

## RABBIT MEAT SECTOR VALUE CHAIN

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**Abstract:** The aim of this research was to study the cuniculture industry in Spain, according to the Food Value Chain model, and analyse what its main operators are. Four components were identified in the rabbit meat production chain: input suppliers, producers, abattoirs and cutting plants and distribution. Distribution can follow 2 paths, the traditional channel and the modern or large-scale distribution channel. Rabbit feed, which represents the main input for producers, is a minority product, especially when compared to feeds formulated for other livestock species, as its manufacture calls for specialist companies. Rabbit production is linked to the rural environment and constitutes a significant economic option, not only for farms but also for the industry around it, such as feed producers and distributors, technicians, slaughterhouses or leather processors, among others. Rabbit farms are generally independent and not usually integrated, as found in other types of livestock. Slaughterhouses currently represent one of the main axes of the rabbit meat production chain and are either focused on traditional or large-scale distribution. The main strategic changes are apparent in slaughterhouses focused on large-scale distribution by seeking cooperative ways of working, using slaughterhouse groupings and vertical integration processes. This way, they manage to adjust margins by working with economies of scale and, ultimately, lower prices. Slaughterhouses whose strategies are based on traditional distribution may achieve higher margins than those focusing their efforts on large-scale distribution, but their growth is limited. In traditional retail premises, the majority of sales consist of whole carcasses in bulk, which are prepared and quartered as per consumer tastes. Large-scale retail distribution outlets sell both cut produce from the meat counters located in their own premises and pre-packaged products, more suited to self-service formulae. Brand presence is minimal, as is that of processed or semi-processed products. This current situation requires support from the entire sector in order to provide rabbit meat with new features better adapted to consumers' needs, above and beyond price and with greater added value.

**Key Words:** value chain, input suppliers, meat rabbit producers, abattoirs, distribution, consumer, rabbit.

## INTRODUCTION

The Value Chain comprises the set of interdependent activities that are part of a production process, giving added value to each link, from the source of the product or service until it reaches the final consumer (Porter, 1985). As described by Briz and De Felipe (2011), we can talk about the Food Value Chain to describe the production processes and transactions in a given food sector. This idea introduces the notion of the Rabbit Meat Value Chain, as the model that provides an overview of the sector and enables us to understand the relations between its components and its positioning towards the final consumer.

The model defined above supports an operating mechanism which explains the transactions between the various sector stakeholders involved in industrial rabbit meat production and its commercial distribution until it reaches the final consumer. Knowledge of this mechanism is therefore a deciding factor when it comes to understanding how rabbit meat reaches the end consumer.

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To date, few objective studies have approached the aspects linked with rabbit meat commercialisation scientifically and methodologically, holistically analysing all the elements that influence the value chain and which are decisive in pinpointing consumption-related aspects (Saborá, 2009).

The aim of this research was to study the cuniculture industry, by applying the Food Value Chain model and analysing its main operators. Thanks to the overview of the rabbit sector provided by the value chain analysis, it is possible to understand the economic, service and product flows that place rabbit meat at the disposal of consumers (González-Redondo and Sánchez-Martínez, 2014) and which, in a 180 degree turn, oblige us to look back along the same chain both for knowledge to create new products and services and with a view to meeting their respective needs in economic terms (McNitt *et al.*, 2003), in an ongoing feedback process.

## MATERIAL AND METHODS

### ***Scope of the research***

The scope of the research covers all members of the rabbit meat sector value chain, except for the final consumer. A global perspective was sought that takes into account all operators in the chain to gather the maximum amount of information possible. The study area of the research takes in the whole of Spain. The fieldwork was carried out between November 2015 and June 2016.

### ***Expert interviews***

We opted for open, in-depth interviews with experts by means of semi-structured questionnaires. To this end, we selected professionals from different areas, who represented the different stages in the rabbit meat sector value chain: manufacturers of feed and other inputs, breeders, abattoirs, wholesalers and retailers. We placed particular emphasis on interviews with farmers, as they were carried out on the farms and enabled us to determine and describe their workings and the production processes taking place there, while revealing handling differences between them. Specialists in food marketing, market research and rabbit breeding were also consulted. Companies, institutions and organisations to which the experts interviewed belong are listed in Table 1. For personal data protection purposes, their names are not listed.

The semi-structured questionnaires included open questions specifically aimed at the professional sphere of the interviewee and arranged into thematic groups to give the interview a definite structure. Their drafting also included a review process to define the definitive model to serve as a basis for the interviews. During the working meetings, new information was generated in addition to that established in the questions, which complemented the information gathered and provided new additional sources of secondary information.

### ***Commercial observation***

Commercial observation is a primary source of information which consists of being a spectator of people's behaviour without researcher involvement (Aaker *et al.*, 2013; Hair *et al.*, 2013).

For the purposes of the study, this was carried out both in large-scale retail premises and traditional trade outlets. A questionnaire or check list was drawn up as a guide to the observation process. Aspects analysed included the type of product, presentation type, assortment or variety, space and positioning on the shelves, brands, pricing and labelling, among others. Visits to the premises took place anonymously using the mystery shopper format or by agreement with the point of sale managers. The premises visited are listed in Table 2.

## RESULTS AND DISCUSSION

### ***Rabbit meat value chain***

The rabbit meat industry value chain is shown in Figure 1. A description of each of the operators involved in bringing the product to the final consumer is provided below.

Table 1: List of experts interviewed or consulted.

Company/organisation/institution	Activity	Sector/organism
Nanta (n=2)	Interview	Feeds
Spanish Confederation of Animal Feed Manufacturers	Consultation	Feeds
Pensos Vigorán	Interview	Feeds
Pentabiol S.L.	Interview	Animal feed supplements
Rabbit farms (n=18)	Farmer interviews	Rabbit breeders
Araco	Interview	Slaughterhouses
Matadero de Conejos Capilla	Consultation	Slaughterhouses
Cuni Hedrerres – Conill del Maestrat	Consultation	Slaughterhouses
Pollos Planes	Interview	Wholesalers
Vall Companys – Disporave (n=2)	Interview	Wholesalers
Grup Alimentari Guissona (n=2)	Interview	Producers, Industry and Distribution
Butchers and Market stalls (n=16)	Sales staff and butcher interviews	Traditional distribution
Consum (n=3)	Interview	Modern distribution
Carrefour	Consultation	Modern distribution
Casa Mas Alimentación, S.L.	Consultation	Hotel, Restaurant and Catering channel
Animal Science Department (n=2)	Interview	Research: Universitat Politècnica de València
Department of Agroforestry Sciences	Interview - Consultations	Research: Universidad de Sevilla
Government of Aragon Department of Agriculture, Livestock and Environment	Consultation	Public administration
Rabbit breeding experts	Interview	Intercun
Rabbit breeding experts	Interview	Asescu
Alimentaria 2014 (n=5)	Meat sector expert interviews	Food sector trade fair
Spanish Commercial Codification Association – AECOC	Consultation	Business organisation
Ikerfel	Interview	Market Research Services
Kantar Worldpanel	Consultation	Market Research Services
Biocultura 2014 (n=5)	Organic food expert consultations	Organic product sector trade fair

### Input suppliers

From the point of view of the suppliers of production inputs, feed is the main provision in terms of expenditure volume, although genetics and medicines also account for a significant portion of stock/expenditure (Langreo and Benito, 2010).

Regarding the former, the variation in prices of raw materials for manufacturing feed in recent years has been one of the most influential factors in the accounting results of rabbit farms and one of the main causes of their lack of profitability, as no notable increase in earnings for rabbit producers has been reported (Pascual *et al.*, 2014). These raw materials are mainly of European origin, but despite this, their prices have been affected by swings in feed costs in general (CESFAC, 2012). It is important to bear in mind that rabbit feed is a product with a high degree of specificity, due to the physiological features of the species, and calls for a series of conditions which are not demanded by other species, for example, special hardness of pellet, the inclusion of medicines and feeds designed for the initial fattening phases, stability of the compounds and the fact that they must be dust-free, among others (MARM, 2009). However, the different types of feeds currently available in the market respond only to zootechnical criteria, focused on growth phases of the animals or the type of animal, such as selection, does/breeders, weaning and fattening. Due to the different procurement processes and integrations, there is a strong presence of two large multispecies companies (Nanta and Núter), although the trend is towards medium-sized and small businesses specialising in rabbit feed. Feed sales take place through distributors or directly to the farmer or producers' associations (cooperatives), the latter

**Table 2:** List of premises visited during the commercial observation process.

Premises identification	Locality
Alcampo	Alboraia, Castellón.
Aldi	Museros, Zaragoza, Sagunto.
Bon àrea	La Senia, Tortosa.
Traditional retail butchers	Several localities
Carrefour	Massalfassar, Brussels.
Consum	Puçol.
Dia	Massamagrell, La Senia.
El árbol	Zaragoza
El Corte Inglés	Valencia, Castellón
Hipercor	Valencia
Lidl	Museros, Sagunto.
Makro	Albuixech, Castellón.
Mas y mas	Puçol.
Montcada municipal market	Montcada
Sagunto municipal market	Sagunto
Valencia Central market	Valencia
Burgos South Market	Burgos
San Lucas market	Madrid
Mercat Canyelles	Barcelona
Mercadona	Several localities
Pilar Planes	Puçol, Massamagrell, Puig
Pollos Planes	Sagunto
Eroski	Pamplona, Vitoria, Bilbao, San Sebastián

being the most widely-used trading model. This fact, coupled with the specialisation of feed mills, makes for tighter pricing, reducing margins and thus improving competitive edge, according to the experts interviewed.

Other important inputs in rabbit rearing farms are genetics, either males or females or as semen doses for insemination. It is notable that on large-scale farms, animal rearing is not conceived without artificial insemination, as it facilitates the management of scheduled production (throughout batch management) in line with current market needs, while allowing producers to optimise production costs. For this reason, this practice is on the rise in Spain, following the trend of other countries like France where artificial insemination is used in 94% of farms (IVA, 2008). In Spain, 57.6% of the farms were organised in batches in 2008 (MARM, 2009).

Finally, the scarcity of specific medicines for rabbits was highlighted and expressed by all interviewees, and this is due to the scant importance (representativity) of this activity for pharmaceutical companies. For this reason, they are obliged, in most cases, to use generalist products or feeds designed for other types of livestock which require keeping the animal untreated for several days prior to slaughter, with the additional problem of not being able to treat the animals in the event of disease or illness during this withdrawal period. However, there have been recent breakthroughs in research into specific medicines for rabbits, with several molecules presented for registration (Rodríguez, 2009).

### ***Meat rabbit producers***

*Location.* Farms producing rabbits for meat consumption are mainly located in rural areas, giving rise to economic opportunities in these areas, providing a positive impact on maintaining their population. This can be seen in the data shown in Table 3. Thus, 41% of farms dedicated to rabbit meat production are located in towns with fewer than 1500 inhabitants and 85% of the total, in localities with fewer than 10000 inhabitants. So, this industry helps to encourage and maintain economic activities in rural areas related with rabbit breeding, such as feed mills and distributors, abattoirs or pelt dryers and leather producers, among others. This type of livestock also contributes to

women's inclusion in the workplace, as rabbit production is the livestock activity with the largest presence of female farm owners (Langreo and Benito, 2010).

*Production processes.* Rabbit farms apply several processes in breeding rabbits, ranging from insemination by natural mating with their own bucks or artificially with semen doses from different genetic lines, management of grandmother does, handling of breeder does, fattening kits until slaughter age and all the tasks related with the production process per se, such as feed management, dung collecting, cleaning the housing installations, management of air-conditioning and maintenance and repair tasks around the facilities, as reported by the producers on the farms visited.

Rabbits raised for meat in Spain are generally the New Zealand White breed, from different lineages that have been crossed to obtain selected hybrid specimens (Roca, 2004). The main hybrids used are, on one hand, the HYPPLUS, HYLA and HYCOLE developed by INRA (Institut National de la Recherche Agronomique) in France and traded through private companies and, on the other, the UPV-IRTA (Universitat Politècnica de València - Institut de Recerca i Tecnologia Agroalimentàries) line hybrids, of common origin but subsequently evolved thanks to the ongoing research activity of these institutions, which are marketed separately (Chinarro, 2015). The differences between these lines are linked to zootechnical aspects, so there is no distinction in commercial terms regarding the product, according to the experts consulted. Thus, all the rabbit meat on sale now presents similar commercial properties, with the exception of the breed designated Spanish Common Brown, known commercially as Monteño rabbit which, farm reared, presents no objective organoleptic variations and is distinguished from the hybrid by the dark colour of the eyes and dark brown fur (Contera, 2013). Visits to several farms during the fieldwork stage revealed similar procedures among them, with very slight differences, typical of current industrial cuniculture.

*Integration.* The experts consulted noted that rabbit farms are generally independent and not usually organised into integrators, unlike in other types of livestock such as swine or poultry.

There are some vertically integrated exceptions, such as: i) The *Cunicarn* slaughterhouse, a *Mercadona* supplier company, which has feed mills, is an artificial insemination and multiplication centre and provides veterinary guidance through technical-commercial promoters. The firm purchases produce from independent farmers, paying them variable prices depending on their degree of consumption of the inputs provided by this abattoir; ii) *Cuni Hedreses SL*, an example of a private venture integrating external and own production as well as slaughterhouse services; iii) the

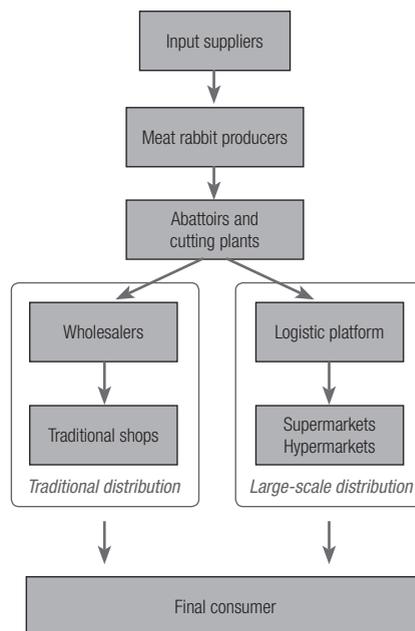


Figure 1: Rabbit meat sector value chain

Table 3: Distribution of rabbit farms (meat rabbits), by population size of municipalities.

Municipality population stratum (number of inhabitants)	Nº of rabbit farms	% of total
<1500	837	41
1500-5000	612	30
5000-10000	286	14
10000-30000	204	10
>30000	102	5
Total	2041	100

Source: Langreo and Benito, 2010.

*Cogal Cooperative*, which integrates slaughterhouse services and production from 80 members, making headway upstream in the vertical integration process with the running of an insemination centre and an experimental farm (Alimarket, 2015). This lack of integration is similar to that found in Italy (Xiccato and Trocino, 2007).

*Rabbit trading by the producer.* This process is run directly by the producers, who usually have only one slaughterhouse as their customer in the majority of cases. It should be emphasised that the agreements between producers and slaughterhouses are usually verbal, without any kind of contractual registration in writing, according to the experts consulted. The main factor in the breakdown of these agreements is non-payment to the farmer for the animals by the slaughterhouses, a phenomenon on the rise in recent years and which has led to the closure of several farms, said the farmers interviewed. Slaughterhouses do not pay, or pay the farmers more cheaply for the animals due to the reduction in rabbit skin prices, on the one hand, and the lower rabbit meat prices paid by distributors, on the other (Chinarro, 2014).

Prices paid to the producers by slaughterhouses were traditionally based on those set by the meat markets, but the meat market model is currently being questioned as a reference when it comes to setting prices. The main markets of reference for rabbit meat were Bellpuig, the *lonjas* (markets) of Madrid, Silleda, Zaragoza and the *Lonja Ibérica*, although since December 2015 only the markets in Madrid and Moncun (Mercado en Origen Nacional Cunicola) (Asescu, 2015; Agrodigital, 2015) are still up and running. Benchmark prices are currently usually set either by each market, or based on an average of the prices set by these 2 *lonjas*. On the basis of this price and depending on the producer's degree of integration with the slaughterhouse, a certain amount may be discounted. This way, if the farmer buys other inputs from the abattoir, for example feed, medicines or even genetics, the amount deducted is greater. The fewer inputs the producer acquires from the slaughterhouse, the smaller the amount deducted. Nevertheless, the business relation between producer and abattoir is direct and based more on personal relationships than commercial considerations. Discounts in rabbit meat prices applied by the slaughterhouses to the farmers vary, depending on the degree of integration, ranging from 0.03 to 0.20 €/kg, according to information provided by the producers interviewed. Figure 2 shows the average national evolution of prices paid to the producers by slaughterhouses over the last few years. The sale weight of the animals is generally defined by the slaughterhouse, with average rabbit live weight at slaughter in 2012 of 2.190 kg (Pascual *et al.*, 2014). In Spain, the rabbit live weight at slaughter is significantly lower than that of other countries. For example, in France and Italy, the rabbit live weight at slaughtering is 2.5-2.6 kg (Xiccato and Trocino, 2007; Coutelet and Hurand, 2016).

*Average size of industrial rabbit farms in Spain.* The average size of rabbit farms, according to the experts consulted, is defined by the "Number of does/Farm" ratio. Roca (2004) defined Human Work Unit (hereinafter HWU) as the number of animals housed in an environment (farm area, module or premises) that can be handled by one person. Rafel *et al.* (2013) stated that the maximum number that can be managed by a rabbit producer on highly mechanised farms and under certain specific handling options is around 700 to 750 breeding cages. Other references include 800 rabbits per worker, similarly stipulated by the IRTA (2013), or the 700 breeding does per HWU reported by Sevilla and Cuadriello (2013). In short, different experts suggest that the ideal size of a farm, using technologies currently available, would be one that allowed handling of 700 to 800 rabbit does per HWU.

In 2014, the average size of rabbit factory farms in Spain was set at 281 does/farm. Census data needed to calculate the average size of farms in Spain were requested from the General Department of Animal Health, Hygiene and Traceability of the Directorate General of Agricultural Production Health, Ministry of Agriculture, Food and Environment. Figure 3 shows the average size for each autonomous community (region) for 2010, 2012 and 2014 in order to estimate their evolution. Farms in Castile and Leon (670), Navarre (621) and the Basque Country (609) presented the highest figures in 2014. It can be appreciated that facilities have grown in Castile and Leon, the Basque Country, Galicia, Aragon, Catalonia and Asturias. Farms in Navarre, Castile-La Mancha, the Valencian Community and Rioja show variations, indicating ongoing restructuring processes. The remaining regions present a marked stagnation or even a decrease in average size.

The data analysed above show that the average size in Spain is well below the ideal farm size defined by the different experts consulted, recommending the implementation of modernisation and professionalisation plans for the sector, to improve the productivity of Spanish rabbit farms, especially in those regions with smaller farm sizes.

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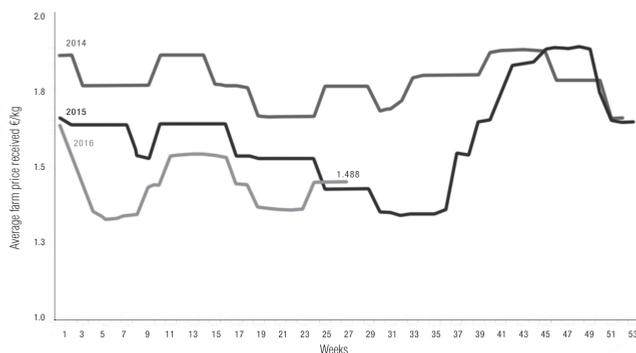


Figure 2: Annual series of prices paid to producers by slaughterhouses in the Spanish market (average national price). Source: MAGRAMA, 2016.

### ***Abattoirs and cutting plants***

The slaughterhouse represents the processing industry, as it takes in live animals and, after slaughter and butchering, leaves them ready for consumption, in several different types of presentation. Slaughterhouses usually integrate the cutting rooms and preparation of the various packaging or presentation options.

*Slaughterhouse involvement phases.* Slaughterhouse intervention begins with collection of the rabbits on the farm and transporting them to the slaughter and cutting facilities. Usually around 80% of farms are located close to the abattoir, within a maximum action radius of 150 km, according to experts interviewed. The logistics of transporting live animals from the farm to slaughter corresponds to the latter, paying the producer per live animal delivered from the farm. The farmer usually performs the task of loading the animals onto the trucks. At the abattoir, the animals are slaughtered and the carcasses quartered, before going on to be prepared depending on the type of presentation or packaging requested by the different customers, as noted in the interviews.

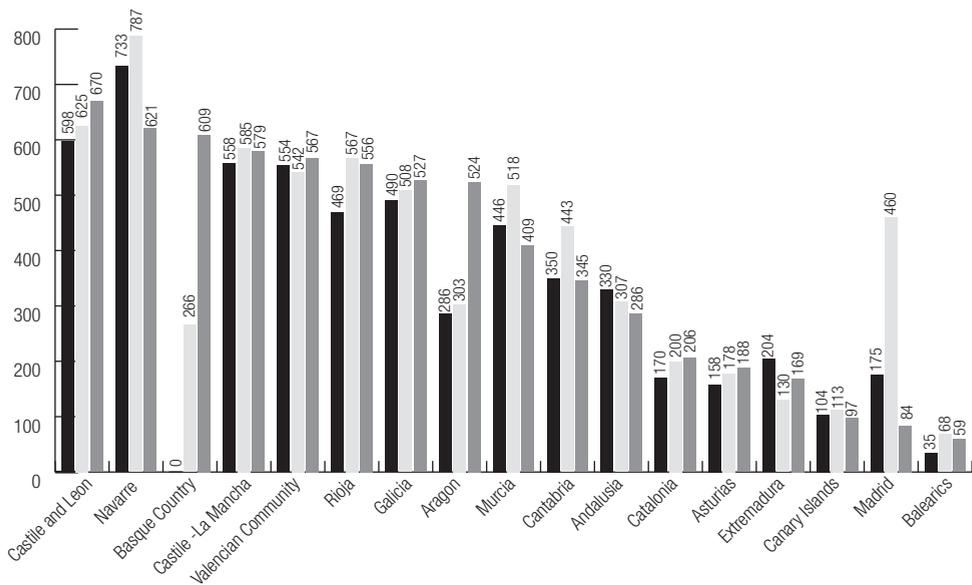
Waste management corresponds to the slaughterhouse, which also handle the skins, either for sale fresh or frozen or to be sold dried, for which there must be drying facilities available. When the market prices are high, skin sales can be an important complement for the slaughterhouse to compensate the low prices paid by distributors. However, if skin prices are low, the slaughterhouse tries to keep up the low prices of sale to distributors, at the cost of buying live rabbits from farmers more cheaply or even at the expense of its own margins (Chinarro, 2014).

The cost of cutting the rabbit is high, mainly because the process is semi-automated. The low degree of automation in slaughterhouses is due to one of the sector's main weaknesses, its small size, and this affects the price of the final product, especially if it is tray-packaged (Langreo and Benito, 2010). In this regard, the machinery industry provides few specific developments for the rabbit industry, as the equipment prices are very high, although there are no technological limitations (Petracci and Cavani, 2013). In consequence, rabbit farmers are obliged to adapt automatic processing procedures from other types of meat.

The meat is stored in cold chambers, from where it is distributed in refrigerated trucks to wholesale facilities, traditional commerce or platforms set up by distribution companies, an activity also managed by the slaughterhouse.

*Marketing of products by the slaughterhouse.* The slaughterhouse is the first point of the rabbit meat value chain where specific marketing activities are detected, mainly in those abattoirs supplying large-scale distribution. Slaughterhouses can therefore provide rabbit meat with commercial attributes, such as the availability of own brands, the definition of a range of market-oriented items, which in some cases include processed products, and the availability and exploitation of different meat distribution channels.

The usual rabbit sale formats are: i) in bulk (packaging type usually aimed at traditional trade or the HORECA channel): whole carcass, whole carcass frozen, half carcass, quartered and cut into pieces; ii) packaged (a type of presentation



**Figure 3:** Breeder does/farm ratio per region. Comparison years 2010 (■), 2012 (▒) and 2014 (■). Source: Prepared by the authors from data supplied by General Department of Animal Health, Hygiene and Traceability of the Directorate General of Agricultural Production Health, Ministry of Agriculture, Food and Environment.

generally intended as a self-service product for mass distribution outlet shelves): whole carcass bagged, half carcass bagged and tray-packaged (whole chopped, half chopped, quarters, shoulders, forequarters, chins, loins or tenderloin and chopped for paella or other rabbit recipes).

The ratio between one presentation and another depends on the type of marketing carried out, although from the point of view of the slaughterhouses consulted, around 80% is traded as carcass and only 20% in different ways. Some slaughterhouses have put forward proposals for prepared rabbit meat dishes and burgers, as shown during the observation process at point of sale. In 2007, 90.9% was traded as carcass (MARM, 2009). This shows a slight, although insufficient, evolution towards transformed products that has occurred during this period (2007-2016) in the sector.

The slaughterhouse distributes customer orders so that it can adjust production to demand, and the number of imbalanced requests is kept to a minimum, in other words, those where only certain parts of the carcass are ordered. These imbalanced orders can give rise to price increases for certain meat presentations, such as trays containing only shoulders or loins. To prevent this, the slaughterhouses, along with their customers, adjust the supply and spread out the different packaging types to avoid making the product more expensive. The most widely requested format is whole rabbit, and specifically whole carcass in bulk. Figures from some abattoirs reveal that around 50% of their output goes in traditional sales and the remaining 50% in large-scale distribution, of which the highest percentage is also in whole rabbit.

The rabbit meat quality requirements on the slaughterhouse side are based on the health records demanded from producers and the assessments of the meat obtained after slaughter and dressing of the animals. Internally, the slaughterhouse performs quality controls in accordance with current health regulations. In addition to complying with the rules and regulations on food processing and marketing, such as European regulations 852/2004, 853/2004, among others, some abattoirs also have voluntary quality assurance system such as the ISO 9001 and Quality Management standards, ISO 22000 on Food Safety Management or the International Food Standard (IFS), to name but a few (COGAL, 2014).

Some slaughterhouses also intervene in quality directly from the production phase, performing audits on their supplier farmers, with whom, in many cases, they already have a long-standing relationship, according to the experts interviewed.

As of this point, the rabbit meat value chain has 2 clearly defined directions, depending on the business strategy channelling the product. On one hand, there are wholesalers who buy directly from the slaughterhouse and sell mainly to traditional trade outlets, such as butchers, poultry shops, market stalls and HORECA channel premises, and on the other, large-scale distribution, in which case there is a prior step between the abattoir and the point of sale of the supermarket or hypermarket, which is the logistic platform, managed by the purchasing centres. Sale prices will vary depending on whether the product is aimed at traditional channels or large-scale distribution (Tragsatec, 2012). Slaughterhouses included in the traditional setup usually get better prices than those included in the modern or large-scale distribution model. This is largely due to two causes: firstly, slaughterhouses focused on mass distribution must adjust their strategies to fit those of their customers, not only in terms of product presentation type but also those referring to the supply of large volumes, tight margins and verticalisation, which even affects input suppliers (Langreo and Benito, 2010). So, these slaughterhouses have a higher degree of automation and volume of animals slaughtered than abattoirs focused on traditional commerce, which translates as lower running costs. In turn, these slaughterhouses can control other phases of the rabbit meat production chain by limiting the number of intermediaries. The lower running costs also mean lower margins, which are offset by the larger sales volumes made to large-scale distribution companies, according to the experts interviewed. The existence of mid- to long-term supply agreements ensures the slaughterhouses a certain volume of sales within a given period, which make up for the demands for increasingly lower prices from their customers. All of the above enables them to manage their production with economies of scale, attempting to apply the lower sales prices demanded by large-scale distribution. The rabbit meat sale prices from the slaughterhouses were, in data from 2010, between 3.697 and 3.845 €/kg for sale to wholesalers according to the traditional setup and around 3.65 to 3.80 €/kg for sales to large-scale distribution (Tragsatec, 2012).

### ***Rabbit meat distribution***

Commercial distribution represents the last link in the rabbit meat value chain, before reaching the final consumer. Distribution makes rabbit meat available to consumers and follows two different routes, the traditional setup and the modern model (Saborá, 2009).

*Wholesaler and traditional trade.* The wholesaler, who buys directly from the slaughterhouse, distributes the rabbit meat to the points of sale designated traditional trade outlets. This setup also includes produce aimed at the HORECA channel, whose suppliers may be either wholesalers or traditional (retail) outlets.

Wholesalers usually buy bulk products, as whole or half-carcasses and quartered. Wholesaler sales are also carried out the same way, with carcasses, half carcasses and quartered, depending on the quantities and features of the order placed. The presence of pre-packaged items is minimal, as traditional commerce usually prepares and cuts up the meat as per consumer demand and at point of sale. Sales by presentation type are usually around 80% in carcass and 20% quartered, as reported by different respondent wholesalers, coinciding with that indicated by slaughterhouses.

Regarding processed products, some wholesalers have a processing and preparation unit, but although poultry meat gives rise to products such as chicken burgers or mixed meats and vegetable skewers, to cite some examples, rabbit meat is generally not subjected to any other processing than that provided by the slaughterhouse and this is how it is distributed to stores.

The requirements the wholesalers demand from the supplier slaughterhouses are compliance with current legislation, with the corresponding health and veterinary records, in addition to qualitative requirements based primarily on visual meat inspections, according to the experts interviewed. These checks determine aspects such as abnormal odour or colouring, malformations, presence of traumatic injuries, bruising and any other serious anomaly or emaciation whose presence qualifies the affected item as unfit for sale.

Wholesalers usually work with the same suppliers, with whom they have long-term purchasing/sales agreements. Rupture of these agreements in their case is mainly due to reasons of payment default by the wholesaler or lack of quality of the products provided by the slaughterhouse, according to the expert interviewees.

Rabbit meat sale prices from wholesalers to trade outlets vary between 4.048 and 4.239 €/kg, as reported by Tragsatec (2012).

In the course of the research, we also located semi-wholesalers, i.e. wholesalers who have their own network of stores, identified by a common corporate image, basically of regional scope. This particular strategy also takes advantage of a very widespread and commonplace practice among wholesalers, consisting of joint sales with other types of meat in addition to rabbit, which helps lower logistic costs and generate a better business capacity (Langreo and Benito, 2010). This way, having their own stores enables them to control the final part of the rabbit meat value chain and reach the end consumer directly, optimising the margins applied, as they purchase larger volumes, working with other types of meat, basically poultry, beef or pork, and have their own logistic setup, which lets them optimise delivery costs and adjust the retail price.

Traditional distribution includes butchers/delis, street markets, marketplaces and traditional shops. These are traditionally neighbourhood premises where dealing directly with the consumer is a major feature of trading. They mainly sell rabbit meat as carcass, which they quarter and dress right there on the counter, following the customers' instructions. The presence of tray-packaged meat is practically zero and the sale of whole bagged carcasses was identified in only a few cases. Nor do they provide processed rabbit meat such as hamburgers or skewers, unlike other meats such as poultry or beef where some of these premises produce processed items and even pre-packed dishes, as reported in the commercial observation phase.

The purchasing power of traditional distribution is low, mainly due to the fact that these tend to be family businesses, with a minimal business structure and whose most widespread legal format is that of the self-employed sole trader. This bolsters the presence of a wholesaler who usually supplies them with other types of meat.

The experts interviewed indicated that sale prices to the consumer in traditional stores can range from 3.99 to 5.60 €/kg, an aspect confirmed through commercial observation at point of sale. Although no premium is charged for quartering and dressing of the whole rabbit, the animal is charged as its total weight, even though certain parts such as the head or liver are ruled out, or else the price may be increased if purchasing only certain parts of the animal, such as shoulder or tenderloin, as reported by the same sources. Moreover, other studies report that consumer sales prices in 2010 ranged between 5.25 and 5.75 €/kg (Tragsatec, 2012).

Few campaigns or specific offers at point of sale to encourage rabbit meat consumption were detected, apart from the campaigns promoted by the Interprofessional Organisation to Promote the Rabbit Sector (INTERCUN, 2014).

*Large-scale distribution.* Large-scale or modern distribution includes supermarket chains, hypermarkets and discount stores. The supply from these premises is generally aimed at the end customer, although there are chains specialising in distribution to the HORECA channel, such as Makro. The market share of rabbit meat consumption in large-scale distribution has grown thanks to the spread of supermarkets, although the growth in hypermarkets and discounters has been slower (Figure 4) (Montero *et al.*, 2015). This is a common trend in perishable foods and responds to the fact that with these type of products, the customer is seeking proximity and personalised attention, something difficult to achieve in a hypermarket or discounter, according to the experts. In fact, most discounter type businesses do not include retail outlets in their premises, as we have seen in the commercial observation process.

The meat supplied at large-scale distribution points of sale comes from its own logistic platforms, which are supplied directly from the abattoirs and distribute the products directly to their own sales outlets on a daily basis. Here, the rabbit is marketed either on the shelves, packaged in bags or pre-packed in different cuts, or on specific counters or butcher's areas on the same premises, where the rabbit is presented in bulk carcass and is quartered and dressed according to consumer tastes. The share of sales by presentation format is on average 64% from the counter and 36% off the shelf. In the latter format, 36% corresponds to whole carcass, 30% to half carcass, 4% to shoulders and the remaining 30% to other presentations, such as pre-packed for paella or in quarters, according to the experts consulted. Precooked and processed rabbit meat-based items are very poorly represented on large-scale distribution shelves. In this sense, the experts interviewed referred to initiatives by some slaughterhouses to promote the sale

of precooked items in the generalist shelves of large-scale distribution, but they had failed to prosper and were withdrawn from sale. In contrast, in the commercial observation process at point of sale we detected precooked products in some large-scale distribution chain stores with specific delicatessen or gourmet sections, produced by companies with a more artisanal approach, supplying dishes such as rabbit confit and roasted or pickled rabbit.

By way of example, Table 4 includes some prices of the different quartering presentations to be found on the shelves of some retail industry companies.

Although in general the meat is not traded under any brand, packaged marketing allows the appearance of trademarks, either those of the large-scale retailer or the slaughterhouse, an aspect which does not constitute any product differentiation in any case. We located only one product in this sector. This is the brown rabbit commonly known as *Monteño*, sold under the "*Monteño*" brand, without indicating whether it is a dark eyed or an albino rabbit.

The health requirements applied to rabbit meat by large-scale retailers are transferred directly to the slaughterhouse and are the most demanding to be found in the production chain. In addition to the requirements set by the legislation per se, they have Food Safety Statements and technical specifications which they apply to their suppliers. Periodically, internal and external auditors conduct inspections of slaughterhouses and evaluate the meat quality qualitatively and quantitatively, taking as reference certain food safety standards such as the IFS. Qualitatively, the general condition of the facilities and the visual quality of the meat are assessed, highlighting, among other things, the presence of cracks or bumps, strange smells or bruising, and specific aspects of the qualitative assessment carried out at other stages of the chain. Quantitatively, the weight is evaluated and analyses carried out to determine the microbial load and check for presence of heavy metals, hormones and medicinal residues.

In-store losses are due to shrinkage, rotation and theft, as reported by the experts consulted, with loss of products provided by suppliers accounting for less than 1%.

Regarding commercial aspects, large-scale distribution has segmented the demand for rabbit meat and generally knows the buying habits of consumers. According to data provided by the experts consulted, the current trend in rabbit meat consumption is stable, something which may appear paradoxical in times of crisis, although they estimate significant annual increases of 9.5% in kilos sold. One of the explanations that may justify this trend is the link between rabbit meat and traditional cuisine, whose resources are within reach of almost all family budgets (Petracci and Cavani, 2013) in addition to the offers, promotions and advertising campaigns encouraging rabbit meat

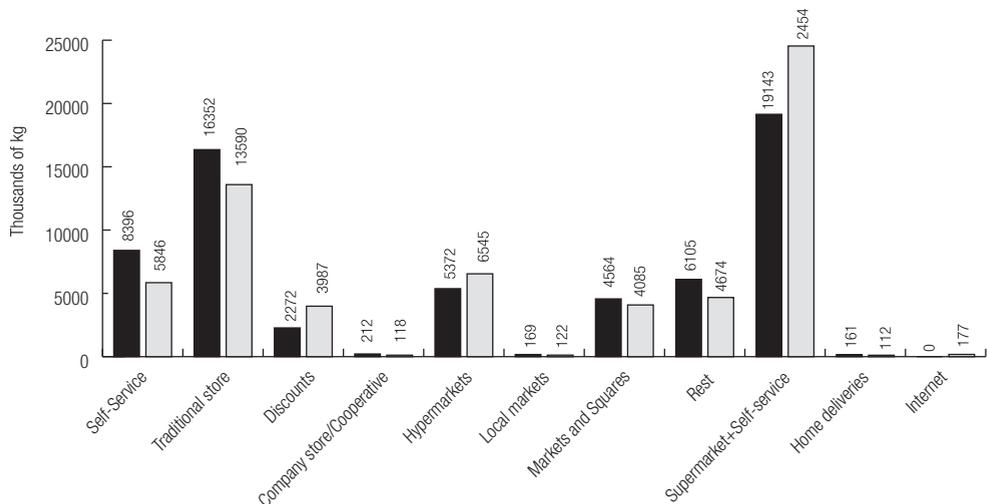


Figure 4: Development of rabbit meat sales, expressed in thousands of kg, according to trader type. Comparison years 2009 (■) and 2013 (▨). Source: Montero *et al.*, 2015.

consumption promoted by INTERCUN. Consumer response to these promotions and campaigns is positive, with all parties involved agreeing on a notable increase in consumption while the campaigns are running. Likewise, and following the strategy of price adjustments followed by large-scale distribution in the face of the current consumer crisis, the annual deflation rate for rabbit meat prices is estimated at around 7%, said the experts consulted.

Compared to other types of meat sold in big retail stores, rabbit meat represents around 5% of the fresh meat sold in areas where rabbit is traditionally consumed and roughly 1.8% in areas of lower consumption, as indicated in the expert interviews.

Future strategies for rabbit meat in the large-scale distribution are in line with those set out in recent years to deal with the current economic and consumer crisis. The predominant approaches consist of lowering prices and reducing or eliminating those items with least rotation, which negatively affects rabbit meat, being a product of low consumption in general, with low turnover, consumption located in certain geographical areas and high prices depending on the type of presentation (Langreo and Benito, 2010).

In the short to medium term, these strategies may lead to the disappearance of rabbit meat from retail chain premises located in areas where the rotation is minimal, for example in the areas of least consumption. In areas of higher consumption where, as mentioned above, rabbit meat accounts for a mere 5% of meat sales in general, the experts consulted said that it is offered in order to provide a full range of meats and as a consumer service, even going so far as to sell it at cost price in some cases.

The scant proportion of rabbit meat sold is compounded by the difficulty presented by processed rabbit meat items, where today's consumer has not accepted the value-added proposals put forward. In this regard, commercial observation at point of sale detected few proposals of the so-called assembly (or bulk) cuisine, which provides added value, such as semi-processed pickled or marinated items, or meat packages combined with products used in home cooking, such as sauces, spices or aromatic herbs.

## CONCLUSIONS

Applying the Food Value Chain concept to the rabbit industry, we can identify the following links: production input suppliers, meat rabbit producers, slaughterhouses and commercial distribution. The latter follows two differentiated

**Table 4:** Examples of prices for various rabbit meat presentations by packaging type and distribution company. Price in €/kg (including VAT) per outlet. March-April 2015.

Outlet	Whole carcass bagged	Whole carcass (tray)	Whole rabbit cuts (tray)	Half rabbit cuts (tray)	Paella mix (tray)	Shoulders (tray)	Cut tenderloin (tray)	Thighs (tray)	Retail sale on premises
Lidl	4.65								
Mas y mas	4.99			(5)					4.99
Dia	3.95		4.20		5.98				
Makro	3.90				6.16				
Consum	4.95 (4.15)			6.25	5.95	14.5	8.95		4.95 (4.15)
Caprabo		4.75			7.30	15.25	13.20		
Condis		4.81		7.28			10.52		
Corte ingles	4.75		6.85	8.99	6.99	13.49			
Eroski	4.40		6.50	6.99		12.20	9.52	12.86	
Mercadona	4.75		6.5 (5)		5.25				4.95 (4.15)
Alcampo	3.95		5.65 (4.45)	5.65		11.75	10.85	9.89	
Carrefour	4.75		5.99	6.98		11.90		9.50	
Simply	4.75			6.95					4.75

Note: Special offer prices in brackets.

strategies: traditional distribution, consisting of wholesale and retail traders, and large-scale distribution, which has logistic platforms that receive the meat and transfer it to their sales outlets. Producers and slaughterhouses are the central lines of the sector, which in the current situation and being upstream in the value chain, are under significant commercial pressure, especially regarding prices, from the distribution side. It is mainly in large-scale distribution that competition for the final consumer is fiercest, mainly based on offering the lowest possible prices. This requires support from the entire sector in order to provide rabbit meat with new features, which go beyond the price variable and give the product greater added value.

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