RELATIONSHIP OF BIOCHEMICAL PARAMETERS OF BLOOD WITH MILK PROTEIN CONTENT IN BLACK-AND-WHITE COWS WITH LINEAR SELECTION

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Relevance. Among the indicators characterizing the biological, breeding and productive qualities of the breed, the composition of milk is an important feature. The mass fraction of fat and protein is determined by the peculiarity of the breed and is considered a breed trait. The number of dairy cattle in the Moscow subregion has a high genetic potential, the growth of which is due to the widespread use of Holstein bulls in the reproduction of livestock. It is generally accepted that the most pronounced changes in the composition of milk are observed at the beginning and at the end of lactation, but the composition of normal milk is also subject to changes with certain selection measures. The direction of selection associated with protein content is caused by the need to improve the quality of dairy products and it must be said that the greatest effect is achieved with direct selection for only one trait - the protein content in milk. In the breeding farm "Povadino" selection work begins with the fact that the genotypes of the cows of the breeding group are determined, while assessing the origin. Further, cows and sires with desirable genotypes are identified, their selection is carried out, however, the study of the relationship between milk protein content and blood biochemical parameters in cows with different selection options remains a little-studied issue, which was the basis for our research.

Key words: milk protein content, linear selection, mass fraction of fat and protein, lactation.

Table №. 1 Variability of milk protein in cows of different lines

Lactation	Vis Back Idial 1013415		Montwick Chieftain 95679		Reflection Sovering 198998		Sealing Traijun Rockit 252803	
	$\bar{X}$±Sx	Cv, %	$\bar{X}$±Sx	Cv, %	$\bar{X}$±Sx	Cv,	$\bar{X}$±Sx	Cv, %
I	2,96±0,01	4,0	2,96±0,02	4,1	3,00±0,02	3,0	2,96±0,01	3,0
II	2,97±0,02	6,3	2,95±0,02	4,3	3,01±0,02	5,1	3,01±0,02	5,1
III	2,99±0,03	6,1	2,98±0,02	4,2	3,01±0,02	5,1	2,98±0,02	5,2

The main way to create highly productive protein-milk and fat-milk herds is the selection of families and individual animals for the tribe with a high content of protein and fat and the use of producers-improvers of these traits tested for offspring for insemination of animals.

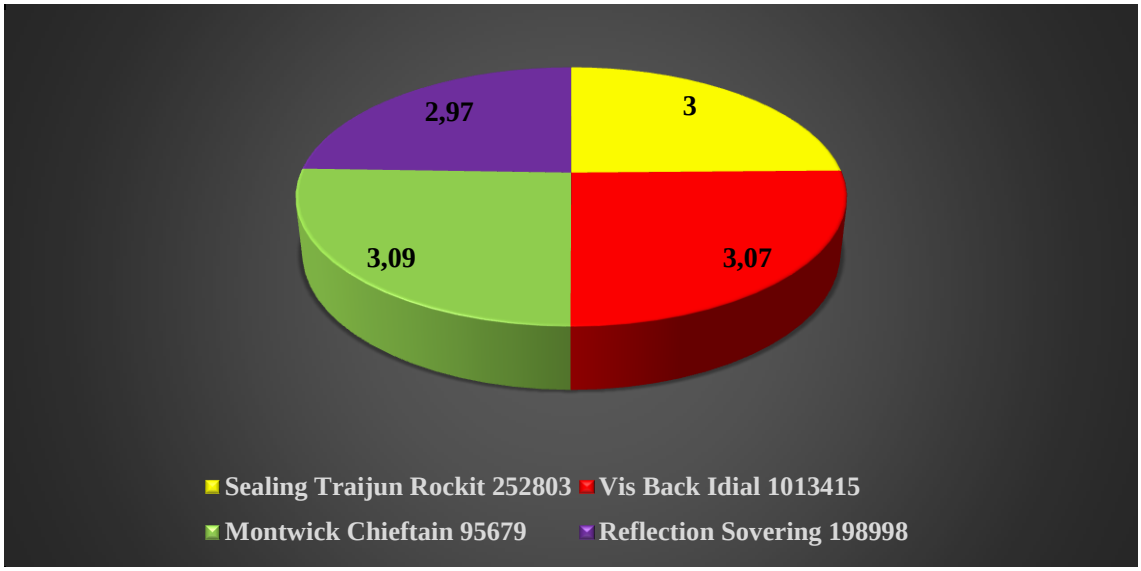
When assessing the variability of milk protein in cows of different lines, it was found that among all cows, a large variability in milk protein was found in the descendants of the line Siling Traijun Rokit 252803 for lactation III and amounted to 5.2%, while the content of the mass fraction of protein was the highest in the descendants of the line Montvik Chieftain 95679 - 2.95%. According to the second lactation, we note that the descendants of the Vis Back Idial 1013415 line are distinguished by a greater variability of the protein mass fraction of 6.3%. The third lactation is full-aged, that is, the period when more production can be expected from a cow, we found that a large variability in milk protein is observed in cows of the Vis Back Idial 1013415 line - 6.1%. Selection and breeding work in the Povadino NR is aimed at increasing milk productivity, while using different breeding methods, including both intraline breeding and line selection.

Table № 2 blood parameters in first-calf heifers with linear selection

Blood indicators	Линия			
	Sealing Traijun Rockit 252803	Vis Back Idial 1013415	Montwick Chieftain 95679	Reflection Sovering 198998
Hemoglobin, g/l	11,34	11,69	10,38	10,36
Erythrocytes, g/l	6,68	6,6	6,6	6,65
Total protein, g/l	95,6	81,3	85,7	85,5
Albumins, g/l	36,2	35,7	40,3	37,4
Globulins, g/l	59,4	45,6	45,4	48,1
Calcium, mol/l	3,18	3,28	3,15	3,09
Phosphorus, mol/l	2,67	2,19	2,7	2,43

Hematological studies were performed on clinically healthy cows, which were 2-3 months of lactation in the amount of 15 heads of each selection option, taking into account the origin.

An analysis of blood parameters in cows during linear selection shows that highly productive offspring of the Siling Traijun Rokit line with a protein mass fraction of 3.01% are characterized by a high content of total protein (95.6 g/l) in blood serum, an increased amount of globulin (59.4 g/l), but low levels of albumin (36.2 g/l). At the same time, for cows with significantly lower indicators of the mass fraction of fat (2.97%) in the descendants of the line Vis Back Idial and Montvik Chieftain (2.96%), an increase in blood serum protein occurs due to the globulin and albumin fractions.



Rice. 2 Mass fraction of protein in cows according to the highest lactation with linear selection

The analysis of productivity according to the highest lactation showed that cows showed an increase in the mass fraction of protein. The highest rates of increase in the percentage of fat in milk were observed in the descendants of the line Montvik Chieftain 95679 3.09%, Vis Back Idial 1013415 3.07%. The protein content in milk in cows of different lines ranged from 2.97 to 3.09.

Thus, studies have shown that with linear selection, animals have high rates of milk protein. The further use of linear selection with a high degree of probability will have a positive impact on the genetic potential of the breeding stock.

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