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Zh N Khuzhamov
Samarkand Agricultural Institute, Uzbekistan

AK Kakharov
Samarkand Agricultural Institute, Uzbekistan

Correspondence
Zh. N Khuzhamov
Samarkand Agricultural Institute, Uzbekistan

Coefficient of bovine malnutrition as a function of their genetic origin

Zh N Khuzhamov and AK Kakharov

Abstract
This article presents data on the milk yield factor, milk yield per 100 kg of live weight from the calculation of the basis fat content (4%), total yield of milk fat and protein in milk in cows of different genotypic origin, i.e. purebred Holstein and black-and-white breeds, as well as in crosses of different genotype, obtained from their crossing.
The obtained results of studies on the issues studied showed the superiority of cows belonging to different selections of the Holstein breed in comparison with the black-and-white varieties of the different genotypes. In particular, this was noted in cows of IV-experimental group, belonging to the German selection.

Keywords: Holstein and black-motley breeds, lactation, milk production, live weight, milk ratio, total yield of milk fat and protein

Introduction

Actuality of the topic: Milk, characterized by its high nutritional and dietary properties, is an important food for humans. It includes more than 100 components, which play an important role in the metabolism of the body. Worldwide, per capita is about 107 kg of consumer milk, including 88.8 kg or 83% of cow milk. From this point of view, studies aimed at improving the milk productivity of cows and improving its ecological quality are of high priority.
In connection with this, in the world practice, including in Uzbekistan, through the effective use of the world gene pool of the Holstein seed, the economically useful signs of dairy cattle are being improved. Comparative analysis, obtained data in the process of experiments and their analysis determines the relevance of this work.

The purpose of the research: the purpose of the research of this article is to study the milking factor of cows belonging to different breeds and breeds.

Materials and methods of research: the experimental part of the research was carried out in a specialized production cattle farm "Siyob Shavkat Orzu" in the Taylak district of the Samarkand region. For the experiments by the method of analogues, four groups of cows with 15 heads in each were selected and formed, totaling -90 heads. The I-group consisted of purebred cows of black and motley breed, the II group - first-generation hybrid cows (Ғ1), obtained as a result of copulation of cows of black and motley breed with Holstein breed bulls named ACERED and MALE, imported from the USA, III group - second-generation hybrid cows (Ғ2) IV, V and VI-groups - purebred Holstein cows belonging respectively to the German, Polish and Dutch selections.
Milk productivity of cows, milk yield of 4%, milk ratio were determined by conventional zootechnical methods.
Biometric analyzes of the obtained results were processed according to E.K. Merkuryeva (1983) by the method of small variational samples.
Results of the research and analysis of the data obtained. The conducted researches showed that the live weight of cows of black and motley breed and hybrids of different genotype was less than that of pure Holstein cows.

In particular, in the case of I-group cows, this indicator was less by 24.8 kg (P <0.05) or 5.6%, in comparison with the coevals in II, III, IV, V and VI-experimental groups kg (P <0.001) or 16.9%, 116.4 kg (P <0.001) or 26.1%, 205.3 kg (P <0.001) or 46%, 269.4 kg (P <0.001) or 60, 3%, respectively.

In the III-experimental group in the second-generation hybrid cows, the live weight exceeded the I-II test groups by 75.3 kg (P <0.001) or by 16.9%, and by 50.5 kg (P <0.01) or 10, 7%.

The live weight of cows in the VI-experimental group belonging to the Dutch breeding was 716.0 kg, which exceeded the IV and V-experimental groups belonging to the German and Polish selections by 153 kg (P <0.001) or by 27.2% and 64.1 kg (P <0.01) or 9.8%, respectively.

In the second lactation, similar indices were observed for the difference between groups. In this case, purebred and crossbred cows of different genotypes lagged behind pure Holstein cows belonging to different selections.

he highest live weight indices were observed in cows of the IV-experimental group belonging to the Dutch breeding, this figure exceeded the index of their peers in I, II, III, IV and V-groups by 284.1 kg (P <0.001) or 58.4%, 244.9 kg (P <0.001) or 47.3%, 193.8 kg (P <0.001) or 34%, 149.5 kg (P <0.001) or 24.4% and 58.5 kg (P <0.01) or 8.3%, respectively.

As is known, there is a positive correlation between milk productivity and live weight. Consequently, the coefficient of milk yield in cows of different breeds and species was different. Thus, in the I-group of purebred black-and-variegated cows in the first lactation, the milk ratio was 901.1 kg, this ratio in relation to the coevals in the II, III, IV, V and VI-experimental groups was less by 157.2 kg (P <0.001) or 17.4%, 194.3 kg (P <0.001) or 21.6%, 705.9 kg (P <0.001) or 78.3%, 469.9 kg (P <0.001) or 52.1% and 444.9 kg (P <0.001) or 49.4%, respectively.

The milking factor of the experimental cows ($\bar{x} \pm S_x$)

Groups	I - Lactation (n = 15)						II - Lactation (n = 15)					
	Live weight, kg	Actual milk yield for lactation, kg	Milk ratio, kg	Produced per 100 kg of live weight.			Live weight, kg	Actual milk yield for lactation, kg milk yield of 4%,kg	Milk ratio, kg	Produced per 100 kg of live weight.		
				milk yield of 4%,kg	Milk fat, kg.	Milk protein, kg				milk yield of 4%,kg	Milk fat, kg.	Молоч-ный белок, кг
I	446,6±5,1	4024,7±45,1	901,1±0,55	860,7±0,52	34,4±0,12	30,0±0,39	481,8±7.4	4519,2±238,4	938,0±0,62	897,9±0,47	35,9±0,11	31,4±0,12
II	471,4±8,5	4989,0±80,6	1058,3±0,28	1016,1±0,41	40,6±0,13	35,3±0,48	518,3±9,1	5794,3±62,0	1118,0±0,35	1075,9±0,67	43,0±0,49	37,5±0,29
III	521,9±6,9	5717,1±152,0	1095,4±0,60	1065,3±0,42	42,6±0,27	36,7±0,53	569,4±4.8	6788,9±112.3	1192,2±0,61	1162,6±0,51	46,5±0,40	40,2±0,19
IV	563,0±13,3	9046,8±119,0	1607,0±0,51	1586,7±0,35	63,4±0,54	54,1±0,53	613,7±11,3	9435,3±161	1537,4±0,46	1526,1±0,78	61,2±0,50	51,9±0,22
V	651,9±16,5	8937,9±137,5	1371,0±0,55	1357,1±0,42	54,3±0,44	46,2±0,64	704,7±15.3	9288,4±183	1318,0±0,34	1304,6±0,78	52,2±0,43	44,4±0,27
VI	716,0±12,1	9637,9±194,6	1346,0±0,47	1339,2±0,38	53,5±0,42	45,5±0,65	763,2±12,4	10092,7±241,5	1322,3±0,57	1322,4±0,59	52,9±0,46	44,8±0,51

The highest coefficient of milk yield was observed in cows of the IV group belonging to the German breeding and made 1607.0 kg in cows; this indicator was exceeded by 236 kg (P <0.001) or 17.5 compared to their coevals belonging to the Polish and Dutch selections % and 261 kg (P <0.001) or 19.4%, respectively.

Similarly, in the second lactation, the highest milking factor was observed in the IV group of cows belonging to the German breeding, which exceeded this figure for the cows in the I, II, III, V and VI-test groups by 599.4 kg (P < 0.001) or 63.9%, 419.4 kg (P <0.001) or 37.5%, 345.2 kg (P <0.01) or 29.0%, 219.4 kg (P <0.001) or 16.6% and 215.5 kg (P <0.01), or 16.3%, respectively.

In these studies, the determination of the total yield of milk fat and protein was the main indicators. The results obtained from these indicators are given in the 1-table. It should be noted that these indicators are exceeded in pure Holstein cows in comparison with Holstein breed coevals and purebred black-and-motley cows. In the period of the first lactation, a maximum yield of 4% of milk was recorded in cows of the IV-experimental group belonging to the German selection, which amounted to 1586.7 kg. This indicator exceeded the data in I, II, III, V and VI-test groups by 726.0 kg (P <0.001) or 84.3%, 570.6 kg (P <0.001) or 56.2%, 521, 4 kg (P <0.01) or 48.9%, 229.6 kg (P <0.05) or 16.9% and 247.5 kg (P <0.05), or 18.5%, respectively.

The indicators of the total yield of milk fat and protein for every 100 kg of live weight were also exceeded in the IV-test group and this ratio was accordingly higher in comparison with the others: by 29.0 kg (P <0.001) or 84.3%, 22, 8 kg (P <0.001) or 56.2%, 20.8 kg (P <0.01) or 48.8%, 9.1 kg (P <0.05) or 16.7%, 9.9 kg (P <0.05) or 18.5% and 24.1 kg (P <0.05) or 80.3%, 18.8 kg (P <0.001) or 53.3%, 17.4 kg (P <0.001) or 47.4%, 7.9 kg (P <0.05) or 17.1%, 8.6 kg (P <0.05), or 18.9%.

In the second lactation, the maximum results were observed in the IV-test group, where the milk yields of 4% milk, the total yield of milk fat and protein for every 100 kg of live weight were obtained. These indicators were exceeded in comparison with the coevals I, II, III, V, VI-test groups: 628.1 kg (P <0.001) or 69.9%, 450.2 kg (P <0.001) or 41.8%, 363.5 kg (P <0.001) or 31.3%, 221.5 kg (P <0.05) or 17% and 203.7 kg (P <0.05) or 15.4%; 25.3 kg (P <0.01) or 70.5%, 18.2 kg (P <0.01) or 42.3%, 14.7 kg (P <0.01), or 31.6%, 9.0 kg (P <0.05) or 17.2%, 8.3 kg (P <0.05) or 15.7% and 20.5 kg (P <0.001) or 65.3% 14, 4 kg (P <0.01) or 38.4%, 11.07 kg (P <0.01) or 29.1%, 7.5 kg (P <0.05) or 16.8% 7.1 kg (P <0.05) or 15.8%, respectively.

Conclusions

Purely Holstein cows belonging to the German, Polish and Dutch selections were superior in milk ratio, milk yield of 4% of milk fat and milk protein of pure black and variegated as well as crossbred cows of different genotype. In this case, the IV-experimental group of cows of German breeding was superior in all indicators to the coevals of other groups.

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