

## CHARACTERISTICS OF DAIRY CATTLE FARMS IN THE REGIONS OF MILA AND SÉTIF

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#### Abstract:

The present study focuses on the characteristics and dominant pathologies of dairy cattle farms in Mila and Sétif regions. It took place over the period from November 2019 to March 2020. A sample of 87 farmers surveyed, including 38 in the region of Mila and 49 in Sétif. It emerges that the majority of dairy cattle farmed in these regions are of the imported breeds (70.5%), most herders take their animals to pasture both in the dry season (44.9% in Mila and 54.8% in Sétif) and in the rainy season (74.4% in Mila and 88.6% in Sétif). The pathologies most described by livestock farmers are, in order of importance, foot-and-mouth disease, pasteurellosis, trypanosomiasis, botulism, contagious nodular bovine dermatoses, mastitis, symptomatic anthrax and worm infections. Moreover, the sanitary pressure is not homogeneous on the two sites. Recommendations, based on the results obtained, have been extracted,

**Key words:** dominant pathologies, dairy cattle breeding, farmers, Mila, Sétif.

#### Introduction:

In Algeria, cattle breeding has undergone an enormous development from a genetic point of view, due to the large number of improved cattle which have a significant production capacity, especially dairy, However, the expression of this genetic potential remains modest, whether in terms of milk production, reproductive performance or productive life, which is still below the world average (Belhadia et al., 2009). Breeding management is the subject of an awareness campaign entitled 'Breeding as a gateway to breeding advice'. The general objective is to obtain a pregnant cow in the shortest possible time and under the best economic conditions.

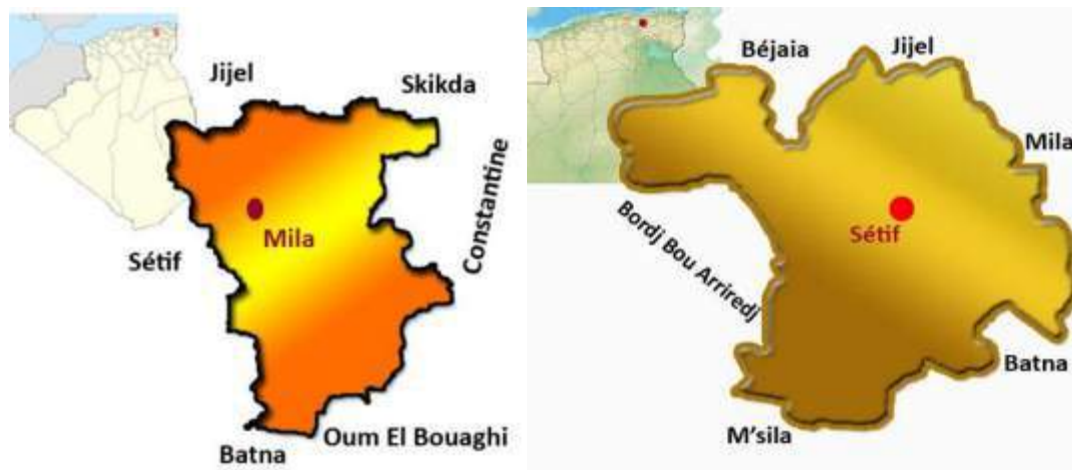
In intensive and semi-intensive farming systems, the most frequent health problems are metabolic diseases (ketosis, acidosis, etc.), infectious and contagious diseases (nodular dermatoses, foot-and-mouth disease) and localized diseases (foot rot and mastitis).

All of these diseases believed to cause mortality and reduced productivity (Foughali et al., 2019). However, this study on the dominant pathologies in the two regions of Mila and Sétif carried out, to characterize dairy cattle farms in these study zones, to make an inventory of the dominant pathological conditions encountered in the intervention sites and to take stock of the health management of these farms.

## Materials and methods:

### *Study area*

The wilaya of Mila is located in the Algerian North-East at 464 m of altitude, and 33 km from the Mediterranean Sea'. It is also in the eastern part of the Tellian Atlas. While, the wilaya of Setif is situated in the Algerian East, in the region of the Highlands, it is distant from the capital Algiers by 300 km, and rises to an altitude of 1100 m; it covers an estimated area of 6,549.64 Km<sup>2</sup> and occupies a predominant position, which makes it their capital (ANDI, 2015). It is also a very important crossing point. In addition, it serves as a transit point for freight convoys from the south to the ports of 'Bejaia' and 'Jijel', and has an airport that is open to both national and international traffic (Fig. 1)



**Fig1.** Geographical location of the two wilayas 'Mila' and 'Sétif' (ANDI, 2015).

### *Site Selection and Data Collection*

This study was conducted out during the months of November 2019 to March 2020, the working locations were chosen according to the diversity of the breeds exploited, the accessibility of the farms and the availability of breeders. Thanks to the collaboration of private veterinarians, we have established contact with the targeted breeders. It was carried out in the form of a survey and was of interest to dairy cattle breeders.



**Fig 2.** Example of a dairy farm.

### ***Data Processing and Analysis***

The data collected, were analysed using SPSS software. In addition, an index was calculated to rank the dominant diseases reported by livestock farmers according to their order of importance (primary, secondary and tertiary diseases) using the method described by (Musa et al., 2006).

$$\text{Index} = \frac{(3 \text{ for primary disease} + 2 \text{ for secondary disease} + 1 \text{ for tertiary disease}) \text{ disease concerned}}{(3 \text{ for primary disease} + 2 \text{ for secondary disease} + 1 \text{ for tertiary disease}) \text{ all diseases}}$$

### **Results and discussions:**

Our study enabled us to draw up a report on the reality of the situation of dairy cattle farms in the two wilayas of Mila and Sétif, distinguished essentially by the size of the herd and the breed used.

#### ***Characteristics of the breeders***

##### *Socio-economic status of livestock keepers*

The majority of cattle breeders interviewed are men (94.9% in Mila and 89.2% in Sétif), compared with only 5.1% of women in Mila and 10.8% in Sétif, which may be related to their physical and material capacities. The distribution of the level of experience changes according to the site. In the wilaya of Mila, about 65.26% of herders have experience of 16 years or more, while, in their of Sétif, the proportion of farmers with this experience is 58.3%. The proportion of farmers with experience less than or equal to 5 years is 11.86% in Mila and 14.4% in the Sétif (Fig 3.).

Livestock owners in the study areas are involved in several activities. This shows the importance of the place of livestock and agriculture in these two wilayas. More than half of the livestock farmers surveyed (74.6% in Mila and 59.72% in Sétif) have agriculture and livestock farming (agro-pastoralists) as their main activity. The proportion of dairy farmers who have been educated is high. The survey shows that 87.2% and 73.3% of the workforce in Mila and Setif respectively have attended primary or secondary school.

These results are similar to those found by Foughali et al. (2019) in the Constantine region with a 74.3% rate of herders with primary education. This situation is similar to that observed in Tizi Ouzou (Kadi et al., 2007) and Chellif (Belhadia et al., 2009). The breeders interviewed in the study areas mostly use imported breeds (70.5%), which is in line with the results obtained by Abdeldjalil in 2005 (60.66% in the Constantine region), by Belhadia et al. in 2009 (59%) belong to meliorated breeds introduced in the Haut-Cheliff area and by Yozmane et al. (2019) in the Souk ahras region. Moreover, these results remain higher than those of Foughali et al. in 2019 in the Constantine region.

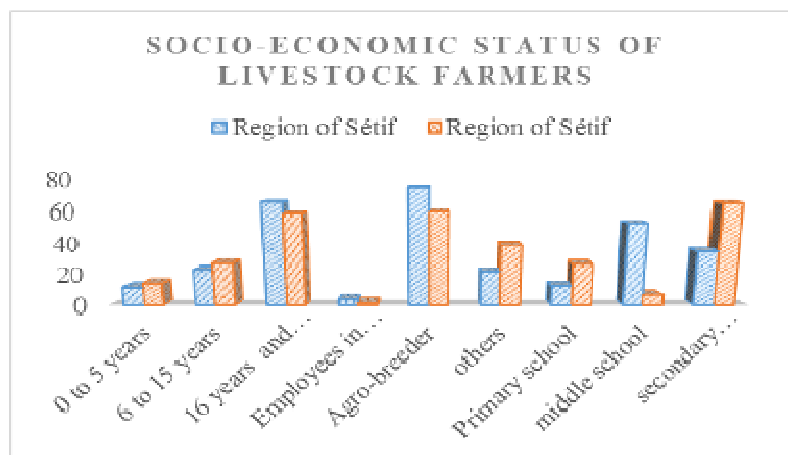


Fig 3. Socio-economic characteristics of dairy cattle breeds.

### Characteristics of the Herd

The breeders questioned mainly use imported breeds (70.5%) composed of Prim Holstein and Montbéliard, Normande, Jersiaise, and Brune des Alpes. However, local breeds represent only 1.9% of the livestock in the different sites (fig. 4).

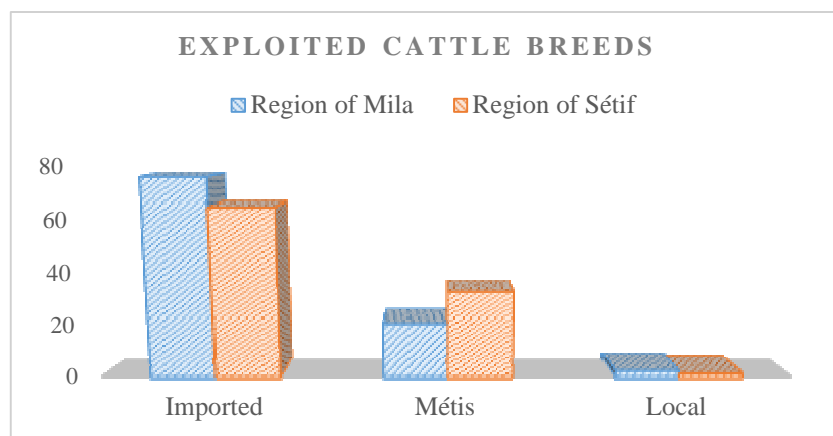


Fig 4. Cattle breeds exploited in the Mila and Sétif regions.

Natural pastures remain the main source of food for farms in all sites. However, this feeding practice is more important during the rainy season with 74.4% in Mila and 88.6% of farmers in Sétif. The owners of these farms keep their animals in the barn by giving them fodder and concentrates, especially during the dry season.

The basic feed for animals of all breeds consists mainly of natural pastures and crop residues that the animals graze in the fields after the harvest.

FAO (2017) states that the level of milk production is dependent on the availability of green fodder. According to Abdeldjalil (2005), the majority of farms (87.5%) use a concentrate consisting exclusively of cereals or their by-products. Excessive use of these foods leads to nutritional and economic disadvantages. Mouhous et al. (2014) assert that in Algeria concentrate accounts for 55% of feed expenditure in dairy cattle farms, while Belkheir et al. (2015) have shown that excessive use of concentrate by livestock farmers as a criterion for increasing milk production. The availability of good quality green fodder in the absence of rationing can have detrimental effects on the health and productivity of the cow, on the one hand, and on the sustainability of the milk chain in the region on the other.

### ***Animal health***

#### *Dominant pathologies noted by dairy cattle breeders in the two regions.*

Although some herders reported that they had not encountered any diseases on their dairy farms, there was general agreement among most herders on the classification of diseases in dairy cattle. The most common pathology is foot and mouth disease, followed by pasteurellosis, trypanosomiasis, botulism, contagious nodular bovine dermatoses, mastitis, symptomatic anthrax, worm infections and other diseases. Moreover, this classification given by the breeders may vary according to whether the pathology in question is primary, secondary or tertiary.



an interdigital phlegm (lameness)



a case of chronic lameness



a case of mastitis (atrophy of a quarter)

**Fig 5.** Some pathologies encountered on farms.



*Factors of Variation of dominant pathologies in the two regions*

According to the breeders, the dominant diseases in the imported breed are, in order of increasing importance, foot and mouth disease, pasteurellosis and trypanosomiasis. The same classification was also used for the crossbreeds and the local breed. In the regions of Mila and Sétif, the pathological problems remain dominated by foot-and-mouth disease, trypanosomiasis and pasteurellosis (table 1).

disease \ Index	According to race		According to region	
	imported	Mixed and local	Mila	Sétif
Foot and mouth disease	0,32	0, 38	0,47	0,15
Pasteurellose	0,14	0,28	0, 25	0,12
Trypanosomose	0,13	0,13	0,19	0,11
Botulisme	0,08	0,05	0,03	0,04
Mammites	0,01	0,05	0,07	0,08
worm infestation	0,09	0,02	0,05	0,06
charbon symptomatique	0,007	0,04	-	0,09
Enterotoxemia	0,04	0,08	0,06	0,04
lameness	0,02	0,23	0,03	-

**Table 1.** Dominant pathologies.

Among the diseases of viral origin, foot-and-mouth disease was the main disease encountered in the farms visited according to the herders interviewed. The disease rarely leads to the death of the animals but causes significant economic losses related to milk production and the degradation of the skin of the affected animals. As far as bacterial pathologies are concerned, pasteurellosis occupies first place, followed by botulism, which is a telluric disease, and mastitis. These mammary affections have been encountered in the majority of local breeds and mixed breeds.

The state of health of the udder is an urban or peri-urban condition. This situation is motivated for the profitability of dairy farms (M'sadak et al., 2014). According to Foughali et al. (2019), mastitis, in its various clinical forms, is the main infectious pathology encountered in the farms studied. Agreeing to Kalandi et al. (2017), mastitis, is directly, related to the milk production capacity of cows.

The trypanosomiasis is the most common parasitic disease in the study areas, this parasitism may be because farmers do not have the culture to de-worm regularly their herds, but also to the failure to clean the livestock buildings on some farms. Some pathologies such as E. coli and Salmonella typhimurium as well as other zoonotic parasites such as Cryptosporidium parvum are all the more important as hygiene conditions are deteriorated by poor ventilation in livestock buildings, complicated by inadequate architecture, characterized by cohabitation (Khelaf et al., 2007), these pathologies would strongly affect the fertility of the herd.

The variation factors discussed did not have a great influence on the importance of the dominant pathologies reported among livestock farmers. With regard to variation factors such as the type of breed used or the study sites, foot and mouth disease, pasteurellosis and trypanosomiasis remain the most frequently reported pathologies.

### Conclusion :

Our study concentrated on the characteristics and identification of the pathological dominants of dairy cattle farms in the regions of Mila and Sétif. The pathologies noted by dairy cattle farmers are classified as viral, bacterial and parasitic pathologies. Foot and mouth disease remains the main viral disease reported.

The bacterial pathology in both regions is marked, by the presence of pasteurellosis in most of the farms visited according to the farmers. Telluric diseases, such as botulism and symptomatic anthrax, were also, reported, as well as mastitis.

These bovine pathologies are major hindrances. However, even if the climatic conditions and the means of health monitoring are not in favour of the development of dairy cattle breeding, we believe that better breeding management can limit the constraints. Indeed, it is possible to promote a real dairy activity. To achieve this requires political will and clearly defined strategies.

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