



The Overall Situation of the Livestock and Evaluation of the Quantity of Beef Production in Batna City (Algeria)

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ABSTRACT

Background: This study aims to determine the evolution of beef production during the last five years (2019-2023) in Batna city (Algeria).

Methods: For the realization of this work we carried out an investigation at the municipal slaughterhouse of the city. During this investigation, we also took slaughter data. These include the weight of the carcasses and the classification of the slaughterhouse according to the categories of animals slaughtered. Moreover, a study was conducted to gather data from the Directorate of Agricultural Services (DSA) and the Ministry of Agriculture and Rural Development (MADR) regarding the number of cow herds in the studied city. The goal of this strategy is to comprehend the general state of the city's livestock, including those destined for fattening and slaughter.

Result: The animals intended for slaughter are mainly male cattle; of the young bulls and calves, the females admitted are cull dairy cows (>8 years). The results of this investigation showed that the beef production has experienced a remarkable drop from 1262560 kg in 2019 to 473430 kg in 2022, a slight change observed in 2023 but which still remains weak.

Key words: Calves, Cows, Herd, Meat, Young bulls.

INTRODUCTION

In Algeria, red meat production is based on cattle and sheep farming, while camel and goat farming remains marginal (Oulad Belkhir *et al.*, 2013, Sadoud and Chehat, 2015). The overall quantity of red meats produced locally reached 5.219 million quintals during the first eight months of 2019, compared to 5.29 million quintals during the same period of 2018. Despite the efforts made, cattle breeding in Algeria cannot cover the population's increasingly growing meat needs. To meet these meat needs, national importation of beef has become an imperative to regulate the market.

In order to draw attention to the importance of beef production in Batna city, we tried to explore this branch of animal production in the region, which has stood out positively in the context of the efforts of local development and occupies a strategic economic place for achieving the objective of non-food dependence.

MATERIALS AND METHODS

To evaluate the meat performance of the beef population in Batna City. A study was conducted from 2019 to 2023 at the Veterinary Sciences Institute, Batna 1 University, Algeria. The research for this study was conducted at the city slaughterhouse and at the level of agricultural services (DSA).

Study area

Batna city (Fig 1) is located in the northeast of Algeria, covering an area of 12,192 km² spread over an agro-sylvo-pastoral vocation. It is almost entirely part of the physical whole constituted by the junction of two Atlases (Tellien and Saharan), which represents the main physical

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particularity of the city and therefore determines the characteristics of the climate. It is a semi-arid region where livestock farming plays a significant role with 1137361 heads of sheep or 76.89%, 65052 heads of cattle or 4.40%, 275664 heads of goats or (18.64%) and 1179 heads of horses or (0.08%) according to the management of agricultural services (2021).

Investigation at slaughterhouse

The slaughterhouse serves as a necessary crossing point for the purpose of harvesting meat. Slaughterhouses are authorized establishments managed by veterinary service representatives. These investigators perform the pre-mortem examination of the animals, keep an eye on adherence to regulations for animal welfare and hygienic handling practices during the killing process and lastly conduct the post-mortem health examination of every carcass and its internal organs.

During our investigation at the municipal slaughterhouse of Batna city, we noted that the animals intended for slaughter are mainly male cattle; young bulls and calves, their ages vary from 2 months to 8 years, while the females admitted to the slaughterhouse are cows aged over 8 months to 10 years, most of which are cull milkers. It has also been noted that the slaughter of heifers and female calves is very rare because Algerian legislation prohibits the slaughter of females of reproductive age in controlled slaughter structures (Rouabah, 2007).

At the slaughterhouse, the ante mortem inspection is generally carried out by observation, It consists of the determination of the sex (slaughter of females at culling age) ; the physiological state and visible anomalies. When the animal is suspected of being abnormal, the veterinary inspector will carry out a specific examination. Most animals come from livestock markets.

During this investigation we also took the establishment's slaughter data. These include the weight of the carcasses and the classification of the slaughterhouse according to the categories of animals slaughtered (Arik *et al.*, 2017; Rouabah *et al.*, 2022).

Investigation at the agricultural services

The survey was carried out to collect information on the number of cattle in the survey area according to data from the Ministry of Agriculture and Rural Development (MADR) and the Directorate of Agricultural Services (DSA).

This approach was intended to learn about the overall situation of livestock and those intended for fattening and slaughter in the study city.

Statistical analyses

The statistical analysis of the data obtained were carried out using XLSTAT 2023.

RESULTS AND DISCUSSION

The data of meat production collected from Batna slaughterhouse are summarized in Table 1 and presented in Fig 2.

Bovine meat production in 2019 was 1262560 kg (Table 1) a fairly significant value compared to subsequent years. This production experienced a remarkable drop from 1128630 kg in 2020 to 476680 kg and 473430 kg in 2021 and 2022 respectively. According to Kuraz *et al.* (2021), Hafid and Meziane (2015) and Sadoud (2017), this drop is probably related to climatic hazards; reducing the availability of fodder and the low productivity of these livestock farms. Further more, this drop in production can be explained, in part, by artifacts from agricultural censuses due to the poor organization of meat marketing circuits (Molefi *et al.*, 2017).

In 2023, there was a more or less significant increase in beef production in the study region compared to 2021 and 2022, this production is estimated at 582947 kg. This progression is linked to an increase in resources (specific importation of cattle), better productivity (increase in the

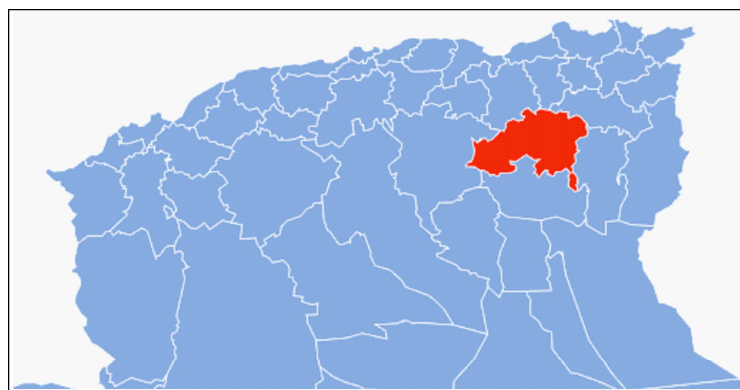


Fig 1: Geographical location of Batna city.

Table 1: The quantity of meat produced by the three categories of cattle during the period 2019-2023.

Years	Cows		Young bulls		Calves		Total
	Meat produced (kg)	Frequency (%)	Meat produced (kg)	Frequency (%)	Meat produced (kg)	Frequency (%)	
2019	89000	44.36	119660	60.55	1053900	31.74	1262560
2020	38470	19.18	22780	11.53	862360	25.96	1128630
2021	21460	10.69	8500	4.30	446720	13.45	476680
2022	19750	9.85	11580	5.86	442100	13.32	473430
2023	31920	15.92	35082	17.75	515945	15.55	582947
Total	200600	%	197602	%	3321025	%	

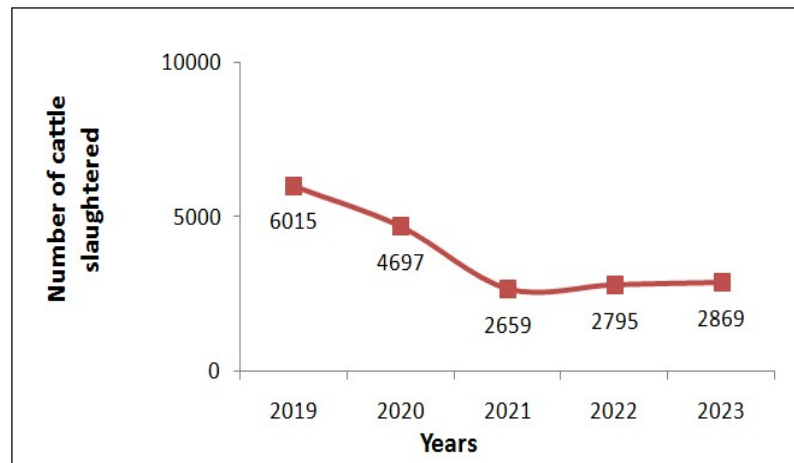


Fig 2: Evolution of beef production in Batna city from 2019 to 2023.

average weight of carcasses) and the incentive to invest in order to develop local production and secure the producer (Chafai, 2004; Sadoud, 2011; Hafid and Meziane, 2015). However, Sadoud (2017) reported that beef production is growing faster than livestock production. This growth is the result of improved carcass weight due to a more satisfactory feed supply. In fact, improved dairy cattle tend to move towards mixed meat-milk production. But above all there is a change in the structure of meat imports operated by private operators. The latter prefer to import live animals to the detriment of meat, which mechanically increases slaughtering, with imported live animals being counted in local meat production. Furthermore, the meat production of cows (200600 kg) is not as important as that of calves (3321025 kg), but slightly higher than that of young bulls (197602 kg). This meat comes from cull cows of rustic dairy or suckling or meat breeds (Cabaraux *et al.*, 2005). Furthermore, the increase in calf meat (3321025 kg) compared to young bulls (197602 kg) is explained by the predominance of calves on the markets for slaughter and according to Sadoud (2017) in Algeria, the bulk of the beef produced comes from calves of dairy origin from small farms which represent 80% of beef farms. According to Malterre *et al.* (1974) and Aydin *et al.* (2013), calves are slaughtered before the age of three, which is an appropriate age to have meat of superior organoleptic quality. It is obvious that the qualities of beef change considerably with the age of the animals (Pilarczyk *et al.*, 2022). This evolution corresponds to profound changes in the composition and metabolic characteristics of muscles. The water retention power of beef decreases with age.

Production of beef production in Batna city (Fig 2) seems weakened and has experienced a remarkable fall from 2019. In 2021, a slight evolution which persists for 2022 and 2023 but remains weak. This may be due to a lack of investment in this sector, unlike sheep meat, where the increase in numbers and production is increasing from one year to the next.

CONCLUSION

This study allows us to conclude that beef production in the Batna city, as in the rest of Algeria, has experienced a remarkable fall from 2019 to 2023. This production is subject to climatic hazards and numerous organizational problems. The importation of live animals could boost local supply and mechanically increase beef production.

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Conflict of interest

The authors have no conflicts of interest to declare.

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