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Goat and sheep products value chain analysis in Lebanon

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Abstract. The small ruminant's production in Lebanon is facing many difficulties related to the grazing potential, the feeding cost, the labor fees, the know-how and the marketing of the products. This value chain of small ruminants could not be saved from extinction, except if it is capable of holding its economic and social impact. The goat and sheep value chain analysis is the simple reasoning behind this study and it is absolutely necessary to protect these traditional products. The zootechnic and economic analysis of the milk and meat is conducted at all levels of the value chain starting by the input suppliers, the breeders, the products collectors, the products processors and products commercialization. The main breeds used are the local population of goats called "baladi" and the Awassi sheep. They are mainly raised in extensive systems with different levels of concentrate supplementations. The minor cases of intensive production raise mainly the imported breeds of goats (damasquine, saneen, alpine) and the Awassi sheep. Whereas in the north of Lebanon Mountains the goat meat is more usually consumed, in other areas sheep meat consumption is dominant. The dairy products are mainly processed at the artisanal level and the SME's occupy a special market chain. The results of this study will help to get a better knowledge of the value chain weaknesses, and it will serve as a guide for the sector improvement.

Keywords. Small Ruminants – Milk – Meat – Lebanon.

Analyse de la chaîne de production des caprins et des ovins au Liban

Résumé. La production du petit ruminant au Liban, est confrontée à de nombreuses difficultés liées au potentiel de pâturage, le coût de l'alimentation, les frais de main-d'œuvre, le savoir-faire et la commercialisation des produits. Cette filière de petits ruminants ne peut être sauvée de l'extinction, sauf si elle est capable de maintenir son impact économique et social. L'analyse des filières caprine et ovine est le simple raisonnement derrière cette étude et il est absolument nécessaire de protéger ces produits traditionnels. L'analyse zootechnique et économique de la production du lait et de la viande, est menée à tous les niveaux de la filière en commençant par les fournisseurs d'intrants, les éleveurs, les collecteurs des produits, les processeurs des produits et les circuits de commercialisation. Les principales races utilisées sont: la population locale de chèvres appelées «baladi» et le mouton Awassi. Ils sont principalement élevés dans des systèmes extensifs avec différents niveaux de suppléments de concentré. Les cas mineurs de production intensive, possèdent principalement en élevage les races importées de chèvres (Damasquine, Saneen, Alpine) et le mouton Awassi. L'utilisation des produits varie entre les zones où dans les montagnes du nord du Liban, la viande de chèvre est plus consommée que les autres régions où la consommation de viande ovine est dominante. Les produits laitiers sont principalement traités au niveau artisanal et de la PME et occupent une chaîne particulière du marché. Les résultats de cette étude aideront à avoir une meilleure connaissance des faiblesses de la filière, et il servira de guide pour l'amélioration du secteur.

Mots-clés. Petits ruminants – Lait – Viande – Liban.

I – Introduction

Small ruminant's production contributes to the livelihoods of a large number of farmers and accounts for 28-58% of agricultural output in the Middle East (Iniguez, 2005). In Lebanon it is mainly conducted by small farmers in marginal lands, where milk constitute an important source of income (Hosri and El khoury, 2004). Over the years, however, their economic importance has declined compared with other domesticated animal species because of increased competitiveness of more profitable activities (De Rancourt *et al.*, 2006; NASS, 2006).

Despite the important relative size of the small ruminant's flocks in Lebanon (330.000 head of sheep and 450.000 head of goats; FAO, 2010), this sector is facing many difficulties. In a survey conducted in the North of Lebanon, Hosri and Nehme (2006) indicated a low productivity in sheep and goats and distinguished, according to the use of rangelands and cereal residues, five systems of production in the studied area. Productivity is limited by the traditionally methods of production (Abi Saab and Sleiman, 1995), feed availability and grazing systems which offer only limited potential for intensification and livestock production is becoming increasingly agricultural pastures based (Kharrat and Bocquier, 2010).

Hamadeh *et al.*, (1996) concluded that sheep and goat provided an important source of income to farmers and a detailed bio-economic analysis is imperative to determine future trends of the small ruminant sector in Lebanon.

This value chain of small ruminants could not be saved from extinction, except if it is capable of holding its economic and social impact particularly in sensitive environments with complex ecological balances. Upon Legesse *et al.*(2008), in order to shift sheep and goat production from subsistence to a more commercial outlook, it is important to understand aspects of market and marketing. The goat and sheep value chain analysis is the simple reasoning behind this study and it is absolutely necessary to protect these traditional products.

II – Material and methods

The study was conducted in 2 areas of North and Mount Lebanon (coastal area and mountain area) and 1 area in the Bekaa valley representing the Lebanese production systems defined by Hosri and Nehme (2006).

Survey tools, focus group discussions and key informants interview with producers and traders were held using a checklist on production, marketing and consumption of sheep and goats products. Field visits and secondary data were used for sampling the study sites and households. A total of 50 households owning flocks of at least ten breeding females were randomly selected for survey. A structured questionnaire focused on the main aspects of small ruminant's production, husbandry practices, processing, marketing, consumption and products perception was prepared and the value chain actors were interviewed. For the data entry and descriptive statistics, Excel was used.

III – Results and discussion

1. Value chain mapping

The value chain of the sheep and goat products in Lebanon is relatively simple. As shown in Fig. 1, it includes five main stakeholders groups:

- Input suppliers
- Breeders

- Products collectors
- Products processors
- Marketing services

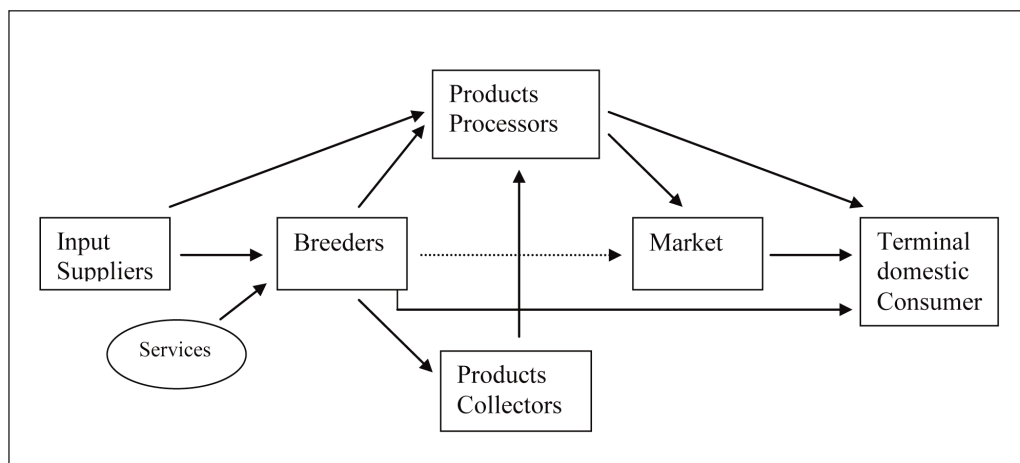


Fig. 1. Goat and Sheep value chain in Lebanon.

2. Input suppliers

Despite the extensive production system of sheep and goats and the pasture feed basing of around 90% of the farms, the main input suppliers are specialized in the feed commercialization because they serve other value chains as the bovine and the poultry sectors. The number of suppliers specialized on small ruminants equipments is very limited and due to the lack of demand, the items are not all available in stock. Veterinary products are available on the market and depend from the large ruminants.

3. Breeders

As mentioned in the figure 2, around 92% of goat breeders raise the local population of goats called “baladi” and 100% of sheep farmers raise the Awassi breed. They are mainly raised in extensive systems with different levels of concentrate supplementations. The figure three shows that in 41% of the farms, supplemental feeds only cover 10% of the total annual dry matter intake of the animals. It is mainly applied during critical periods (cold season). However, only in 9% of the farms, supplemental feeds cover more than 50% of the annual feed intake (Fig. 3). The minor cases of intensive production raise mainly the imported breeds of goats (damasquine, saneen, alpine) and the Awassi sheep. In other words, all the production systems raise the Awassi sheep in Lebanon, however the goat breed is differentiated between the extensive and the intensive systems.

4. Products collector

The main products issued from the sheep and goat sector in Lebanon are milk and meat. Table 1 shows the performances of the surveyed farms. The local goat population raised in the extensive systems has a mix production of milk (145 l/year) and meat (0.7 kids slaughtered / year) with a dominance of meat productivity due to the consumption of around 20% of the milk by the sucking kids

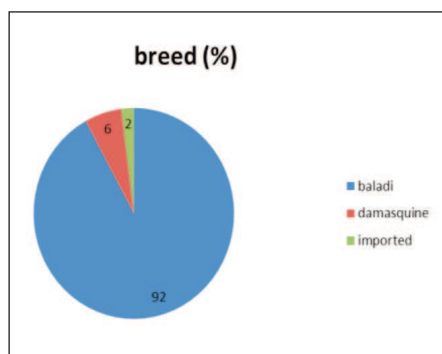


Fig. 2. Breeds of goats in Lebanon (%).

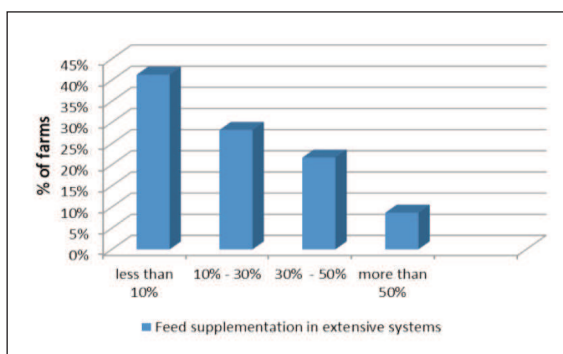


Fig. 3. Concentrate supplementation level in extensive systems.

for a long period. The intensive systems showed a dominance of goat milk production (423 l/year) due to the milk oriented breeds used in the farms. The Awassi sheep is also a mix production breed with a dominance of meat production (1.2 slaughtered lambs / year). The wool, only issued from Awassi sheep (6.2 kg/head/year), is not valorized by the majority of farmers.

Table 1. Small ruminant performance by system in Lebanon

Performance	Extensive		Intensive	
	Goat	Sheep	Goat	Sheep
Number of farms	31	14	3	2
Flock size	456	345	67	172
Milk yield [†] (l / head/ year)	145	256	423	335
Meat yield ^{††} (number of kids/lambs slaughtered / dam/ year)	0.7	1.2	1.35	1.2
On farm milk processing and direct milk commercialization (farm)	23	11	1	–
Direct meat commercialization (farm)	17	8	–	–

[†] The period of milk production is counted 70 days after kidding.

^{††} Number of kids/lambs slaughtered at the average of 50 kg after deducing the kids designate for the reproduction.

Products are collected by three different ways that characterize this value-chaine:

- Direct access farmers – consumers.
- Direct access farmers – processors.
- Collectors and intermediars that collect the products.

The majority of extensive producers (76%) prefer to transform the milk to a traditional local cheeses and to sell the dairy product directly to the clients. 56% of the extensive producers sell their meat products in their own butchery directly to the clients. In this cases, transactions are made on individual basis and the relationship with the clients is built over the years and based on the one to one transmission of the product image and trust.

Intensive producers have direct access to the dairy processors and slaughter houses to sell the products. Terminal traders and processors are better informed about demand and prices and fix prices, thus producers are often price takers.

In the first case of the extensive system, the products are more valorized than in the intensive system which is lead to cover the low productivity and to improve the farmer income. This is realistic in the extensive system where there are not any packaging, distribution or other marketing investments to do. Only the image and trust are enough to attract clients from so far. The intensive farmers can't work on the same conditions of marketing because it needs a big investments and the processing is considered as another business. They prefer to sold they raw material upon the market conditions. By this way every system ensure its own economic sustainability.

Collectors or rural assemblers buy milk and animals at farm gates and they are very active in the rural areas. This case is described by Kocho *et al.* (2011) where the rural sheep and goat markets lack animal holding and measurement facilities and marketing made without price information.

5. Products marketing

The products marketing and usage varies between the areas. In the mountains of the north of Lebanon, the goat meat is more consumed than while in the other areas where the sheep meat consumption is dominant. The goat kids and the sheep lambs are slaughtered at the mature age of around one year for a weight varying between 40 and 55 kg.

The dairy products are mainly processed at the artisanal level and the SME's. It occupies a special niche market located primarily in local markets with a minimum quantity sold in supermarkets and hypermarkets. Much kind of the small ruminant cheeses exist only periodically on the market which pushed farmers and processors to produce artisanal cheeses with long shelf life. This is the case of "Darfiyeh" cheese described by Hosri and El Khoury (2004) almost absent in the points of sales is consumable throughout the year.

Processing and marketing of dairy products are made by farmers themselves with a lack of advertising and publicity. Farmers are trying to add value to the products by accessing the markets out of seasons.

IV – Conclusions

This study was conducted in order to analyze the goat and sheep value chain in Lebanon. The results of the present work provide an overview of the stakeholders acting in the sheep and goats sector and how they interact between each other's.

A value chain intervention along possible actors, coordinated efforts of all concerned stakeholders could alleviate the current market barriers and empower smallholder producers to participate in formal markets. Establishing marketing groups or cooperatives and creating efficient marketing systems could strengthen their capacity to supply their animals directly to consumers in the existing or emerging incentive niche markets. This could help smallholder farmers overcome the marketing constraints and improve their income and livelihood through market-oriented commercialization of subsistence smallholder production practices. It is highly important to mention that, solving the seasonality problem of the products availability has a vital role in the process of rural development.

The results of this study will help to get a better knowledge of the value chain weaknesses, and it will serve as a guide for the sector improvement.

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