The goat meat sector in the mountain region: elements of its development and analysis of its value chain

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Abstract. The aim of this study is to determine the different various actors in the goat meat value chain in the mountainous region of Tizi-Ouzou. The study of fifteen farms goats from a prior survey of 80 farms goats, showed that these farms are still conducted in extensive. The goat breeding has evolved and passed from self-consumption function to a production function for the market. Young goats are the most sold for their tender meat. The marketing of goat meat goes through few intermediaries (actors) that structure the market. Restaurants are a new segment that integrates the value chain and ensures a better value of goat meat. The price of goat meat is hot on the heels of sheep meat. Its fluctuation follows the moments of strong demands like the Aid-Al-adha. The demand for goat meat continues to grow. Because of its dietary characteristics, goat meat is beginning to interest a growing consumer segment. For that purpose, a better knowledge of the value chain of this meat will make it possible to target the opportunities for a better structuring of the market and its development.

Keys words: goat meat, value chain, Market, development, Tizi-Ouzou

La filière viande caprine en région de montagne : éléments de son développement et analyse de sa chaine de valeur.

Résumé. *L'objectif de ce travail est de déterminer les différents acteurs de la chaine de valeur de la viande caprine dans la région montagneuse de Tizi-Ouzou. Le suivi d'une quinzaine d'élevages caprins, issus d'une enquête préalable sur 80 élevages caprins, a montré que ces élevages sont toujours menés en extensif. L'élevage caprin a évolué, il est passé d'une fonction d'auto-consommation à une fonction de production destinée au marché. Ce sont les chevreaux et chevrettes qui sont les plus vendus pour leur tendre viande. La commercialisation de la viande caprine passe par peu d'intermédiaires (acteurs) qui structurent le marché. Les restaurants constituent un nouveau segment qui intègre la chaine de valeur et qui permet d'assurer une meilleure valorisation de la viande caprine. Le prix de la viande caprine vient talonner celui de la viande ovine. Sa fluctuation suit les moments de fortes demandes comme l'Aid-Al-adha. La demande de la viande caprine ne cesse de croitre. Du fait de ses caractéristiques diététiques, la viande caprine commence à intéresser un segment de consommateur de plus en plus élargi. A cet effet, une meilleure connaissance de la chaine de valeur de cette viande permettra de cibler les opportunités pour une meilleure structuration du marché et son développement.*

Mots clés : *viande caprine, chaine de valeur, Marché, développement, Tizi-Ouzou*

I - Introduction

In mountainous areas, goat husbandry is a widespread activity. The agro-ecological environment, for goat conducted an extensive, is optimal support for the exploitation of pastoral resources. These farms are conducted with low expenses (Dubeuf, 2011). Meat and milk are significant food sources for mountain people.

In Algeria, as in parts of North Africa and the Sahel, breeding of small animals, like goat, contribute to the improvement of food and economic security of mountain households (Alary et al., 2011).

In 2015, goat meat production reached a quantity of 19,115 tons, it represents only a small percentage (12%) compared to beef production (155 037 tons) (FAOSTAT 2016). Goat husbandry has seen its function evolve, from a self-consumption function with very little sales to a production function where the vast majority of the product is destined for the market (Mouhous, 2015).

In recent years, there has been a change in consumer behavior towards goat meat. Because of better dietary knowledge (very low in cholesterol) and organoleptic of this meat, consumption of this last knows an increase in segments of consumers often well informed on the marketing of goat meat.

In mountainous region Tizi-Ouzou, an extensive goat husbandry is very present with mixed production (milk and meat) (Kadi et al., 2013, Mouhous et al., 2017). Currently, a mutation in the production of goat meat farming is geared towards adapting their products to consumers' requirements, including the production of chevon meat (Mouhous et al., 2016).

The aim of this work is to give an overview on the different elements of the value chain of goat meat in the Tizi-Ouzou area. Our starting hypothesis is that the lack of development of other actors in the value chain and the weakness of advertising around the consumption of goat meat are slowing growth in consumer demand.

II - Materials and methods

Located in north of Algeria, study area (District of Tizi-Ouzou) is distributed over an area of 2976 km² of which 50% or greater slope in 25% (DPAT, 2010) (http://wilaya-tiziouzou.dz/). The numbers of goats reached 57 305 (17% of the local total number of ruminants) (DSA 2014).

From a preliminary study of 80 goat's farms, we have chosen 16 farms to conduct a follow-up of one year. Investigators passages were made once or twice a month. The questionnaire headings were related to production performance and marketing channel. In this work, we focus only on different elements of the value chain of goat meat.

Surveys have also targeted another value chain actors such as resellers (livestock dealer and, representative agent), butchers, restaurants and consumers.

III- Results and discussion

1. Characterization of goat farming systems

In mountainous areas, goat farming is conducted in extensive. The use of the grasslands is daily and throughout the year. Complementation is an innovation in these systems and, in a large majority of farms, goats receive on average 500 g / day / head throughout the year. Those results agree with those reported by Kadi et al. (2016). More than half of the farms (57%) have a size ranging from 30 to 100 head, and have goats from crossed populations. These breeds are derived from crosses between Saanen, Alpine, Poitevine and the local breeds.

The farms have all followed a mixed production (milk and meat) but at different output levels depending on the amount of milk produced, as already reported Kadi et al (2013).There are three categories: high production, medium production and low production.

On profitability, goat husbandry generate a gross value added per productive goat (Table 1). This Gross value added (GVA) concerns only the meat product.

Table 1. Comparison of profitability of farms for goat meat

	low production (189 l/goat)	medium production (327 l/goat)	high production (457 l/goat)
Number of goats	20	10	33
Total gross product (DA)	403 857	425 135	1 288 813
of which gross product- meat (DA)	282 000	264 333	116 875
Gross value added (GVA)/goat (DA)	18 330	40 061	37 472

2. The different actors in the goat meat value chain in the Tizi-Ouzou region.

a. Breeder

As central element of the value chain, the breeder comes upstream from the goat meat sector. A large majority of breeders-fatteners (90%) and only 10% of breeders. Depending on the orientation of the production, the breeders act on the flows of the different types of animals by selling the animals reformed or which do not have a productive interest. The sale includes all animals. In the simple circuit system it is the farmer who takes his animals to the market by himself or by renting means of transport.

Breeders of the strong milk production strategy sell more chevons. They keep males and females for breeding and milk production. The other two strategies (low and medium production) these farmers sell more reproductive animals (male and female) as small (chevons).

b. Livestock market

Place of business transaction, the market is the space where the animals selling price is formed. The marketing of live animals is not very developed in the Tizi-Ouzou region. There are four major livestock markets in the study area, almost distributed at the cardinal points. That of the region of Oued Aissi is the most important. But in every Daira (sub-district), there is a small local market.

Livestock dealers, who are often breeders, and some big breeders are forced to attend other livestock markets in the neighboring Districts.

c. livestock dealer and representative agent

The organization of the goat meat value chain does not present a modern and segmented structure. There are very few types of actors involved in marketing live animals. We count the livestock dealers and the representative agents. Both are also livestock dealers-breeders and agent-breeders. The livestock dealers have a significant financial windfall that allows them to make transactions at any time. They are a principals players in the formation of prices of animals on the market. With the information asymmetry that characterizes the market, livestock dealers hold a lot of key information about supply and demand. This information represents a lever that allows them to influence prices and therefore increase their profit margins.

There are not many representative-agents on the market. Their funds are not as important as those of the livestock dealers. Sometimes they do not allow them to perform multiple transactions. To this end, their behavior towards breeders and the market have some peculiarities regarding the sale of animals. Formulas exist for the marketing of these animals: i) the first option involves a representative-agent handling the transaction. The agent tries to sell the animal at the best price on the market, in return he receives a commission; (ii) the sale is at the farm level. The transaction is done either by the breeder himself or by a representative-agent.

d. Slaughterhouses

The slaughterhouse is an important intermediate segment of the goat meat value chain, as it creates added value by ensuring carcasses that meet health and commercial standards. The slaughterhouse also carries out hygiene controls, the veterinarian who inspected the carcasses and allows sales to consumers. The study area has 14 slaughterhouses (6 private *VS* 8 public) distributed on different sub-Districts. They all have a veterinarian (DSA, 2018). For the year 2018, according to the DSA, the slaughter involved a total of 6234 goats (15% of the total population of the District of Tizi-Ouzou) which produced a total weight of 1251.8 quintals of meat. However, illegal slaughter still exists but with a low frequency. Escaping to hygiene control, produced meat has no health guarantee for human consumption.

e. Butchers

The butcher is another link in the value chain which takes its share of the margin by selling goat meat ready for consumption. It's not all butchers that sell goat meat. In addition to beef and sheep, there are some butchers who specialize in goat meat. These butchers are supplied by the market (livestock dealers, breeders) or directly from breeders on their farms (Fig. 1). Often, because of low sales of goat meat, butchers obtain their supplies from their suppliers. Indeed, the sale of this meat concerns a segment of society.

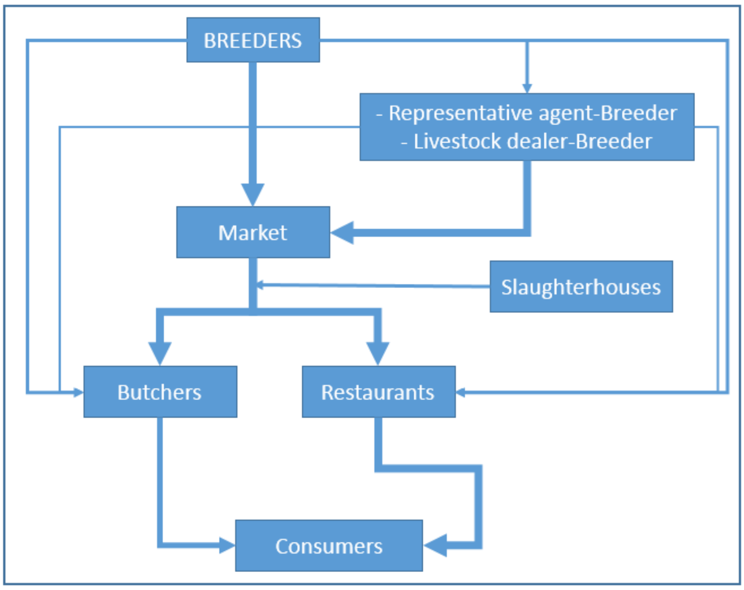

Fig. 1. Value chain of goat meat in the area of Tizi-Ouzou

f. Restaurants

In our case study, the restaurant represents a link in the organization of the goat meat value chain. An additional value is added to goat meat. Goat meat currently come in big cities and the restoration (Sahraoui et al., 2016). The restaurant is an indispensable place for the consumption of goat meat. The reason is that in recent decades, and with the improvement of living standards, people consume more beef than sheep or goats. For this purpose, few restaurants offer dishes based on goat meat. Those who do it give it a festive character intended for a targeted clientele. In the Algerian steppe, Hadbaoui and Senoussi (2016) shows that the restaurant is not a segment of the value chain for sheep meat. In others, in these restaurants, we eat goat meat to celebrate an event. The restaurants surveyed offer goat meat once or twice a week.

g. Consumers

In the study area, there are two types of consumers; a first segment that consumes goat meat, controlled or not because of its dietary value (contains very little cholesterol) as signaled by Magruda and Bressan (2011). They are regular consumers. A second segment that consumes this meat often uncontrolled and irregularly, because of its affordable price compared to that of sheep meat, during religious events. Goat breeders are also consumers of goat meat for its abundance.

On the other hand, the bad odour felt in live goats would be one of the limiting factors in the consumption of goat meat by a large part of the population in the study area.

3. The market for goat meat in the Tizi-Ouzou region

Like other ruminants, goats are sold in two forms; either in carcasses or on feet. The market is the place of sale of goats on feet, there is no sale of goat carcasses on the livestock market.

a. The marketing of goat meat

The butchers are the place of commercialization of goat meat. The carcasses of chevons and, to a lesser extent, male goats are the most popular. The most appreciate are leg of and steak. The consumer often looks for meat yield and tenderness. However, it is rare to find a group of regular consumers who go directly to a breeder for the purchase of goat meat. The breeder deals with uncontrolled slaughter and cutting the carcass. While the quality of the meat is related to the wholesomeness and being free of pathogens and without residues (Casey and Webb, 2010). As a result, these consumers save on the market.

b. The evolution of the price of goat meat

The sale of animals is carried out throughout the year. Animals for sale are animals fattened for slaughter, reformed and animals that are redundant in the herd.

In addition, low and medium milk production groups have a strong sale of adult males (Table 2). The sale is concentrated during certain periods of high demand as the sacrificial feast. By cons, the sale of young (female and male goat kids) does not exceed 10% of sales. These small and are kept high for the market. While for high milk producers, sales are concentrated on male goat kids (77%) and female goat kids (15%). It's the adults who are kept.

Table 2. Distribution of sales of animal goats based on milk production strategies

Production modalities	Total sales	Sale male goat (%)	Sale goats (%)	Sale female goat kids (%)	Sale chevons (%)
low production (189 l/goat)	42	71	17	7	5
medium production (327 l/goat)	37	76	8	8	8
high production (457 l/goat)	107	4	5	15	77

In addition, the prices of animals sold vary with the type and weight of the animal. In the farms followed, the average price of male goat (usually for sacrifice) is 35 000 DA. A price variation is signalled. It is related to the weight of the animals. It is linked to the weight of animals. For example, an average male goat of 20 kg is estimated on the market at 15 000 DA. While it can be sold at 45,000 DA with an average weight slightly exceeding 35 kg. The little ones are sold at lower prices. According to their age of 1 to 4 months, male and female goat kids are sold on average at 6 500 DA, with a variation that can range from 4 500 to 9 000 DA / head. According to these prices the average weight varies between 8 and 13 kg. The selling price of goat meat at the butchers vary between 1000 and 1500 DA/kg.

IV - Conclusion

The goat meat value chain is built around a reduced number of actors. Today, valorization of this meat is based on a dietetic design that channels a segment of consumers increasingly important. To this end, goat husbandry can help to cover the meat demand of the population in a substantial way. All the more these farms are profitable, they present a consistent added value.

The goat meat value chain requires an improvement of its chain links for a better valorization of goat meat. For example, as upstream, the creation of breed farms would allow carcasses according to consumer demand. Downstream, the development of advertising and the presence of goat meat in the shelves of outlets would also popularize this meat and capture a larger segment of consumers.

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