



THE RELATIONSHIP OF MILK PRODUCTION OF ESTONIAN RED COWS WITH THE TYPE OF PRODUCTION

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Abstract. In the article, information on the milk yield of Estonian red cows of different production types is covered. Cows fed and kept under the same conditions on the farm showed different milk productivity during lactation in the cross-section of production types. Cows in experimental group II (type of milk production) gave 400 kg or 10.2 percent more milk during lactation than cows in control group I. In terms of 4% fat milk obtained during lactation, experimental group II was superior to cows of control group I by 370.7 kg units (** $P > 0.99$). When the indicators of milk fat and protein output of cows are compared, the cows of group II have higher milk fat output. I was superior to the control group by 14.8 kg and milk protein output by 9.8 kg (** $P > 0.99$).

Keywords. Estonian red breed, cow, milk productivity, production types, milk, dairy products, lactation, milk yield, milk fat, milk protein, non-fat dry milk residue, fat yield, protein yield, minimum requirement, 4 percent fat milk content, mineral substances etc.

Introduction. Cattle industry plays a key role in meeting the population's demand for milk and dairy products. A clear example of this is the fact that 99 percent of the dairy products produced in Uzbekistan are contributed by this sector.

Milk and milk products are important for human health and healthy living. Based on the latest data, milk contains more than 250 substances. As dairy products are considered dietary food, they are recommended for consumption by young children, the



elderly and even the sick. As such , the diet of people who work in contact with chemicals should definitely include dairy products. It has the ability to neutralize various harmful substances and gases entering the body from the external environment.

In livestock production, milk productivity is the first priority. The milk yield of cows during lactation is the basis of economic indicators in milk production. In normal condition, it is recommended to milk 300-305 days per year from one head of cow. Together with the amount of milk in lactation, the fat, protein and dry matter content are the main indicators in determining its quality.

Estonian red cows are used for milk production in some farms of Samarkand region. This breed is characterized by its adaptation to the climatic conditions of the region and is not very demanding on maintenance.

[6; p. 128], according to the information received, the Estonian red breed is one of the most common breeds. Some scientists believe that this breed is a milk breed, while others believe that it is a milk-meat breed.

[2; 26-29 p.] concluded that in order to create highly productive dairy herds, it is of great practical importance to select and breed cows in herds according to the type of body structure. According to the authors, the amount of milk of dairy cows is 4406 kg, which is 28.5% higher than that of milk-meat cows and 65.2% higher than that of meat-milk cows. observed. The yield of milk fat in dairy cows was 170 kg , which was 26% higher than that of milk-meat cows and 64.1% higher than that of meat-milk cows.

[4;3-6 p.] noted that the selection of cows with optimal body structure in herds is of great importance in improving the productivity characteristics of cows. Mating of milk-meat productive cows with dairy bulls in a one-to-one manner allows to increase the weight of dairy cows in herds, improve the type of body structure, and increase their productivity.

[7; 21-23 p.], [8 ; 49-50-p.], [1; 17-18-p.], [3; 42-43-p.] , [5; 19-p.] in the opinion of p . the use of type cows in the production of products gives good results.

The purpose and objectives of the research. A comparative study of milk productivity indicators of Estonian red cows in the same feeding and storage conditions, in the section of production types.



Research object and method. Studies During 2021-2023, it was carried out on adult Estonian red breed cows of the milk and milk-meat production type bred on the farm "Hamid Livestock Oasis". Keeping and feeding the experimental cows was organized in the same farm conditions. The method of Nichik B.A (1987) was used to determine the types of production of cows. In the experiment, milk-meat cows were assigned to group I and dairy cows to group II, 15 cows per group. Milk content of lactating cows was determined by passing control milk, milk fat content, protein, defatted dry matter, density, temperature, added water content in the Lactan 1-4 M analyzer;

The coefficient of milk yield, fat output, protein output, 4% fat milk content of cows were calculated based on generally accepted formulas. The data obtained as a result of the experiments were subjected to biometric processing by calculating the average arithmetic value and its error, the mean square deviation, the coefficient of variation (variation) based on the requirements of variational statistics developed by N.A. Plokshinskyi and E.K. Merkureva. The reliability level of differences between groups was determined using Student's t-test. Processing of obtained digital data was carried out using Microsoft Excel (2007) on a personal computer.

The obtained results and its analysis.

Taking these points into account, we studied and analyzed milk productivity indicators of cows of different production types in our experiments.

Table 1

Milk yield of experimental cows during lactation, (n=15)

Indicators	Groups			
	I		II	
	$\bar{X} \pm S_{\bar{X}}$	$C_v, \%$	$\bar{X} \pm S_{\bar{X}}$	$C_v, \%$
Milk yield, kg	3900.0 ± 61.66	6.12	$4300.1 \pm 63.81^{***}$	5.75
Fat content of milk, %	4.20 ± 0.07	6.17	4.15 ± 0.03	3.01
Protein content of milk, %	3.30 ± 0.03	3.03	3.22 ± 0.03	3.15



4% milk content	40 95 \pm 70.26	6.65	4460.5 \pm 74.78**	6.49
Milk fat output kg.	163.6 \pm 2.81	6.65	178.4 \pm 2.99**	6.49
Milk protein yield, kg	128.6 \pm 2.04	6.13	138.4 \pm 2.04**	5.71
Dry matter, %	12.87 \pm 0.10	3.10	12.67 \pm 0.09	2.86
Sugar, %	4.67 \pm 0.12	9.64	4.63 \pm 0.12	10.37
Mineral substances, %	0.70 \pm 0.01	6.83	0.68 \pm 0.01	5.30
Skimmed milk solids (SIM), %	8.67 \pm 0.13	5.63	8.53 \pm 0.10	4.68

Note : ** P >0.99; *** P >0.999

The numerical data obtained as a result of the research were summarized and reflected in the table below.

1 , we can see that although the experimental cows were kept under the same feeding and storage conditions, the cows of the II experimental group (milk production type) gained 400 kg or 10.2 during lactation from the cows of the I -control group. it was observed that the percentage gave more milk (*** P>0.999).

Estonian red cows are among the breeds that give high-fat milk in terms of fat content. The level of fat is normal, and we know that during the summer, the amount of milk of cows increases and the amount of fat in the milk decreases. In the winter, the amount of milk decreases, and the fat content of the milk level increases . We experimentally observed the fat content of milk of Estonian red cows. When we focus on these data, we can see that the milk fat content of the cows in the control group was 0.05% higher than that of the experimental group.

We know that protein is a high-molecular colloidal compound, which performs many functions of construction, transport, immunity and other functions in the body. It is easy to digest in the body. It has a great effect on the normal physiological state and normal functioning of the organ system. Essential amino acids are very important in protein. Place non-exchangeable amino acids at the expense of proteins good quality and poor quality to proteins our input can _ Casein, albumin and globulin proteins are common proteins in milk. Taking into account the place of proteins in human life, we



determined the protein content of experimental cows' milk. From the obtained results, we can see that the protein index of the cows in the control group was superior to that of the cows in the experimental group by 0.08%. Although the content of the milk milked during lactation was lower in the experimental group than that of the cows in the control group, when we expressed it as 4% fat milk, the experimental group II had 370.7 kg per unit, compared to the cows of the control group I. we can see that it prevails (**P>0.99). Milk fat and protein output are also taken into account when evaluating the milk productivity indicators of cows . It was found that it was superior to the control group by 14.8 kg and milk protein output by 9.8 kg (**P>0.99).

Dry matter in cow's milk is important in the production of dairy products. Because the amount of dry matter is directly related to the output of the product . When we studied the amount of dry matter in the milk of Estonian red cows, we obtained the following data, according to which the amount of dry matter in the cows of the control group was 12.87%, which was 0.2% higher than that of the cows in the experimental group II . The milk of cows in group I contained sugar 4.67% and mineral substances 0.70%, which was superior to that of cows in experimental group II by 0.04 and 0.02%. It is explained that it depends on the characteristics of the production type of cows within the breed. The skimmed milk solids index was found to be 0.14% higher in the milk of the control group cows.

Cattle breeds bred in the territory of the country must meet the minimum requirements set by this country. In our experiments, we studied and analyzed milk productivity indicators of Estonian red cows, comparing them with the minimum indicators set for this breed. The obtained data showed that Estonian red cows showed a high level of milk productivity compared to the minimum requirement, due to their good adaptation to the natural and climatic conditions of the farm.

Cows in both groups in the experiment recorded a result higher than the minimum requirement for milk production of the breed by 100 kg or 2.6%, and cows in group II by 500 kg or 13.2%. was determined. The amounts of fat and protein in milk were also high in both groups, 0.5 and 0.45, respectively; 0.2 and 0.12% was higher.



Table 2

Comparative evaluation of milk productivity indicators of experimental cows with minimum demand

Groups	During 305 days of lactation (III and large lactation)				
	Amount of milk	Milk fat		Milk protein	
	Kg	%	Kg	%	kg
Minimum requirement	3800	3.7	141	3.1	118
I	3900	4.2	163.6	3.30	128.6
II	4300.1	4.15	178.4	3.22	138.4
Relative to the minimum requirement, ±					
I	+ 100	+0.5	+22.6	+0.2	+10.6
II	+ 500.1	+0.45	+37.4	+0.12	+20.4

When the milk fat and protein output indicators were analyzed, it was 22.6 kg or 16% and 10.6 kg or 8.2% in the milk of cows of the I-group, respectively, and 37.4 kg or 26 in the milk of the cows of the II-group. .5% and 20.4 kg or 17.3% was superior.

Thus, Estonian red breed I II and large-breed cows recorded superior results in terms of milk volume, milk fat level and fat output, protein level and protein output, above the indicators of the minimum requirements set by the state. observed.

Summary. It was found that cows fed and kept under the same conditions on the farm showed different milk productivity during lactation in the cross-section of production types. Cows in experimental group II (type of milk production) gave 400 kg or 10.2 percent more milk during lactation than cows in control group I. In terms of 4% fat milk obtained during lactation, the experimental group II outperformed the cows of the control group I by 370.7 kg (**P>0.99). When the indicators of milk fat and protein output of cows are compared, the cows of group II have higher milk fat output. It was found that it was superior to the control group by 14.8 kg and milk protein output by 9.8 kg (**P>0.99). Cows in both groups in the experiment recorded a result higher than the minimum requirement for milk production of the breed by 100 kg or 2.6%. . The amounts of fat and protein in milk were also high in both groups, 0.5 and 0.45, respectively; 0.2 and 0.12% was higher.



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