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## RESOURCE-SAVING FEEDING TECHNOLOGY, MILKING AND MANURE CLEANING AT COMPLEXES FOR THE PRODUCTION OF MILK

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**Introduction.** The heads of farms pay great importance to the organization and management in the field of milk production at large dairy complexes in the republic. If management and organization of production does not correspond to production of livestock products in a full, then the productivity of cows will never reach those

productivity which is genetically determined besides such factors as breeding, feeding quality, milking and animal housing. All these elements of milk production technology (animal housing, feeding, milking and manure cleaning) are interconnected which each other.). Improving the efficiency of domestic agricultural production of livestock products is possible only on the basis of resource-saving technologies in the dairy farming. An analysis of the work of milk production complexes in the republic indicates that the transition to resource-saving technologies for dairy farming should not only replace the old equipment, but also bring to the new approach to management and organization.

On this basis, the purpose of the research was to develop in the field of physiology of feeding, watering, milking of animals, as well as the comfort livestock housing, which significantly effect on the technical and economic indicators of the dairy farming industry.

**Material and methodology of research.** Experimental studies on the development of organizational managing schemes of the main technological processes (feeding, milking, watering and manure cleaning) were carried out at the livestock complex of JSC "Zembinsky" of the Borisovsky district

The cows of the Belarusian black-and-white breed (n=200) were the object of research. The subject of research was the management schemes of feeding, watering, milking and manure cleaning, dairy productivity of cows and the content of somatic cells.

In order to identify the optimal variant of the technological managing scheme for feeding, watering, milking and manure cleaning, two technological schemes were carried out: established on the farm and experimental based on best practices in dairy farming.

The first technological scheme is a control one. The feeding, watering, milking and manure cleaning were carried out in the following sequence during the 24 hours: morning milking of cows (7.00-12.00), the first distribution of fresh feed after milking (8.00-11.00), manure cleaning between morning and evening milking of cows (between 12.00 and 14.00), the second distribution of fresh feed (16.00-19.00), evening milking of cows (18.00-23.00)

The second technological scheme is an (experimental). During the 24 hours, milking, feeding and removal of manure was carried out in the following sequence: morning milking of cows (7.00-12.00), the first distribution of fresh feed and manure cleaning while the cows were in the milking parlor, evening milking of cows (18.00—23.00), the second distribution of fresh feed while the cows were in the milking parlor.

Two groups of animals were formed for research. The groups were formed taking into account their age in lactation, the state of health of the udder, limbs and reproductive organs. When selecting animals, attention was paid to their fatness, suitability for machine milking and the mass of animals. The completeness of the sections was carried out continuously for two months for 8-10 heads weekly.

The average annual milk yield at this livestock complex was at the level of 5400 kg of milk per cow.

The manure cleaning was carried out by a bulldozer once a day for the entire section. Cleaning and trimming of feed on the feed table when driving cows out of the section for milking. The diet of all cows was the same. Milking of cows was carried out in the milking parlor on the milking machine УДА-12Е.

Milk yield and milk yield rate were monitored daily, the content of somatic cells was determined directly in the laboratory.

Bio thermic treatment of the materials obtained in experimental studies was carried out according to E.K.Merkuryeva using a PC.

**The results of the experiment and their analysis.** A reliable estimation of the effectiveness of various technological control schemes can be given by the higher dynamics of the growth of daily milk yields. It is very important to take into consideration the stress conditions of animals. The criterion for assessing stress in practice is the indicator of maximum milk yield, which is determined on modern milking machines automatically in the stream and transmitted to the central computer. The health of the udder is estimated by the indicator of the content of somatic cells in milk. Two variants of technological control schemes are given in the table 1.

Analyzing the data in Table 1, we can conclude that the optimal technological scheme for managing production processes at the milk production complex is presented in the second variant. Due to the fact that the milking herd under the organizational management scheme No. 2 is less susceptible to additional stress due to manure cleaning in the middle of the day between morning and evening milking.

Comparative evaluation of two variants of technological control schemes

Indicators	Control scheme	Experimental scheme
Herd	100	100
Average daily milk yield at the beginning of the experiment, kg	17,8+ <sub>0,14</sub>	17,9+ <sub>0,15</sub>
Average daily yield at the end of the experiment, kg	18,2+ <sub>0,16</sub>	22,3+ <sub></sub>
The maximum speed rate at the beginning of the experiment, kg/min	2,67+ <sub>0,01</sub>	2,69+ <sub>0,01</sub>
The maximum speed rate at the end of the experiment, kg/min	2,84+ <sub>2</sub>	3,26+ <sub>0,02</sub>
Somatic cell content at the beginning of the experiment, units/ml	355100+ <sub>2216</sub>	346200+ <sub>2277</sub>
Somatic cell content at the end of the experiment, units/ml	320700+ <sub>38210</sub>	185100+ <sub>32100</sub>

The lower stress load on animals in the second technological scheme is confirmed by the maximum rate of milk yield, as well as this indicator is a criterion for the usefulness of milk allowance. The rate of milk production in cows of the

second scheme was 3.26 kg/min and was 0.42 kg/min higher than in cows of the first scheme.

Different technological schemes for managing production processes have a significant impact on the quality indicators of milk – somatic cells. Animals with the second technological scheme, all milk was sold as extra grade with an average content of somatic cells of 1851 thousand./ml, which is less by 135.6./ml than in the first group.

The economic efficiency of various variants of technological control schemes is presented in Table 2.

Economic efficiency of various variants of technological control schemes

Variants of technological schemes	The amount of products received during the experiment period per cow, kg	Purchase price of 1 kg of milk, rub	The cost of production per cow during the experiment period, rub
Control variant	2160	0,58	1252,8
The experimental variant	2676	0,68	1819,7

**Conclusion.** 1. It was found that at dairy complexes with an average annual milk yield of 5500 per cow during the experiment in the experimental version of the technological scheme for controlling the main production processes, it helps to increase by 4.1 kg of milk from a cow and, accordingly, increase the maximum speed by 0.42 kg /min and reduce somatic cells by 135.6 thousand / ml.

2. The economic effect of the introduction of an experimental version of the technological control scheme will amount to 556.9 Belarusian rubles per cow for the period of the experiment.

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## **ОБҐРУНТУВАННЯ КОНСТРУКТИВНО-ТЕХНОЛОГІЧНОЇ СХЕМИ МОДЕРНІЗОВАНОГО ПОДРІБНЮВАЧА ГРУБИХ КОРМІВ**

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