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## **MILK PRODUCTIVITY AND HEMATOLOGICAL PARAMETERS OF IMPORTED HOLSTEIN COWS**

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Dairy cattle breeding in Kazakhstan are the leading and most complex sub-sector of animal husbandry. The implementation of measures to support livestock breeding is carried out through the leasing of breeding cattle. Import is necessary primarily to strengthen its own breeding base by using valuable breeding stock to increase the genetic potential and productive qualities of animals in the Republic of Kazakhstan [1].

At the same time, an important issue in animal husbandry is the ability of the body of imported animals to adapt, that is, to accommodate the loads caused by changing conditions of detention, are limited by a rather narrow framework. Within the limits of maintaining the optimal dynamic constancy of the internal environment of the body, the adaptation process is associated with a serious load, which undoubtedly affects productivity, and with prolonged action leads to a disorder of physiological functions and often to a breakdown of them [2].

The adaptations of imported animals to the new technological conditions of farms and the environment are multifaceted. First of all, morphophysiological and genetic adaptations are manifested. Morphophysiological adaptation includes morphological, physiological, and biochemical changes that occur during adaptation, as well as changes in milk production and animal behavior. All these processes create prerequisites for further study of the adaptation of imported animals in the conditions of northern Kazakhstan and the development of zotechnical measures to improve milk productivity and milk quality, as well as to monitor the health status of cattle of foreign selection of milk productivity [3].

Holstein animals bred in Kazakhstan have very similar genetic characteristics with global populations of similar livestock. However, animals of this breed need to be further improved in terms of their constitution, exterior and productive qualities, as well as their adaptation, taking into account natural and climatic conditions. The study of the acclimatization abilities of various breeds will significantly expand the area of their distribution with the rational placement of animals in various natural and climatic zones of the country. [4].

Milk productivity is determined by the coordinated hard work of the entire cow's body. Studies by a number of authors show that for the formation of 1 liter of milk, it is necessary that 400-500 liters of blood pass through the cow's mammary gland.

All components of milk are formed from the blood that enters the mammary gland. However, the composition of blood and milk differ significantly. So, sugar in milk is 90 times more than in blood, fat – 9 times, calcium – 13, phosphorus – 10 times. At the same time, the protein in it is twice, and sodium is 7 times less than in the blood.

Milk proteins are formed in the udder, both as a result of filtration of certain components of milk from the bloodstream, and the synthesis of milk components in the process of cellular metabolism in the alveoli. Milk casein, lactoalbumin, and lactoglobulin are synthesized from amino acids delivered with blood in the mammary gland. Thus, for 80-90% of milk proteins, the precursors are free amino acids of the blood. The remaining 10-20% of milk proteins, i.e. immune globulins and serum albumins, are identical to these proteins in the blood, since they enter the milk from the blood unchanged by diffusion [5].

Blood in the body plays an extremely important role, because through it the metabolism is carried out. It delivers nutrients and oxygen to the cells of the body's organs, removing metabolic products and carbon dioxide.

According to the biochemical parameters of blood, it is possible to judge the intensity of metabolic processes, therefore, the level of milk productivity of animals.

A. S. Mokhov suggests using blood metabolites as additional tests in the selection of adapted animals aimed at increasing the milk productivity of cattle, by identifying and then breeding animals whose metabolic level is characteristic of cows with high milk productivity.

Studies of the relationship between indicators of milk productivity and hematological indicators of blood have a scientific novelty. The knowledge of the regularities between blood parameters, milk productivity and its main components in full-aged Holstein cows and improved genotypes of imported adapted cattle in the herd of the “Kamyshenka” commercial dairy farm is relevant. Their use in breeding work will increase the dairy productivity of imported cows [6].

According to the studies of Yu. A. Korchagin [7], lactating full-aged cows of the Yaroslavl breed in the studied period showed an increased content of total blood protein by an average of 4.3 g/l and 4.9%, in comparison with Holstein and improved peers. But at the same time, they also showed reduced activity of transamination enzymes (AST, ALT) by 32.3 u/l and 24.6 %; by 4.9 u/l and 15%; and increased activity of aminotransferase enzymes by 12.4 u/l and 12.5%; by 2.6 u/l and 9.2%, respectively, compared to crossbreeds.

This, to a certain extent, indicates a more intense exchange of proteins and their increased use by animals of the Yaroslavl breed. Apparently, the genetically determined features of protein metabolism provide a better-quality composition of milk in these animals – a higher protein content (3.63 %) with a sufficiently high fat content (4.07 %).

In Holstein cows, at high milk yields (7114.5 kg), the overall processes of all systems increase dramatically. They showed an increased activity of ALT and AST enzymes in comparison with these rocks by an average of 6.23 u / l and 18.8 %; by 38.43 u / l and 29.3%, respectively.

A positive relationship was found between the activity of transamination enzymes (ALT and AST) and milk yield in the improved type of Yaroslavl cattle. The most significant high dependence was shown in the Yaroslavl breed group between the activity of AsAt and milk yield and the protein content at the level of +0.24 and +0.33, respectively, and the activity of AlAt and the protein content at the level of +0.38.

The aim of the research is to study the milk productivity and hematological parameters of imported Holstein cows. In this regard, in the course of the work, the following tasks were set:

- Determination of milk productivity of imported Holstein cows;
- Determination of the milk composition of imported Holstein cows;
- Determination of hematological parameters of the blood of imported Holstein cows;
- The relationship between milk productivity and hematological parameters of imported Holstein cows;
- Calculation of the economic efficiency of milk productivity.

According to the tasks set, the animals were selected by the method of pairs of analogues and 2 groups were created. Scientific and economic experience is carried out on the basis of the commodity-dairy farm "Kamyshenka" of Akmola region. The materials for the research were the documents of the primary zootechnical accounting (from the IAS system), as well as the results of experimental studies. For the analysis of milk productivity, control milks are carried out during the lactation period with the determination of the chemical composition of milk in the laboratory of "Milk and Feed" of the S. Seifullin Kazakh Agro Technical University [8].

The farm uses a milking machine "Elochka" milking unit with simultaneous milking of 24 cows in the first module and the ADM-8 with simultaneous milking of 8 cows in the second module of the dairy farm. During the control milking, the device of zootechnical control of milk UZKM-1 was used. The average samples were collected in a 20 ml container. Daily samples of milk were examined according to the mass fraction of fat, protein on the milk analyzers "Clever 1M", "Clever 2M" and the number of somatic cells on the express analyzer "Somatos-Mini". Hematological parameters of the blood are determined by: hemoglobin, red blood cell, white blood cell, RBCDR (red blood cell deposition rate) according to generally accepted methods, using a microscope, Goryaev grid, etc.

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