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WAYS TO INCREASE MILK PRODUCTION USING BIOLOGICAL CHARACTERISTICS AND PARATYPICAL FACTORS OF COWS

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Abstract: In this article, it is important to study the characteristics of metabolism in the body of cows, and the study of blood parameters in evaluating the nutritional value of their diet. In our experience, the indicators of the composition of the blood of cows were studied according to the seasons of the year. Animal husbandry is considered the main branch of agriculture, it includes cattle breeding, sheep breeding and goat breeding, sheep breeding and camel breeding, rabbit breeding, poultry farming, beekeeping, fishing and other industries. It also develops standards for the use of males and females for breeding, the hygiene of dairy cows, and the correct use of working animals. In the summer period, methods of feeding livestock, keeping it in the open ground, daily routine, watering and protection from various insects and ticks are also important.

Key words: feeding, animal hygiene, milk yield, fertility, breed, seasons, morphological indicators of blood.

1.Introduction.

Cattle breeding is the leading branch of animal husbandry and plays an important role in providing the population with food products such as quality milk and meat. Today, more than 1000 breeds of cattle are bred in the countries of the world. In the Netherlands, Israel, Germany, Denmark, and the USA, where the cattle breeding network is developed, on average, more than 8,000-10,000 kg of milk is milked from each head of cow per year, and the fat content is 4.5-5.0%. constitutes For the more sustainable development of the industry, it is necessary to effectively use the seeds of breeding bulls of the improving breed category of breeds of the world gene pool with high genetic potential in terms of productivity in artificial insemination, in order to further improve the milk yield of cows, the characteristics of fertility, to breed cows that meet the requirements of modern technologies in production. , great importance is attached to creating conditions of full feeding and care for them.

In the leading scientific centers of the world, on the basis of the use of the genotype of valuable breeds of cattle, based on the study of the breeding characteristics of breeds bred in most countries, the scientific basis of its use and scientifically based technological solutions are being developed and improved. Effective use of purebred bulls of the American and Canadian selection of the Holstein breed, as a result of strengthening the heredity of cows, increasing milk productivity, and improving quality. New breeds and types of breeds are being created as a result of effective and planned extensive selection work.

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2.Materials and Methods.

Animal husbandry is considered the main branch of agriculture, it includes cattle breeding, sheep breeding and goat breeding, sheep breeding and camel breeding, rabbit breeding, poultry farming, beekeeping, fishing and other industries. It also develops standards for the use of males and females for breeding, the hygiene of dairy cows, and the correct use of working animals. In the summer period, methods of feeding livestock, keeping it in the open ground, daily routine, watering and protection from various insects and ticks are also important. While most zoohygienic measures are aimed directly at protecting humanity from zooanthroponotic diseases, animal injuries, occupational diseases and diseases caused by unfavorable microclimatic conditions in livestock buildings, in our experiment we studied the extent to which certain biological features and paratypical factors affect on cow productivity. As an experiment, cows of the same Holstein breed were taken in terms of productivity and age when feeding cows on the farm of group I with binding (care), on the farm of group II when feeding cows without binding in the winter-summer spawning ground (maintenance), and in III -group, we included cows when the cows were on the farm both tethered and not tethered to the spawning ground (leaving). It was studied mainly on dairy cows of the Holstein breed.

3.The obtained results and their analysis.

Physiological level of metabolic process in animal body largely depends on blood. Because blood is the main factor that opens up the process of metabolism (exchange of

intermediate substances, which includes all enzymatic reactions). That is why, in our research, we determined the level of blood saturation with necessary and important elements and presented the obtained data in the table below.

Table 1 Morphological indicators of the blood of animals in the experimental group in the cross-section of the seasons, (X±Sx)

Groups, (n=10)	**Erythrocytes, mln/m^3**		**Leukocytes, ming m^3**		**Hemoglobin, g/%**	
	(X±Sx)	Sv,%	(X±Sx)	Sv,%	(X±Sx)	Sv,%
In spring (march)						
I	5.84±0,01	0,58	6,85±0,02	0,42	10,04±0,013	0,22
II	5,93±0,001	0,07	7,04±0,012	0,29	10,26±0,018	0,31
III	6,03±0,012	0,35	7,11±0,022	0,54	10,33±0,014	0,24
In summer (july)						
I	6,18±0,002	0,07	7,24±0,008	0,19	10,51±0,011	0,19
II	6,21±0,014	0,40	7,35±0,015	0,35	10,66±0,008	0,14
III	6,24±0,018	0,48	7,40±0,012	0,30	10,72±0,011	0,19
In autumn (october)						
I	6,03±0,012	0,34	6,90±0,012	0,29	10,07±0,020	0,35
II	6,10±0,013	0,35	7,14±0,013	0,31	10,19±0,008	0,14
III	6,13±0,014	0,39	7,25±0,008	0,19	10,31±0,014	0,25
In winter (january)						
I	5,66±0,018	0,54	6,98±0,017	0,41	10,14±0,014	0,25
II	5,75±0,018	0,52	7,20±0,01	0,24	10,42±0,013	0,22
III	5,82±0,012	0,33	7,37±0,02	0,42	10,49±0,017	0,29

the analysis of the table showed that the amount of erythrocytes in the blood of III-group animals in the experiment was higher in the summer than in the winter, that is, 6.24 million/m3 in the summer, and the same in the rest of the animals of the I and II groups the indicator was respectively: 6.18, 6.21 million/m3. In all seasons of the year, our experience showed that the blood of III-group animals is more saturated with the necessary elements than their counterparts of I and II groups. Group III animals were superior to their peers in terms of leukocytes and hemoglobin.

Table 2 Biochemical composition of animal blood. (X±Sx)

Indicators	**Groups**		
	I	II	III
	In spring (march)		
Total protein, g %	6,43±0,01	6,45±0,01	6,48±0,01
Albumin, g %	2,13±0,01	2,98±0,01	2,94±0,01
Globulin, g %	3,10±0,01	4,07±0,01	4,14±0,01
including:			
al'fa-globulin	1,02±0,01	1,04±0,01	1,04±0,01
beta-globulin	1,10±0,01	1,09±0,01	1,07±0,01
gamma-globulin	1,58±0,01	1,54±0,01	1,61±0,01
In summer (july)			

Total protein, g %	6,52±0,01	6,54±0,01	6,55±0,01
Albumin, g %	3,03±0,01	2,96±0,01	3,00±0,01
Globulinlar, g %	4,09±0,01	4,18±0,01	4,15±0,01
including:			
al'fa-globulin	1,05±0,01	1,05±0,01	
beta-globulin	1,11±0,01	1,13±0,01	1,14±0,01
gamma-globulin	1,53±0,01	1,80±0,01	1,75±0,01
In autumn (october)			
Total protein, g %	6,41±0,01	6,44±0,01	6,47±0,01
Albumin, g %	2,95±0,01	3,23±0,01	3,23±0,01
Globulin, g %	4,06±0,01	4,21±0,01	4,24±0,01
including:			
al'fa-globulin	1,00±0,01	1,01±0,01	
beta-globulin	1,11±0,01	1,10±0,01	1,08±0,01
gamma-globulin	1,55±0,01	1,50±0,01	1,54±0,01
In winter (january))			
Total protein, g %	6,40±0,01	6,41±0,01	6,44±0,01
Albumin, g %	2,99±0,01	2,94±0,01	3,02±0,01
Globulin, g %	4,01±0,01	4,25±0,01	4,22±0,01
including:			
al'fa-globulin	1,00±0,01	1,01±0,01	
beta-globulin	1,12±0,01	1,11±0,01	1,11±0,01
all-globulin:	1,49±0,01	1,53±0,01	1,49±0,01

It is important to determine the biochemical composition of blood regardless of the sex, age and productivity of animals. Therefore, in our research, we presented the data on these indicators in Table 2.

From the data of *Table 2*, it can be concluded that the amount of total protein in the blood and its biochemical composition changed during the seasons of the year. In particular, the amount of total protein in animals of all experimental groups was higher in the summer season than in the winter season. In particular, this difference was 0.12% in group I, 0.13% in group II, and 0.11% in group III. The total protein index in the blood also differed according to the genotype of the animals. In this case, the cows of the III-experimental group compared to their peers, the animals of the I, II-groups, respectively: in the spring season of the year: 0.05%, 0.03% in the summer season of the year: 0.03%, 0.01%, in the fall of the year 0.06%, 0.03% in the season, 0.04%, 0.03% in the winter season.

The main part of the total protein in the blood was globulins in animals of all experimental groups and was in the range of 4.01-4.25 g%. The most amount of globulin was gamma globulin in animals of all experimental groups (between 1.49-1.80 g %) and the least was alpha globulin (1.00-1.06 g in the range of %) and beta globulin occupied an intermediate position according to this indicator (in the range of 1.07-1.14 g%).

It is important to determine the protein fractions in the blood by calculating the relative index. Taking this into account, we determined this indicator and presented it in *Table 3 below*.

From the analysis of the data in this table, it can be seen that the amount of albumin in the animals of all experimental groups was in the range of 39.98-42.41% during the seasons of the year. The index of globulins was higher than albumin and was in the range of 54.76-56.09 %.

Table 3 Relative indicators of protein fractions of blood of animals in experimental groups.

Indicators	Groups		
	I	II	III
In spring (march)			
Albumin	39,98	40,68	41,13
Globulin:	55,87	55,31	56,02
al'fa-globulin	26,37	27,04	26,57
beta-globulik	27.72	28,21	28,23
gamma-globulin	39,40	39,71	39,75
A\g coefficient	0,715	0,735	0,734
In summer (july)			
Albumin	40,24	**39,91**	40,99
Globulinlar:	55,08	55,62	56,09
al'fa-globulin	26,97	26,54	27,14
beta-globulik	28,54	28,37	28,80
gamma-globulin	38,32	39,09	39,23
A\g coefficient	0,730	0,717	0,731
In autumn (october)			
Albumin	40,51	**41,24**	42,41
Globulin:	55,49	54,76	55,59
al'fa-globulin	26,17	26,74	26,77
beta-globulik	28,75	28,19	28,88
gamma-globulin	39,08	38,38	39,11
A\g coefficient	0,730	0,753	0,763
In winter (january)			
Albumin	41,11	40,65	41,88
Globulin:	54,89	54,72	55,35
al'fa-globulin	26,51	26,47	26,91
beta-globulik	29,35	28,82	29,42
gamma-globulin	38,14	38,05	38,71
A\g coefficient	0,749	0,743	0,756

The ratio of albumin and globulins or A/g coefficient was 0.715-0.735 in spring, 0.717-0.731 in summer, 0.730-0.763 in autumn, and 0.743-0.756 in winter. Thus, the biochemical composition of the blood of experimental animals and the relative indicators of protein fractions were at the level of physiological norm.

The morphological and biochemical composition of the blood of the animals in the experimental groups was mostly at the level of the physiological norm. However, regardless of the genotype, age and sex of the animals, all the studied indicators were at a higher level in the summer season compared to the winter season. This is due to the fact that in the summer, the animals received a

large amount of nutritious and mineral substances with green feed, and their body was saturated with the necessary substances. As a result, biological processes such as metabolism and recovery in the body have increased.

The Republic of Uzbekistan is a hot region due to its climatic conditions. This has a negative effect on the flexibility of the animal organism, its resistance to the metabolic process. Therefore, it is important to determine the heat resistance index of animals. Taking this into account, we defined this indicator in **Table 4 below**.

Table 4 Heat resistance index of cows in the experimental group

Groups (n=10)	**III-Lactation**	
	X±Sx	S v,%
I	85,91±1,83	4,50
II	86,45±1,51	5,66
III	86,70±2,04	4,51

the analysis of table indicators showed that cows in all experimental groups were distinguished by high heat resistance indices, which indicates that they are well adapted to hot climate conditions. In this case, imported Holstein cows of different breeds of I, II, III groups achieved a high index from 0.25 units to 0.79 units in III lactation.

RESULTS(The results obtained from our research): Heat resistance coefficient of animals. Rauschenbach Yu.O. was studied according to the following formula:

IChK=2(0.6t2-10dt+26)

In this; ICHK- coefficient of heat resistance,

t2- daytime air temperature at which body temperature is determined,

dt is the difference between morning and afternoon body temperature. also corresponds to the recommendations. The authors considered such cows as high heat resistance if the heat resistance index is 79-88 units, and low heat resistance if it is 61-75. And the results obtained from our research are more than 87 units.

Thus, regardless of their genetic origin and age, the clinical and physiological parameters of all experimental cows were mostly at the standard level. However, purebred Holstein cows were superior to purebred and Holstein Black-Ola cows with their clinical indicators, satiety of necessary substances, high level of resistance and heat tolerance index. That is why they have achieved the full manifestation of their genetic potential in terms of milk productivity.

4.Author Contributions: J.N.Khujamov, A.T.Soyibjonov, Z.Sh.Mirsaidova, Sh.E.Kurbanova, Sh.T.Gapparov. In this article, it is important to study the characteristics of metabolism in the body of cows, and the study of blood parameters in evaluating the nutritional value of their diet. In our experience, the indicators of the composition of the blood of cows were studied according to the seasons of the year.

5.CONCLUSIONS.

In this article, in the study and assessment of the physiological state of cattle and the level of adaptation to external environmental conditions, their clinical indicators are of particular importance in the cross section. Maintaining these indicators at the level of physiological norms is important for maintaining the health of cows and their effect on productivity.

6.LIST OF REFERENCES

1. Rauschenbach, Yu.O. Teplo i kholodoustoychivost selskohozyaystvennyx jivotnyx. - Novosibirsk, Nauka. 1975. p. 46.

2. Kakharov, A.K., Narbaeva M.K., Kurbanova Sh.E., Makhmadiyorov O.A.Zootechnical and economic efficiency of Holsteining in cattle breeding. "Zooveterinaria" magazine 2013. No. 1. p. 46-47.

3. Shokirov, Q.J. Improving climate adaptation, breeding and productivity qualities of Holstein and Flegfix Simmental breeds in the conditions of Uzbekistan. Autoref. diss. dr. s-x. science Tashkent. 2016, 42 p.

4. Khujamov, A.K. Kakharov, F.R. Sattorov, Lochinkhon Oripov, Nemtsova Elena Valentinovna "Prospects for increasing the milk yield of cows in the Zarafshan oasis" Monograph 2020. 144 pages

5. Suleymanova, M. K., Kh, Z. N., & Khuseinova, M. (2023). GENETIC TESTING OF SHEEP BY THE ALPHA-CASEIN DAIRY GENE (CSN1S). *SCIENCE AND EDUCATION. ANIMAL HUSBANDRY.*, (2 (71)), 31-39.

6. Xujamov, J. N., Amonov, R., Toshboyva, M., & Burxonov, B. (2023). TURLI ZOT VA ZOTDORLIKDAGI SIGIRLARNING SUT VA SUT MAHSULOTLARINI BA'ZI TEXNOLOGIK KO 'RSATKICHLARI. *AMALIY VA TIBBIYOT FANLARI ILMIY JURNALI*, 78-83.

7. Xujamov, J. N., Amonov, R., Toshboyva, M., Eshmo'minova, M., & Rajabova, M. (2023). TURLI ZOTGA VA GENOTIPGA EGA BOLGAN SIGIRLARNINGNING ISSIQQA CHIDAMLILIK KOEFFITSIENTI. *AMALIY VA TIBBIYOT FANLARI ILMIY JURNALI*, 63-66.

8. Xujamov, J. N., Mirsaidova, Z., Hamidova, R., & Jo'rayev, B. (2023). RESPUBLIKAMIZ CHORVACHILIGINI RIVOJLANTIRISh HOLATI VA ISTIQBOLLI REJALARI. *AMALIY VA TIBBIYOT FANLARI ILMIY JURNALI*, 37-44.

9. Jurabek, Z., Xujamov, A., & Mirsaidova, D. (2023). QORAMOLLARNING MAHSULDORLIGINI OSHIRISHDA NASLLI BUQALAR TIZIMIDAN SAMARALI FOYDALANISH. *монография*.

10. Nayimovich, X. J., & Alisherovna, T. M. (2022). GOLSHTIN ZOTLI BUQALARNI MAHSULDORLIK KO 'RSATKICHLARI BO 'YICHA TAQQOSLAB O 'RGANISH. *PEDAGOGS jurnali*, *6*(1), 102-106.

11. . Allaberdievich, K. S., & Ergashevna, K. S. (2023, February). Fertility Characteristics of Cows Belonging to Different Selections. In *Interdisciplinary Conference of Young Scholars in Social Sciences (USA)* (pp. 94-96).

12. Botir o'g'li, X. X., & Ergashevna, Q. S. (2023). TAJRIBADAGI HAYVONLARNING CHIZIQLI O 'LCHAMLARI VA TANA INDEKSLARI. *AGROBIOTEXNOLOGIYA VA VETERINARIYA TIBBIYOTI ILMIY JURNALI*, 247-254.

13. Botir o'g'li, X. X., & Ergashevna, Q. S. (2023). TAJRIBA GURUHLARIDAGI HAYVONLARNING O 'SISH VA RIVOJLANISH KO 'RSATKICHLARI. *AMALIY VA TIBBIYOT FANLARI ILMIY JURNALI*, 84-89.

14. Ulmasovna, I. D., & Ergashevna, Q. S. (2023). TAJRIBA GURUHIDAGI SIGIRLARNING SUT MAHSULDORLIGI. *AMALIY VA TIBBIYOT FANLARI ILMIY JURNALI*, 100-105.

15. Ergashevna, K. S., Tuychievna, A. M., Ulmasovna, I. D., & Bakhodirovich, D. B. (2022). State of Animal Husbandry and Prospects for the Development of Livestock Breeding in Uzbekistan. *Journal of Ethics and Diversity in International Communication*, *2*(5), 83-87.

16. Ахтамова, М. Т., Маматов, Х. А., & Гаппаров, Ш. Т. (2022). ГОЛШТИН ЗОТЛИ ҚОРАМОЛЛАРДА ОЗУҚАЛАРНИ ТИРИК ВАЗН ЎСИШИ ВА СУТ БИЛАН ҚОПЛАШ КЎРСАТКИЧЛАРИ. *AGROBIOTEXNOLOGIYA VA VETERINARIYA TIBBIYOTI ILMIY JURNALI*, 513-516.