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Clinical Indicators Of Cows In The Experimental Group

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Abstract: Breathing and heart rates of the cows in the experimental group were within the physiological norm in all seasons of the year. In the summer, body temperature was 0.5-0.6 0C higher than in the fall, 0.9-1.0 0C higher than in the winter, and 0.2-0.3 0C higher than in the spring; breathing rate (times/minute) was 2.8-3.6 times/minute higher than in the fall, 3.8-4.4 times/minute higher than in the winter, and 2.6 times/minute higher than in the spring; heart rate (times/minute) was 5.0-6.0 times/minute higher than in the fall, 5.0-8.0 times/minute higher than in the winter, and 5.0-7.0 times/minute higher than in the spring.

Keywords: Body temperature, respiration, heart rate, physiological norm, physiological indicators, clinical indicators.

Introduction: Regardless of the type, breed, sex, age and productivity of farm animals, their physiological indicators, i.e. clinical and hematological status, must be at the required level. Clinical indicators of animals include indicators such as respiratory rate, body temperature and heart rate.

Breathing – it is a physiological act that includes a number of biochemical processes that ensure the release of carbon dioxide and water as a result of the consumption of oxygen taken into the body by the tissues. Energy is necessary for the occurrence of various physiological processes in the body. This energy is mainly generated as a result of oxidation-reduction processes occurring in the body. Oxidation processes occur with the participation of oxygen. Therefore, the process of breathing must always occur continuously for the life and activity of all cells in the body. [2].

The body temperature of cattle, including cows, is determined rectally. To do this, the thermometer is smeared with petroleum jelly or a fatty substance on the inside, inserted into the rectum, and after 5-10 minutes, the thermometer is removed. To prevent it from falling out, it is fixed to the base of the tail with a special hook. The respiratory rate of cows is determined by properly controlling their head, paying attention to the rise and fall of the chest and abdomen, or by checking the air entering and leaving the nasal cavity.

In cattle, the heart rate is determined around the tail or by examining the mandibular artery (by pressing the base of the tail with your fingers or by pressing the mandibular artery, that is, on the inside of the lower jaw with your fingers). [1].

Research location and method

The research was conducted in 2023-2025 at the “Toshatov Normumin M” cattle breeding farm in Mirishkor district, Kashkadarya region. Based on the requirements for similarity traits for the experiment, taking into account breed, pedigree, and age, black-and-white Holstein cows imported from Belarus were divided into experimental group I, red-and-white Holstein cows imported from Estonia were divided into experimental group II, and red Estonian cows imported from Estonia were divided into experimental group III, and 20 heads were selected for each group.

Research results. In our research, we studied the clinical indicators of cows in the experimental groups by season and presented them in Table 1 below.

Table 1

Clinical indicators of cows in experimental groups, (n = 20)

Groups	Body temperature, ^{0}C	Cv,%	Breathing, (times/minute)	Cv,%	Heartbeat, (times/minute)	Cv,%
Winter						
I	37,9±0,06	0,70	25,6±0,19	3,20	68,0±0,50	3,20
II	37,9±0,05	0,60	25,4±0,20	3,47	68,0±0,43	2,78
III	37,8±0,04	0,51	25,0±0,22	3,89	65,0±0,46	3,07
Spring						
I	38,6±0,05	0,62	26,8±0,27	4,46	69,0±0,34	2,15
II	38,5±0,05	0,54	26,8±0,23	3,75	68,0±0,37	2,38
III	38,5±0,06	0,65	26,8±0,24	3,94	66,0±0,43	2,86
Summer						
I	38,8±0,08	0,89	29,4±0,24	3,55	73,0±0,35	2,08
II	38,8±0,07	0,78	29,2±0,19	2,85	72,0±0,53	3,21
III	38,8±0,06	0,67	28,6±0,22	3,47	70,0±0,47	2,93
Autumn						
I	38,2±0,07	0,08	26,6±0,25	4,11	68,0±0,51	3,30
II	38,3±0,06	0,68	26,6±0,27	4,46	68,0±0,39	2,52
III	38,3±0,07	0,81	26,0±0,29	4,83	67,0±0,46	298

From the analysis of the data in Table 1, it can be seen that, regardless of the breed and pedigree of the cows, their body temperature, respiratory rate per minute and heart rate were within the physiological norm in all seasons of the year. However, in the summer, the body temperature, respiration rate and heart rate of the black-and-white Holstein cows in experimental group I were 0.9 0C (2.3%), 3.8 times (12.9%) and 5.0 times (6.8%) higher than in winter, 0.2 0C (0.5%), 2.6 times (8.8%) and 4.0 times (5.5%) higher than in spring, and 0.6 0C (1.5%), 2.8 times (9.5%) and 5.0 times (6.8%) higher than in autumn. Almost the same tendency was observed in clinical indicators in red-and-white Holstein cows in experimental group II and red Estonian cows in experimental group III. In the summer, clinical indicators were as follows compared to other seasons of the year: body temperature in red-and-white Holstein cows in experimental group II, 0.9 0C (2.3%), 0.3 0C (0.8%), 0.5 0C (1.3%) and in red Estonian cows in experimental group III, 1.0 0C (2.6%), 0.3 0C (0.8%), 0.5 0C (1.3%); Breathing per minute was 3.8 times (13.0%), 2.4 times (8.2%), 2.6 times (8.9%) and 3.6 times (12.6%), 1.8 times (6.3%), 2.6 times (9.1%) and heart rate per minute was 4.0 times (5.6%), 4.0 times (5.6%), 4.0 times (5.6%) and 5.0 times (7.1%), 4.0 times (5.7%), 3.0 times (4.3%).

In the summer, body temperature was 0.5-0.6 0C higher than in the fall, 0.9-1.0 0C higher than in the winter, and 0.2-0.3 0C higher than in the spring: Respiration (times/minute) was 2.8-3.6 times/minute higher than in the fall, 3.8-4.4 times/minute higher than in the winter, and 2.6 times/minute higher than in the spring; heart rate (times/minute) was 5.0-6.0 times/minute higher than in the fall, 5.0-8.0 times/minute higher than in the winter, and 5.0-7.0 times/minute higher than in the spring. O.A. Sharipov (1998), who conducted his research in the unique warm climate and ecological conditions of the Kashkadarya region, noted that got similar results.

Conclusion. Our studies showed that the clinical indicators of cows in the experimental groups were within the physiological norm. From the data in Table 3.3.1, it can be seen that in the summer, compared to other seasons, body temperature was 0.5-0.6 0C, 0.9-1.0 0C, 0.2-0.3 0C, respiration (times/minute) 2.8-3.6; 3.8-4.4; 2.6, and heart rate was 5.0-6.0; 5.0-8.0; 5.0-7.0 times/minute. This indicates that the cows in the experimental groups are well adapted to the specific hot climate and environmental conditions of the Kashkadarya region.

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