The influence of preparation "Lactokormovit" on dairy efficiency cows during milking

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Abstract. In the article the effect of different doses of the drug "Lactocormovit" on the milk productivity of cows during the milking period was studied. The animals of the experimental groups had the best milk production. Cows that received the drug "Lactocormovit" in their diet outperformed their peers from the control group in milk yield by 5.6% and 11.4%, respectively. The using of the drug "Lactocormovit" has a positive effect on the chemical composition of milk. According research we found that during the period of experience in cows of the experimental groups increased the amount of milk fat-by 11.45 and 17.71 kg and protein-by 4.84 and 10.18 kg. There is a tendency to improve the physical and chemical indicators of milk.

1. Introduction
The increasing of animal production is based on increasing animal productivity, increase of population, the rational using of feeds, substantially improve the conditions of feeding and maintenance of animals, improved breeding, mechanization of labor, the introduction of advanced technology. Cattle are the most widely distributed in the geographical and economic zones of our country compared to other types of farm animals. When the content of cattle using different types of feed, feed additives, etc. [1, 2, 3]. At present, it is possible to use probiotics as additives to enrich the feed rations of cows, in particular in the Primorsky region [4,5].

2. Methods and materials
To find reserves conducive to solving the problem of full-fledged feeding of farm animals, it is necessary to study the using of various waste products from the processing industry in the form of feed, the using of biologically active substances (BAS), which allow balancing rations according to recommendations and scientifically-based standards. Attempts to include in their composition microorganisms that favor the best absorption of nutrients from the diet of animals serve as an actual direction for solving the issue of improving the usefulness of diets [6,7,8].

The purpose of our research work was to determine the effect of feeding the drug "Lactokormovit" in the diets of cows and its effect on the milk productivity of dairy cows during the milking period.

The object of our research was the feed addition "Lactochrome", the one number 9289-003- 80371744-99. It is made at the enterprise - "LLC SVET" of Bolshoy Kamen, Primorsky Krai. The feed addition is used as a growth biostimulator for the prevention of gastrointestinal diseases of animals.

The product is made of fish and soy products by fermenting them with lactic acid microorganisms Lactobacillus acidophilus.

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Scientific and economic experiment was conducted in the farm "Kazantsev" of the Primorsky territory. For the research work, 3 groups of Holstein cows of 10 heads were selected using the method of balanced groups by age, live weight, calving date, milk yield and origin.

Milk yield was evaluated according to the data of control milkings. The following indicators were evaluated: milk yield for the first 100 days of lactation, the content of fat and protein in milk, the amount of milk fat and protein, and the physical and chemical composition of milk.

The difference in the selected groups was that the animals from the control group received the main ration. While the 1st and 2nd experimental groups received the drug "Lactocormovit" in a mixture with concentrates, the dose was 2 and 5 g per head once a day. The drug was given to cows in four periods of 15 days with a break of 15 days after each.

The main ration consisted of the following components: mixed grass hay, natural hay, corn silage, concentrates: crushed oats, wheat, soy, corn, soybean meal, molasses, salt, chalk, feed diammonium phosphate.

During the experiment, the rations of cows of all the groups were balanced by the presence of basic nutrients in them, according to detailed feeding standards [9]. Rations were adjusted monthly according account milk yield, live weight of cows and the actual nutritional value of feed. The average daily productivity and quality of milk were taken into account on a monthly basis during control milking.

3. Results
Milk production of cows is one of the main economic and breeding characteristics in the selection of cattle for further breeding and using. Milk production is characterized by the quantity and quality of milk received over a certain period of time.

The results of research of indicators of milk production in experimental cows compared groups for the period of scientific and economic experiment indicate that inclusion in rations of the test of the drug "Lactochrome" had a positive effect on productive quality of cows. This is due to an increase in metabolism, which affected the amount of milk received for 100 days of lactation.

It was established that every week the milk yield of experimental cows of the compared groups increased up to the third month of lactation, as a result of which the milk yield of cows of the experimental groups exceeded that of animals of the control group by 5.6 to 11.4 %.

The milk production of experimental cows presented in table 1 shows that the production of cows in the experimental groups was higher in the first experimental group by 131.74 kg or 5.6%, in the second experimental group by 268.21 kg or 11.4% higher than in the control group. It was established that the milk of animals that consumed the drug "Lactocormovit" was characterized by a higher content of fat and protein, namely, the corresponding values were higher, compared with the indicators of cows in the control group by 0.06 - 0.1% and 0.03 - 0.07%, respectively.

| Index                                      | Control         | I experimental | II experimental |
|--------------------------------------------|-----------------|----------------|-----------------|
| Milk yield for 90 days of lactation, kg     | 2358.60 ± 33.38 | 2490.34 ± 28.48 | 2626.81 ± 25.93 |
| Mass fraction of milk fat, %               | 3.76 ± 0.03     | 3.82 ± 0.02    | 3.86 ± 0.02     |
| Mass fraction of milk protein, %           | 3.11 ± 0.03     | 3.14 ± 0.04    | 3.19 ± 0.02     |
| Amount of milk fat, kg                     | 83.68 ± 1.69    | 95.13 ± 1.38   | 101.39 ± 0.91   |
| Amount of milk protein, kg                 | 73.35 ± 0.57    | 78.19 ± 1.02   | 83.79 ± 1.11    |
| Cost of feed units per experience, EKE.    | 1544.40         | 1544.0         | 1544.40         |
| Cost of feed units per 1 kg of milk, EKE.  | 0.65            | 0.62           | 0.59            |
| Cost of digestible protein per 1 kg of milk, g | 69.6           | 66.7           | 63.5            |

The higher mass fraction of fat and protein found in the study affected the amount of milk fat and protein obtained from them over the period of the experiment. From the cows of the first experimental group, 11.45 kg or 13.7% was obtained, and from the cows of the second experimental group, 17.71 kg or 21.16% more milk fat was obtained. The same trend was observed for the amount of milk protein in the milk of experimental cows, the superiority according to these data was equal to 4.84 kg or 6.6% in
the first experimental group, and 10.18 kg or 13.88% in the second experimental group compared to the control.

The cost of feed units per 1 kg of milk, EKE is 0.65 EKE in the control group, which is 3.1% and 10.7% EKE more than in the animals of the experimental groups.

The cost of digested protein shows that it was used for the formation of 1 kg of milk in cows of the experimental groups by 4.2% and 8.8% less than in animals in the control group.

We evaluated the physical and chemical parameters of cow’s milk. The data is presented in table 2.

Table 2. Physical and chemical parameters and energy value of cow’s milk, (M ± m).

| Index                  | Group                  |
|------------------------|------------------------|
|                        | control                | I experimental | II experimental |
| Dry substance, %       | 12.41±0.184            | 12.81±0.123    | 12.91±0.146     |
| SOMO, %                | 8.65±0.213             | 8.99±0.131     | 9.05±0.165      |
| Mass fraction of fat, %| 3.77±0.03              | 3.83±0.02      | 3.87±0.03       |
| Mass fraction of protein, % | 3.12±0.03       | 3.15±0.04      | 3.18±0.02       |
| Lactose, %             | 4.61±0.020             | 4.64±0.008     | 4.68±0.014      |
| Ash, %                 | 0.74±0.023             | 0.77±0.012     | 0.75±0.019      |
| Calcium, %             | 0.124                  | 0.129          | 0.126           |
| Phosphorus %           | 0.097                  | 0.103          | 0.101           |
| Density, °A            | 29.6±1.360             | 29.9±1.182     | 29.9±1.167      |
| Acidity, °T            | 16.6±0.033             | 16.5±0.036     | 16.5±0.030      |
| Energy value of milk, kJ | 265.8               | 268.0          | 273.3           |

Significant indicators of milk quality are acidity and density. It is known that the acidity of milk is determined by the presence of phosphoric and citric acid salts, the acidic nature of proteins, and the presence of carbon dioxide dissolved in milk. In normal milk, the titrated acidity is in the range of 16 to 18 T°. In experimental animals, the density and acidity indicators were within the norm, according to the requirements of GOST, for the prepared milk, and significant differences in these indicators between the groups were not established.

Milk powder contains all the components that determine its overall nutritional and technological properties. Dietary Supplement for dairy cows probiotic preparation "Lactochrome" identified in the analytical study of milk that animals of the second experimental group was observed the highest amount of dry matter (12.90%). The SOMO content in the second experimental group significantly (P<0.05) differed from the indicators in cows from the control group. At the same time, the differences between the experimental groups were not higher than 0.34–0.40%.

The energy value of milk must be indicated on the packaging when it is sold. In our research, the energy value of milk in all groups of cows was determined using conversion coefficients. Thus, in cows from the second experimental group, the values were 272.3 kJ/100 g, which is 6.5 kJ/100 g and 3.3 kJ/100 g higher than in cows from the control and first experimental groups, respectively.

4. Discussion
We can conclude that the use of different doses of the drug "Lactocormovit" positively affected the milk productivity of cows during the milking period and the chemical composition of milk. Animals that received the drug "Lactocormovit" in their diet outperformed their peers from the control group in terms of milk yield by 5.6% and 11.4%, respectively. It was found that during the experiment period, cows of the experimental groups increased the amount of milk fat by 11.45 kg and 17.71 kg and protein by 4.84 kg and 10.18 kg.

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