MILK PRODUCTIONS AT SERVAL FARM IN MUREŞ DISTRICT, OBTAINED WITHIN THE EXISTING CONSTRUCTIVE SOLUTIONS

PRODUCȚII DE LAPTE ÎN FERMA SC SERVAL SRL JUDEȚUL MUREŞ OBȚINUTE ÎN CONTEXTUL UNOR SOLUȚII CONSTRUCTIVE EXISTENTE

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The paper present the research results performed at a farm of the Mureş district, between 2005 and 2008, concerning the milk productions, obtained in the existing constructive solutions. The essential changes produced in the last decades, concerning the dairy cattle raising and exploitation technologies, food, reproduction and amelioration, at one time with the technique development witch allow the mechanization of some production processes, imposes, also, our intervention in the constructive variants of accommodation through the actual shelter modernization, existing in this farm.
Key words: dairy cows, farm, shelter, milk production

Introduction

The researches were accomplished in the Serval farm, situated in the Şăulia village, at 30 km N from the Mureş city. The unit is specialized in cows growing for the milk production; the milk obtained being sold to Danone.

The farm disposes by a total livestock of 130 cows Romanian Spotted infused with Red Holstein, as shown in the Table 1.

Table 1

The livestock's structure

Specification	Age in months	No. of animals
Cows	-	60
Heifers	-	15
Young females	0-6	20
Young females	6-12	15
Young females	12-18	20

Materials and Methods

The studies was mainly centered on the dairy cattle population, included in the official production control, following up the main production and reproduction parameters obtained in tied accommodation system conditions.

The animals care in the accommodation period is realized in closed shelters, divided by the age structure. The dairy cattle shelter house an effective of 60 heads in the tied accommodation system, on medium stall, on two rows, head to head. The feeding is realized by the wagon, on 2.40 m width alley, in high manger. The stall pavement is realized from wood and above it is a sawdust layer, sometimes straw. The stalls have separating grids witch sustain the watering-trough. Manure's disposal is done manually in open channels.

The milking is mechanized on stall and the milk is collected by pipe in dairy. The dairy is placed at the shelter's end and give the milk reception and temporary storing possibility. In dairy are placed also the De-Laval type milking installations and the milk tank.

In summer time, the cows and heifers maintenance is done permanently on the pasture in the summer camp.

The summer camp is organized in a shed and a paddock, being enclosed with a fence wire, and one side is placed a manger for forage and a waterspout, supplied from an approaching fountain. To assure the necessary minerals for animals, the sand balls are placed in a concrete manger. The milking is mechanized with a mobile milking platform.

Besides shelters, the farm disposes also by the followings:

- surface silo;
- cereals mill;
- haircut machine;
- 4 tractors, trailers, agricultural equipments;
- maize silo combine;
- cloakroom, the farmer house;
- storeroom for concentrates;
- mechanical workshop;
- manure platform.

The results obtained by the biological material exploitation are relatively good, due to this cow kind amelioration and specialization for milk production. The Serval farm is present also in the amelioration process of the Romanian Spotted cattle populations.

A very important factor in the obtaining of milk acceptable productions was the animal's alimentation. Thus, the cows and heifers are special fed in the period of days dry and in the period before calving because in this period can be realized the necessary reserves for the first lactation months when the animal realize 45% of the total lactation production and, respectively, for a good fetus development with important repercussions on the next generations.

The cows and heifers ration in the period of days dry is composed by: very good quality hays of cereals and pulverize, thick and concentrated; in the second part of gestation because the calf gain 75% by his calving weight, the concentrates proportion increase and the fodder volume decrease, and it is avoided the moldy, debased, frosty forage witch can provoke abortion.

After calving, it is assured a stimulant foraging with a concentrates supplement of 15-20% comparatively with the production period.

The cows in the production period are fed with maize silo 15 kg, alfalfa hay 5 kg, beet pulp 12 kg, and a blend of concentrated forages 6 kg (beans, bran, molasses and PVM).

The foraging base is assured by the growing of 139 ha land: 39 ha lawns and meadows, 100 ha arable land, from witch 40 ha with corn for silage, 15 ha artificial lawn, 3 ha beet pulp.

Results and Discussions

The existing livestock presents the following zoo-economical indicators: age of the first successful insemination (A.F.I.) is realized at 24.17 months and first calving (F.C.) at 34.17 months.

The total milk production varies between 6158-7417 liters with an average of 6830.98 liters on the total lactations studied, with 4.05% fat content and 271.94 kg pure fat.

The researches were realized on a number of 35 heads with a number of 93 ended lactations. The biological material is represented by the Romanian Spotted breed. Hereby, we have analyzed the age of the first successful insemination and the age of first calving, the calving interval and the days dry, as the milk production and milk main components evolution, respectively the fat and the protein per normal and total lactation.

The data regarding the milk production evolution per lactations were obtained from the database of the National Agency of Amelioration and Reproduction in Zootechny – the Reproduction and Selection District Office Mureş. We have statistical analyzed and processed by the average calculation, the standard error of the mean, the standard deviation and variability for all the traits investigated. It was statistical processed the average per total lactations and separately for each lactation, to the V lactation, aiming the duration of normal and total lactation, the fat quantity and protein per normal and total lactation, as the fat and protein percents.

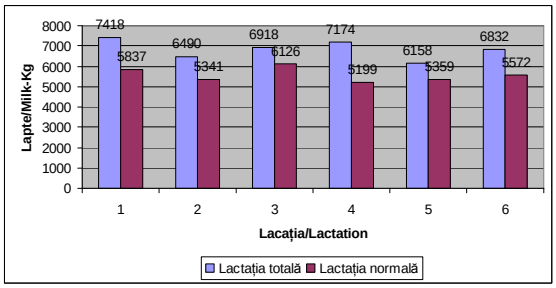


Figure 1. Milk quantity dynamics per total and normal lactation in Serval farm

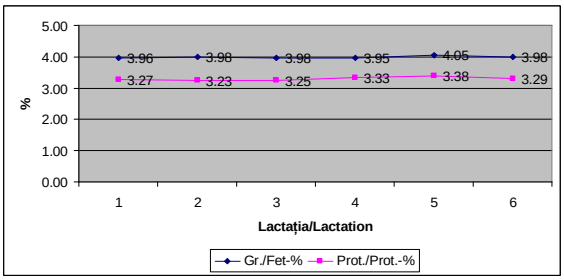


Figure 2. The values for the qualitative index of the milk production per total lactation in Serval farm

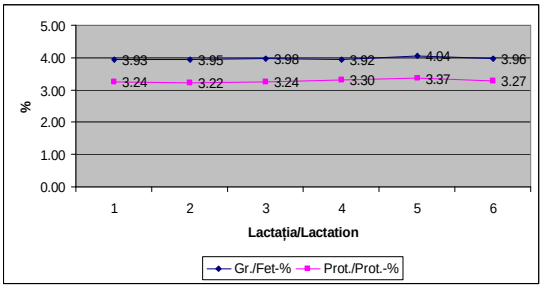


Figure 3. The values for the qualitative index of the milk production per normal lactation in Serval farm.

One of the multiple factors that affect the milk production is the housing system. This is the reason that brings us to interfere for the functions changing – from the tied accommodation system in the free one. Our dilemma is to propose for the dairy cows a cold or warm shelter.

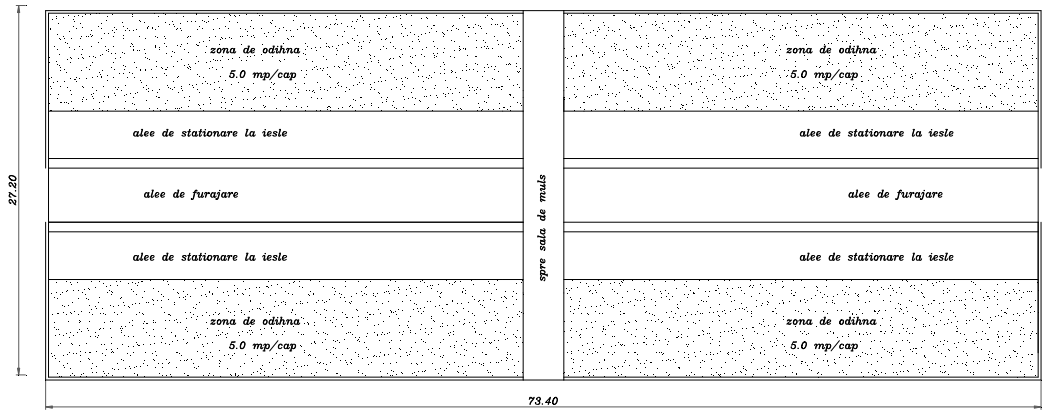
The cold shelters, with a dairy cow's free housing are frequently used because the investments are much lower compared with thermo-insulated shelters. The longitudinal walls are replaced with mobile tarpaulin, assuring the natural ventilation, organized. The fresh air enters through this created holes and exit by the roof crest, witch is provided with a slot to the entire length of the shelter.

The temperature and humidity measures performed by us in farms endowed with such as buildings shown that in the period of December 2007 – January 2008, when it was recorded negative temperatures of –11ºC, in the shelters interiors the

manure was frozen, the interior temperatures fluctuated between –2 and –7ºC, fact that caused a careful supervision of the way the surface rake blades can be capable to dispose the manure. The water in the non heated shelters was also frozen, the farmers being forced to heat the watering troughs or to protect them with electrical resistances.

In the period when the mobile tarpaulin completely closed the fresh air admission holes to provide the livestock biological heat, the humidity increased very much, motive for the apparition of the dew phenomena, with effects on the building elements (wood or metal).

In the summer time the sun produces a overheating of the building, temperature at which the cows reacts by reducing the forage consumption. Once the night coming, the shelter is sudden colder. The cow feels this temperature variation. The farmer's that works in these conditions feels the thermal stress more pronounced than the animals.



Adapost pentru vaci de lapte cu 200 l0curi
Zona de odihna cu asternut paios pe o pardoseala in panta mare

Figure 4. Shelter for 200 dairy cows with the collective resting zone, on the straw bedding

Some researches from the USA shown that the milk production of the dairy cattle is not affected by an interior temperature variation between –5ºC and +30ºC, and the excessive humidity has no effect on the milk production, but sometimes can produce diseases. The opinions of the European researchers are, sometimes, contradictories, regarding the influence of the low temperatures on the milk productions. In our country, these buildings are available since a short time, the results of our researches are not decisive, and for that we recommend the modernization of the studied farms by maintaining the existing buildings and changing the tied housing of the cows to the free housing function.

For the Serval farm we propose the modification of the housing system, from the tide one to the free one, with the collective rest zone, on the straw bedding. In the variant of increasing the livestock number from 60 to 200 heads, as

the farmer stipulate for the next years, we can design a shelter where the dairy cows are placed, on the straw bedding (Figure 4), with isolation possibility of the non milking cows from the milking cows.

The shelter has at one end dairy group, containing the milking room, the milk tank and the machines room. The dairy group is placed beside the farm's main alley, with access possibilities for the milk delivery truck.

Conclusions

The beneficiary accepts the modernization solution with the hope for a good evolution of the production parameters. The chosen constructive system offers the free space for the animals and good social relationships. The large feeding alley offers the possibility to feed the cows with total mixed rations with good effects on the milk production.

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