The goat milk value chain in Northern Portugal: analysis and proposals

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The goat milk value chain in Northern Portugal: analysis and proposals

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Abstract. In Portugal, goat's milk is a commodity valued for processing into dairy products, especially cheese. The milk moves from goat farms to consumers through several processes, implemented by multiple actors, depending on the production system. Value chain approaches can play a significant role in characterizing complex networks and relationships that exist in livestock production systems. This paper aims to analyse the goat milk value chain in the Portuguese northern region focused on the impact of the development and operation of value chains of the goat breeder. Technical and economic data were collected from goat farms, dairy plants and other actors to allow the analysis of margins and profits within the chain, in order to determine who benefits from participating in the chain and which actors could benefit from increased support or organisation. The added-value of this approach is assessed on intra and inter-actors. The value chain for the actors in each level suggests that costs and margins are shared unequally: goat farmers incur high costs and have low profits while hypermarkets have low costs and high profits. In order to survive and prosper, all the actors have to create awareness to see beyond their own involvement in the milk goat value chain.

Keywords. Goat cheese – Costs – Margins – Profits – Northern of Portugal.

La chaine de valeur du lait de chèvre dans le nord du Portugal : analyse et propositions

Résumé. *Au Portugal, le lait de chèvre est une denrée précieuse pour la transformation en produits laitiers, en particulier le fromage. Le lait se déplace d'exploitations caprines aux consommateurs par le biais de divers processus, mises en œuvre par plusieurs acteurs, en fonction du système de production. Les approches de la chaîne de valeur peuvent jouer un rôle important dans la caractérisation des réseaux et des relations complexes qui existent dans les systèmes d'élevage. Ce document vise à analyser la chaîne de valeur du lait de chèvre dans la région nord portugaise axé sur l'impact du développement et du fonctionnement des chaînes de valeur dans l'éleveur caprin. Des données techniques et économiques ont été prélevés dans les exploitations caprines, dans les fromageries et sur d'autres acteurs, afin de permettre l'analyse des marges et des bénéfices au sein de la chaîne, en permettant de déterminer qui bénéficie de la participation dans la chaîne et quels sont les acteurs pourraient bénéficier d'un soutien ou d'une organisation accrue. Selon de cette approche, la valeur ajoutée est évaluée intra et inter-acteurs. La chaîne de valeur pour les acteurs dans chaque niveau suggère que les coûts et les marges sont partagés inégalement: les éleveurs caprins supportent des coûts élevés et ont de faibles profits tandis que les hypermarchés ont de faibles coûts et des profits élevés. Pour survivre et prospérer, tous les acteurs doivent prendre conscience de voir au-delà de leur propre implication dans la chaîne de valeur du lait de chèvre.*

Mots-clés. *Fromage de chèvre – Coûts – Marges – Profits – Nord du Portugal.*

I – Introduction

In 2014, in the Northern region of Portugal, 1.5 million litres of goat milk were transformed into cheese, 51% of which in two dairy plants. Part of the cheese produced is of a quality brand related to its origin which allows establishing a connection between the product (cheese), the practices and the territory and thus segment the market. It is the "Queijo de Cabra Transmontano - DOP" ("Transmontano Goat Cheese – PDO"), of which the brand is managed by the goat milk producers' cooperative "Cooperativa de Produtores de Leite de Cabra Serrana" (LEICRAS).

Goat products are among those whose growth in the national dairy market is higher but an even higher growth is halted by the lack of raw materials even with an increase in the price (ANIL, 2014).

The goat milk sector involves several actors with specific interconnected roles, thus contributing to the production of milk and its availability to the final consumer, usually transformed into cheese. When the aim is to boost the sector, it is believed that the analysis of the value chain can be an important instrument for that purpose. It allows identifying and characterizing the actors involved and determining the respective market margins, thus ensuring a diagnosis with regard to its economic feasibility.

This article aims to analyse the context in which the farmers develop their activity as participants in the value chain and study the profit distribution among the actors involved.

II – Material and methods

In order to determine the volume of goat milk transformed in the Northern region of Portugal, the databases of two bodies from the Portuguese Agriculture and Sea Ministry (General Directorate of Food and Veterinary Science; and General Directorate of Agriculture and Fishing of the North) containing a record of dairy plants licensed were used. All the industrial dairy plants (n=5) as well as the main artisanal dairy plant (n=4) were inquired.

Two value chains were analysed in parallel: the first related to the transformation into cheese with the Protected Designation of Origin (PDO) "Queijo de Cabra Transmontano" and the second related to the production and transformation of milk without a quality brand associated to the cheese (non-POD).

The technical and economic data were collected from three caprine farms (1 PDO and 2 non-PDO) which are representatives of each system. The sale price of the milk was recorded and the unit cost of its production was calculated.

The technical and economic data of the two corresponding dairy plants (PDO and non-PDO) were also analysed and the transformation costs determined. The average price paid for the milk and the cheese sale price were recorded.

The cheese sale price from the actors downstream of the transformation, traditional commerce (PDO) and hypermarkets (non-PDO) was collected at the place of sale. The costs related to the sale were deducted through information given by agents associated to the sector.

In order to analyse the financial situation of a actor in comparison to the other actors' situation in the chain value, the costs, results, profits and margins were allocated among the actors of the two value chains previously taken into account. The trade margins were also calculated in accordance to the M4P (2008).

III – Results and discussion

The milk transformed for the production of Queijo de Cabra Transmontano (PDO) represented about 10% of the milk transformed in the northern region. PDO cheese is mainly sold to intermediaries (51%) and to the traditional commerce (26%). There is also the direct sale to the consumer and the sale to hypermarkets, which represent 13% and 6% of the cheese, respectively. With regard to the industrial dairy plants, 98% of the cheese produced is sent to hypermarkets.

In both value chains, the agreements between farmers and transforming bodies are informal, with no contractual relationship. On the opposite, the commercial relationship established between the private dairy plant and the hypermarkets is formalised by means of a supply contract with strict clauses. For example: the orders are placed every week and the dairy plant must meet the delivery conditions; the expenses related to promotion and shelf replenishment are the responsibility of the dairy plant; if the cheese exhibited in the hypermarket deteriorates, the loss is not incurred by the acquirer (the hypermarket) but by the dairy plant.

The unit cost of milk production at farm A exceeds the sale price (Table 1). This is due to the labour cost (labour opportunity costs) and social contributions, related to the low volume of milk produced. The priority given to the suckling of kids (that can also be certified with the "Cabrito Transmontano" PDO) and the lack of distribution of concentrate to the goats justify the low milk production. The economic feasibility of this kind of extensive farms is ensured by the awards and subsidies that, in similar cases, represent more than 50% of the gross product (Pacheco *et al*., 2008).

Table 1. Brief characterization of the caprine farms analysed

	PDO	Non-PDO	
	A†	B††	C†††
Basic feed	Grazing	*Zero grazing*	Grazing
Labour	Family only	Family only	Part-time employee
Goats (nº)	90	110	85
Milk sold (l)	5 476	68 640	42 181
Other activities	–	–	Plantations
Milk cost (% of the sale price)	> 100	> 100	74

† 2014 Data; †† 2013 Data; ††† 2012 Data.

Both farms (B and C) related to the private dairy plant (non-PDO) show very different food strategies and levels of expertise. Milk production costs are significantly different, and in the best of cases (C), it represents 74% of the sale price. In both cases, the most significant cost is the one of the concentrates. The milk cost of farm B is explained by the high value of amortisations and the low number of caprines (well below what was expected), and does not allow to monetize the investments made or the labour available. There is also the situation of the high quantity of concentrate used and the increase of its excessive market cost.

In the PDO value chain, it is the farmers who incur higher costs and most of the profits go to the dairy plant (Fig. 1). In the other value chain, most costs are incurred by the dairy plant (which is being restructured), with the overwhelming profit margin going to the hypermarkets (Fig. 2). It should be noted that the good economic results obtained by LEICRAS are largely explained by its management efficiency: the difference in the added unit cost to the non-PDO dairy plant is of 128%.

Despite the positive results of LEICRAS, the production of Queijo de Cabra Transmontano – PDO is seriously threatened. There has been a continuous reduction of the volume of milk collected since 2006 being that it is down to half in 2014.

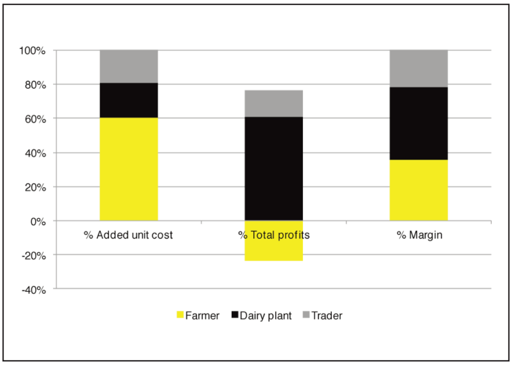

Fig. 1. Value chain margins, per actor, in percentage (PDO).

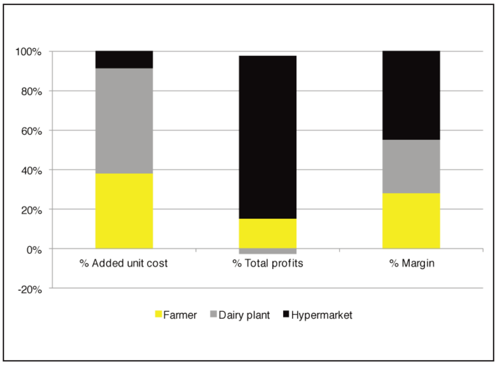

Fig. 2. Value chain margins, per actor, in percentage (non-PDO). Data from farm C.

The increase in productivity may result from technological improvements as well as from a better use of the resources available (Rebelo, 2014). To this end, the technical and economic support to the caprine farms is essential, and indicators that allow the diagnosis and the comparative assessment of its operation and its results can be used (Toussaint *et al*., 2009).

There must be cooperation and the creation of synergies between the transforming companies, aiming at the search for collective and innovating solutions for a better access and capacity to intervene in the markets. The interconnection between the farmers and the industry is also essential for the strengthening of the bonds and for the coherence of payment criteria that satisfy both interests.

IV – Conclusions

The obtained data shows that the costs and the margins associated to the value chains observed are not shared equally. Farmers are among the actors that have higher costs but never among those who have the best profits. The adjustment between the offer and the demand of milk of the dairy plants is an essential aspect for the sustainability of the sector. To survive and prosper, all actors must be aware of their own commitment and that of the remaining parties in the value chain of the goat milk.

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