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Clinical Indicators of Holstein Cows

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ABSTRACT

The article describes data on the study of physiological parameters of Holstein cows by seasons, in the diet of which hydroponic green feeds are included. It was found that the inclusion of hydroponic green feeds in the diet of cows did not have a noticeable effect on physiological parameters. Body temperature, pulse, respiration have changed depending on the seasons within the limits of physiological norms, which allows us to judge the good fitness of Holstein cows to the conditions of our Republic.

KEYWORDS: Holstein cows, hydroponic green feed, vitamins, minerals, physiological parameters, body temperature, respiratory rate, heart rate, productivity.

Introduction.

The milk yield of cows largely depends on the level of nutrition, the balance of nutrients in the diet, and the amount of vitamins and minerals in the diet. Vitamins, which are considered biologically active substances in the composition of GMOs, have a positive effect not only on digestion, ensuring the vitamin content of feed, but also on all physiological biochemical processes occurring in the body. When vitamins are not enough in the diet of cows, as a result of metabolic disorders, a weakening of the general physiological status of the body, a decrease in productivity, and the occurrence of various diseases are observed.

Research and methods. The research was conducted at the “Mustafoqul Polvon Dalasi” farm in the Bulungur district of the Samarkand region. 4 groups of Holstein cows bred on the farm were formed, and 10 cows of the III calving and older were included in each group. The cows in the control group were fed on the basis of the ration adopted on the farm, 25% of the feed in the experimental group I, 35% in the experimental group II and 45% in the experimental group III was replaced with hydroponic green feed in terms of nutritional value. The physiological indicators of the cows were determined according to the general methodology adopted in zootechnics.

Research results. Holstein cows were brought to the farm where the experiments were conducted from a European region with sharply different natural and climatic conditions. Therefore, it is important to study their physiological indicators in the sharply continental climate of Uzbekistan. Taking this into account, the main physiological indicators of the cows in the experiment were studied by season (Table 1).

As can be seen from the table, no significant differences were found between the groups in the main physiological indicators of the cows in the experiment and they were at the level of physiological standards in all groups. It can be noted that these indicators changed significantly in cows in all groups depending on the seasons. For example, body temperature increased by 1.6% in the control group, 1.57% in experimental group I, 1.6% in experimental group II, and 1.5% in experimental group III compared to the spring season, while in winter it decreased by 1.5; 1.8; 1.6 and 1.8% compared to the summer season, respectively. The number of respiratory movements per minute increased by 20.5% in the control group, 18.8% in the experimental group I, 18.7% in the experimental group II, and 21.5% in the experimental group III compared to the spring season, while it decreased by 20.9; 19.0; 19.5 and 19.6% compared to the winter season. The increase in the number of respiratory movements in the summer can be considered as an increase in pulmonary ventilation, which is manifested as a protective and adaptive function of the body in response to the stress of high air temperature.

In accordance with changes in body temperature and respiratory movements, the number of heartbeats per minute in experimental cows also changed. In the summer, the number of heartbeats increased by 6.0% in the control group compared to spring, in experimental group I - by 7.1%, in experimental group II - by 5.8% and in experimental group III - by 6.2%; in winter, respectively, compared to summer.

Table 1. Physiological indicators of cows in the experiment, (S ± s$\bar{x}$)

Groups	Seasons of the year	Body temperature, ^{0}C	Number of respiratory movements, per minute	Pulse rate, per minute
Control	spring	38,0 ± 0,47	29,8 ± 0,44	69,1 ± 0,76
	summer	38,6 ± 0,39	35,9 ± 0,36	73,3 ± 0,81
	autumn	38,2 ± 0,52	32,6 ± 0.28	68,7 ± 0,56
	winter	38,0 ± 0,36	28,4 ± 0,32	67,2 ± 0,90
Experience I	spring	38,1 ± 0,50	29,7 ± 0,42	68,7 ± 0,64
	summer	38,7 ± 0,38	35,3 ± 0,28	73,6 ± 0,68
	autumn	38,1 ± 0,41	31,8 ± 0,26	69,0 ± 0,57
	winter	38, 0 ± 0,32	28,6 ± 0,41	68,2 ± 0,70
Experience II	spring	38,0 ± 0,28	29,4 ± 0,35	69,4 ± 0,72
	summer	38,6 0,34	34,9 ± 0,27	73,4 ± 0,82
	autumn	38,2 ± 0,40	32,2 ± 0,36	68,7 ± 0,74
	winter	38,0 ± 0,38	28,1 ± 0,28	68,0 ± 0,87
Experience III	spring	38,2 ± 0,46	29,3 ± 0,37	69,2 ± 0,78
	summer	38,8 ± 0,42	35,6 ± 0,26	73,5 ± 0,69
	autumn	38,3 ± 0,38	31,8 ± 0,41	68,2 ± 0,78
	winter	38,1 ± 0,32	29,0 ± 0,28	68,1 ± 0,84

decreased by 8.4; 7.4; 7.4 and 7.3%. It is worth noting that such changes in physiological indicators were within physiological norms.

Conclusion.

Ultimately, the introduction of hydroponic green fodder into the diet of cows did not have a significant effect on their physiological parameters, these indicators changed within the physiological parameters depending on the air temperature during the seasons, which in turn indicates that the highly productive Holstein cattle imported from abroad are well adapted to the natural and climatic conditions of our Republic.

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