

REPRODUCTION OF DAIRY COWS IN THE SAHARIAN REGIONS, STUDIES OF SOME PARAMETERS IN THE VALLEY OF M'ZAB, ALGERIA

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Abstract

A survey was conducted in the valley of M'zab (southern Algeria) on 53 livestock farms spread over 7 towns, in order to characterize the practices of dairy cattle breeding and conduct of breeding.

Herd structure is divided to 78% in cattle and only 3% in mixed cattle and goat rearing. The dairy herd is dominated by Holstein and Montbeliard. 74% of farmers practicing natural mating and 26% use artificial insemination which is broadcast in the region. More than 56% of farms recorded early abortions, and most farmers are unaware of the good criteria for animals.

The results were used to assess reproductive performance and practice to conduct of dairy cattle.

Key words: Algeria, Dairy cattle, Reproduction, Saharian region

INTRODUCTION

The evolution of the performance of dairy herds was negative in most countries during the last decades [4]. Indeed, the dairy cattle industry suffers from a set of constraints and the region of Ghardaïa helps limit its growth [5]. These constraints include the technical aspects that very few authors have given importance [12].

The Ghardaïa region has benefited from the Development Program Dairy sector. This farm, which is a very important socio-economic factor in the population of this region, contributes largely to the power of the people [7]. However, its effects remain poorly assessed; no studies have been conducted to identify the situation of the dairy cattle in relation to the breeding practices of dairy cows in the Saharan regions. The interest of this work is to identify and assess reproductive parameters of dairy herd in the province of Ghardaïa, for an overview and provide actions to improve the conduct and reproduction.

MATERIAL AND METHODS

Our study of reproductive performance and conduct of dairy cows was based on

socio-economic surveys previously tested and focused on 53 cattle farms, totaling 822 dairy cows. Research was conducted with farmers ranchers, agricultural institutions and local authorities.

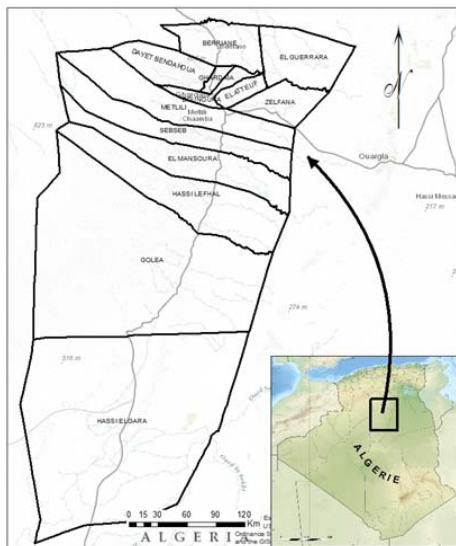


Figure 1 Geolocation of the study area

In seven (07) towns selected (Figure 1), a purposive sampling of cattle farms were carried. 53 cattle sheds were selected for investigations. They are presented in Table 1.

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Table 1 the different farms selected for investigation

Towns	Total number of cattle farms	Number of cattle farms surveyed	Percentage
Guerrara	45	20	44.44
Beriane	10	6	60
Zelfana	13	7	53.84
El Atteuf	10	6	60
Bounoura	5	3	60
Daya Ben Dahoua	11	6	54.54
Ghardaïa	7	5	71.42
Total	101	53	57.74

The little-studied field of milk production was favored. It covers: the stability of the activity of milk production in cattle farms, the number of cattle heads (≥ 12), the speculation of the owner, as well as the production potential (flow of dairy products to the region).

Like any scientific research aimed at practical observation, the approach of this study is to further analyze the data obtained on the structure of dairy cattle herds and their racial composition, as well as puberty, making reproduction, projections and abortions in terms of driving reproduction and finally the intervals between calving and first heat, calving-first service, calving and calving following non-fertilizing projection projecting calving low setting and selection of future herds.

RESULTS AND DISCUSSIONS
CONDUCT OF DAIRY COWS

Structure of dairy cattle herds

Dairy farming vocation is based mainly on cattle and goat farming [13]. According to surveys carried out by the veterinary services at the Department of Agricultural services (DSA) Ghardaïa in the identification of herds forming « Nursery units » almost 582 farms workforce of more than 3 000 cows breeding of dairy have identified, at total of 3 200 cows [10]. The respondents in the study area farms have a workforce of variable size. The number of dairy cows is dominant in all of these farms which confirm their orientation dairy. Breeders favor the increase in the number (Figure 2).

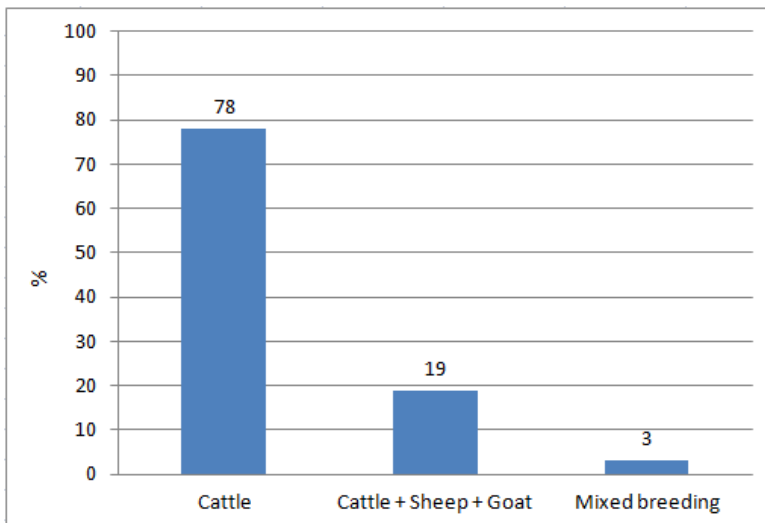


Figure 2 Relative structure of the cattle herd in the study area

The results show how the farmers set up their breeding strategies based targets dairy.

According to our investigations, we record that most producers farmers (78%) are

interested exclusively cattle, whose objective is milk production, followed by a small proportion of farmers (19%) who practice cattle together with sheep, whose goal is fattening (meat production). Finally, 3% of farmers practice a mixed goat rearing at low levels for consumption. Cattle breeding is a tradition at almost every household. This farm provides much of the coverage needs of the family [5].

We note the presence of the poultry farmers in all including the laying hen. There is also the camel breeding and broiler tentatively. Regarding equines (horses, mules and donkeys), they are bred primarily for transport.

RACIAL COMPOSITION

Cattle units surveyed operate imported breeds such as the Holstein breed, the MONTBELIARDE the FLEKVI and BROWN ALPS and cross breeds such as COMTOISE. The racial makeup of farms leaves appear dominance of improved breeds [2].

The predominant race is MONTBELIARDE 74%, followed by Holstein and the very small proportion FLEKVI, the BRUNETTE ALPS and COMTOISE. According to [2], [3], animals from the local renewal would MONTBELIARDE race, enjoyed by farmers in the region. However, this potential remains poorly expressed especially in the absence of control.

The main high goat breed is the result of a cross between the red race oases and Saanen breed, whose number is 153 000 head.

CONDUCT OF THE NOTICE OF COWS

The control of reproduction is an important element in the profitability and operating a dairy herd [12]. According to KOUROT et ORTAVANT (1979), cited by [2] a delay of three months fertilization causes a loss of the order of 400 kg lactation 3000 and 800 kg to 4000 kg of a lactation. However, respondents in the seven towns selected farms, conduct reproductive reveals many gaps, projections, calving base flow takes place in a natural way at random and without intervention from the breeder.

Puberty and made breeding heifers and male

Puberty is the time of occurrence in the animal characteristics that make it suitable to reproduce. In females, this corresponds to the appearance of the first heat and males, production of sperm.

The age of puberty in cattle is influenced by a range of factors related to the breed of animal, food, the type of farming, the environment ... etc [9]. Puberty dairy cattle is mentioned in the following Table 2 [14].

Table 2 Puberty in cattle

sex	Average age at puberty	Average age for making the
Female	9 - 12 months	14 - 20 months
Male	7 - 12 months	15 - 18 months

Source: [14]

In the farms studied, the majority of farmers (68%) put their heifers for breeding in the 18th month and 32% at 15 months. In 85.5% of farms surveyed, making breeding males is between 12 and 16 months. These results show that up to the age of reproduction is early and below standard, which fluctuates between 15 to 18 months in males and between 18 and 24 months in females [16]. This negatively affects the reproductive and productive career as the female often its physiological state is inappropriate due to nutritional deficiencies.

It appears from the study that the first projection is not controlled. 68% of farmers do not notice until four months heifers become pregnant it is not separated from bulls.

Projection

94% of farms surveyed have parents bulls are hampered in a corner of the barn or in a separate room and are not left with the cows. In 6% of farms, the bull being permanently in the herd, the cow will be connected as soon as its heat is manifest. In all the surveyed farms, heat detection is not practiced or is incidentally. Among farmers who do not have parents (6%), the time "heat-projection" from a few hours if the male is in a nearby

herd of more than one day if the heat occurs in the late afternoon. This attitude creates a de facto risk of harm by brucellosis and other abortive diseases.

The first projection is fertilizing than 82% of farms surveyed. This problem occurs mainly for breeding small size, due to the lack of bull sire. The lack of experience of heat detection increases the gap between calving and first breeding [11].

Undernutrition and nutritional imbalances affect the onset of oestrus and the success of projections. Thus, ignorance of the actual signs of heat and their importance shows irrationality of livestock management in our cattle farms.

Table 3 Mode of reproduction in the bovine

Artificial insemination (%)	Natural mating (%)	
	Monte free	Covering in-hand
26	50.4	23.6

From the table we see that the majority of farmers practicing natural projection (74%) and only 26% artificial insemination, most breeders having sires in their herd or those of their neighbors. Therefore, artificial insemination has not yielded satisfactory results among farmers.

For [11] note that for natural mating, 50.4% of the farmers prefer to free up the climbs hand (23.6%) with their own breeding. Artificial insemination is widely practiced; farmers must seek out a breeding operation which can delay the projections.

Among the cattle targeted by the survey, the majority of farmers use natural service. Only 26% of farmers prefer artificial insemination. Despite the advantages of the latter technique of genetic, health and economic order, its extension remains low because of the limited material means and the reluctance of a number of farmers lacking confidence in this technique [1]. This implies the absence of a preset target.

The rate of abortions

56% of the farms surveyed record abortions. They usually occur during the sixth to seventh month of pregnancy. In most cases, the disease is advanced by breeders reasons. By cons veterinary services have never been seized orally by farmers, the same day of the abortion. It appears from the study a higher abortion rate than reported 7.4 ± 1.3 [18] and that less than 5%, referred to Canada [8]. During the first 2 lactations, the rate fell from 12% in 1st lactation, at 09% in 2 nd lactation.

The origins of abortions have not been diagnosed, however, brucellosis, which is an abortive infectious disease is one of the reasons for reform with a rate of 5%.

The abortions occurred in the first calving are generated largely by transport stress when importing pregnant heifers and environmental change. Regression, which can be noted, can be explained by an adaptation of the cows and the technicality of the breeders who improves progressively.

No cases of infertility has been recorded. On pregnancy diagnosis, 86% of the farmers based on the non-return of 9% heat on the fact that the cow refuses to suckle her calf. Only 5% of respondents (all vets) perform palpation "Rectal search."

Assessment of fertility

Interval between calving and first heat

It is clear from the interviews with the farmers, the interval between calving and first heat is observed over 70 days. In 63% of farms surveyed, 50 to 70 days in 23% of 30 to 50 days in 10% and less than 30 days in 4% of them.

Interval between calving and first projection

The difference between calving and first projection is 5 months on average. Changes are 150 days to 1 year in 60.7% of the farmers surveyed, 60 to 150 days in 25.3% and 60 days in 14% of them. According to [2], away calving - projection is greater than 3 months, between 6 to 9 months.

For [15], the interval between calving and first projection is an average of 90 days, the time it takes lactation.

Projection interval following non-fertilizing projection

The average difference between the projection and not fertilizing the following projection is an average of 21 days. It is less than 30 days in 88% of farmers and 30 to 42 days for the remaining 12%.

In good condition and in a good atmosphere heats up, this interval is an average of 21 days is the estrous cycle.

Calving and calving interval

The interval between calving and calving is very important in the conduct of reproduction and its impact on milk production [14]. In all farmers surveyed, the gap between calving and calving interval depends on the calving-projection fertilizing. It ranges from 1 to 2 years and is on average 16 months. For [15], this interval is 12 months. According to [2], the difference between two calving than 12 months and up to 18 months. On the other side, [11] Note that the intervals between calving is 18 months for pastoral systems and about 14 months for agricultural systems. Calving are concentrated around periods of high food availability in green. It is low during the summer, explained by the persistence of heat stress experienced by animals during fertilization.

CALVING INTERVAL LOW SETTING

▪ In the cow

According to the survey, the interval between calving and calving in cows is on average a year. After parturition the cow is standing for 45j average before starting a new cycle of reproduction [13].

▪ In the goat

The interval between calving in goats is an average of seven months, the period of sexual rest in goats with an average of two months [13].

Lactation and weaning

▪ In the cow

The duration of lactation in cows is between 7 to 10 months. 19% of farmers carry out a withdrawal of newborns very early (a few days), while 81% do so at 3-4 months of age before they are sold. Lactation is based reconstituted milk [13].

▪ In the goat

The average duration of lactation in the goat is 7 months, while weaning age is usually 2 or 3 months. After weaning farmers keep a necessary number of males as parents and others are sold in local markets [13].

SELECTION OF FUTURE LIVESTOCK

The current trend in dairy cattle breeding is to significantly alter the selection methods so that ultimately lead to strongly positive genetic progress for functional traits, while maintaining the potential for higher productivity.

In 72% of the parent breeders bull is present. The average age of its implementation reproduction varies from 18 months to 3 years. For [15], the average age of the favorable development of the male reproduction is 15 to 18 months. For farmers, the average duration of its operations for three years.

28% of farmers who do not have a bull sire, do not care about the origin or the qualities of the male calling to ensure the fertilization of their cows. Their sole purpose is that the cow is fertilized. Farmers who do not have a player, seek out the operating parent fit, which can delay the projections [14], [11]. Generally, breeders keep young male heavy, about 4 years of age, as future.

Significant changes are taking place in breeding programs, giving great importance to functional traits. Zootechnical characters most used in selection schemes are the production and conformation (morphology) of the animals.

Breeders know the right criteria for animals (skills fertility), except those based on provenance (the best heifers from dairy). 56.1% of farmers take into account the functional morphology of the breast volume, lateral symmetry, diameter and length of the teat, and the absence of macroscopic disease, while in the other farmers (43.9%) almost all females are kept.

Among the cattle, we noticed that the black and Red pie races up the bulk of the herds involved in this study. Adult cows are preferred for breeding intensive type, while bulls are selected primarily for economic gain.

Breeders ensure the preservation of the purity of races either by the use of males of the same race or by the practice of artificial insemination. Some breeders give their preference to the selection on production traits, on the other morphological characters individually. However, according [3], aging and livestock management difficulties are all aggravating factors the situation of state farms and semi-state.

BEEF PRODUCTIONS

In order to improve the production of the bovine race, especially that of young male calves, the state has created new equity incentive measures to encourage fellahin raise their calves for fertilization of cows and not to be sold to butchers from their fifth or tenth month of life. As noted [17], barns have largely benefited from a situation where the state intervened significantly to protect them, or through input subsidies (heifers imported animal feed, artificial insemination ...).

The general structure of cattle size of the study area shows that dairy cows, heifers and calves are 78.1% of the total workforce. This denotes an orientation of farms to one dominated by dairy production versatile production with animals and meat renewal.

According to [19], three Maghreb countries are also characterized by habits of limited milk (less than 100 kg milk / inhabitant.an equivalent). Milk is intended largely for sale, breeder keeping only 4% of the production for home consumption.

Environmental conditions, equipment, and socio-economic factors are driving guidance reproduction items to an intensive system.

CONCLUSIONS

Very few research characterize reliably production levels and profitability of dairy farms in Algeria, based on a systemic approach to practice.

This study of dairy cattle in the region of Ghardaïa reveals that livestock management is far from optimal and that the aspect of reproduction is far from being mastered. Indeed, it is unthinkable, even utopian, to pretend to make dairy farming with the performance recorded in the farms surveyed.

These results clearly demonstrate the significant economic impact of the non-mastery of reproduction. This situation is the result of a lack of monitoring both reproduction (lack of planning and stable balance of fertility) and milk production (no DHI). The question to ask masters to clean this context seems to be: *What future for dairy cows in Ghardaïa?*

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