONLINE SALES
ONLINE SALES
NEW CONSUMER HABITS
NEW QUALITY BRANDS AND LABELS
FINAL CONSUMPTION