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CHANGES IN CLIMATE ADAPTATION OF IMPORTED ABERDEEN-ANGUS CATTLE BREEDS

Kochkarov Abdukarim Nuriddinovich
Assistant,

Yangiboyev Abdumalik Eshmurodovich
Associate Professor,

Teshaboyev Behruzbek Ulugbek ugli
is a 2nd year student Tashkent branch of Samarkand State
University of Veterinary Medicine, Animal Husbandry and Biotechnology

ABSTRACT
Beef makes up more than 20 percent of the total meat production in the world meat structure, and it ranks third after pork and poultry. For comparison, this situation is proportionally close to 70% in Uzbekistan.

Key words: respiratory rate, lung ventilation, oxygen consumption, sweat rate, gene pool.

Introduction

In our republic, great attention is being paid to the development of this industry. It is known that in order to increase the meat productivity of existing breeds of cattle, bred animals are imported from abroad, and as a result of using their gene pool, the breeding and productivity characteristics of many breeds of cattle are improved. One of these breeds is the Holstein breed, which is unique to the world gene pool. In addition to being involved in breeding, this breed is also bred in pure form on many farms.Successful acclimatization of imported breeding livestock is hindered by significant negative factors of the external and internal environment. One of the important factors affecting the whole process of acclimatization of breeding cattle in foreign breeding is the high air temperature characteristic of the conditions of the summer months of our republic.

Since the considered group of Aberdeen-Angus heifers was delivered to the farm in July in the summer, their reaction to high air temperature, as well as the effect of this factor on the process of acclimatization and adaptation characteristics of the body, is of particular importance. In addition, the obtained group of breeding cattle included cattle belonging to different lines, so the issues of heat resistance of heifers belonging to different lines became very relevant.The study was conducted 2 times a day, in the early morning and in the afternoon. The time of the morning examination was chosen so that the air temperature was the same throughout the experiment - 20.5 degrees, it was 6 o'clock in the morning. The second test was conducted at a temperature of about 37 degrees Celsius. Such a temperature was observed at approximately 14:00. In order to comprehensively study the ability of cattle to adapt to high

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air temperatures, we studied the frequency and depth of respiration, the amount of pulmonary ventilation, the amount of oxygen consumption, and the amount of sweating.
Heat resistance index is presented in Table 5.

Table 1 Heat resistance index of cattle brought to the conditions of our republic (n=10)

Groups	Body temperature in the morning °C	body temperature during the day °C	The difference in body temperature in the morning and in the afternoon, °C	The difference in body temperature in the morning and in the afternoon, °C
Experimental group I	38,32±0,32	39,47±0,17	1,14±0,37	70.8+4,69
Experimental group II	37,63±0,22	39,43+0,28	1,78±0,41	58,0+3,49
Experimental group III	37,98±0,34	39,62±0,16	1,63±0,38	61,0+7,53

As can be seen from the table, as a result of measuring the body temperature, we can see that the body temperature of cattle of experimental group I remained unchanged compared to cattle of group II and III. In this case, the average body temperature of cattle of experimental group I was 38.32 oC in the morning, in groups II and III it was 37.63 and 37.98 oC, respectively. Body temperature during the day was 39.47 oC in our experimental group I, 39.43 and 39.62 oC in our experimental groups II and III, respectively. Differences in body temperature in the morning and afternoon in the groups were as follows. It was +1.14 oC in our experimental group I, 1.78 oC in our experimental group II, 1.63 oC in our experimental group III.
There was no significant change in the body temperature of the cattle of experimental group I compared to experimental groups II and III during the day.During the research, it was found that group I is the leader in the heat resistance index with an index of 70.8. It significantly exceeds other groups in this parameter (P>0.95). As noted, when the air temperature in the morning was 20.5 °C, the temperature of heifers of group I was 0.88-0.08 °C higher (38.33 °C) than that of groups II and III. When the temperature reached 36 degrees before noon, the heifers of the other groups were similar, with heifers in the edi group having an unequivocal advantage (P>0.95), which is reliable. Thus, a clear superiority of heifers of experimental group I was observed according to the index of heat resistance.
For this, the number of respiratory movements of cattle was determined in the morning (at an air temperature of 20.5 °C) and in the afternoon (at an air temperature of 36.9 °C). The results are shown in Figure 3. The following figure was developed for this parameter, group I heifers had the highest reliability level (P>0.95) with the lowest morning respiration rate - an average of 23.4 breaths per

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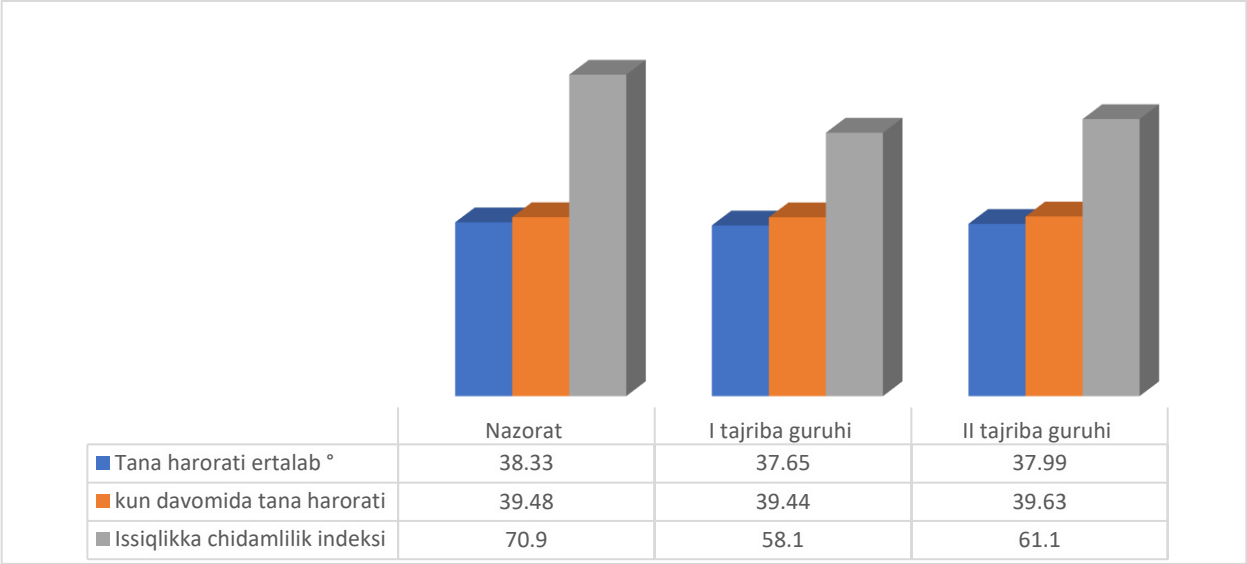
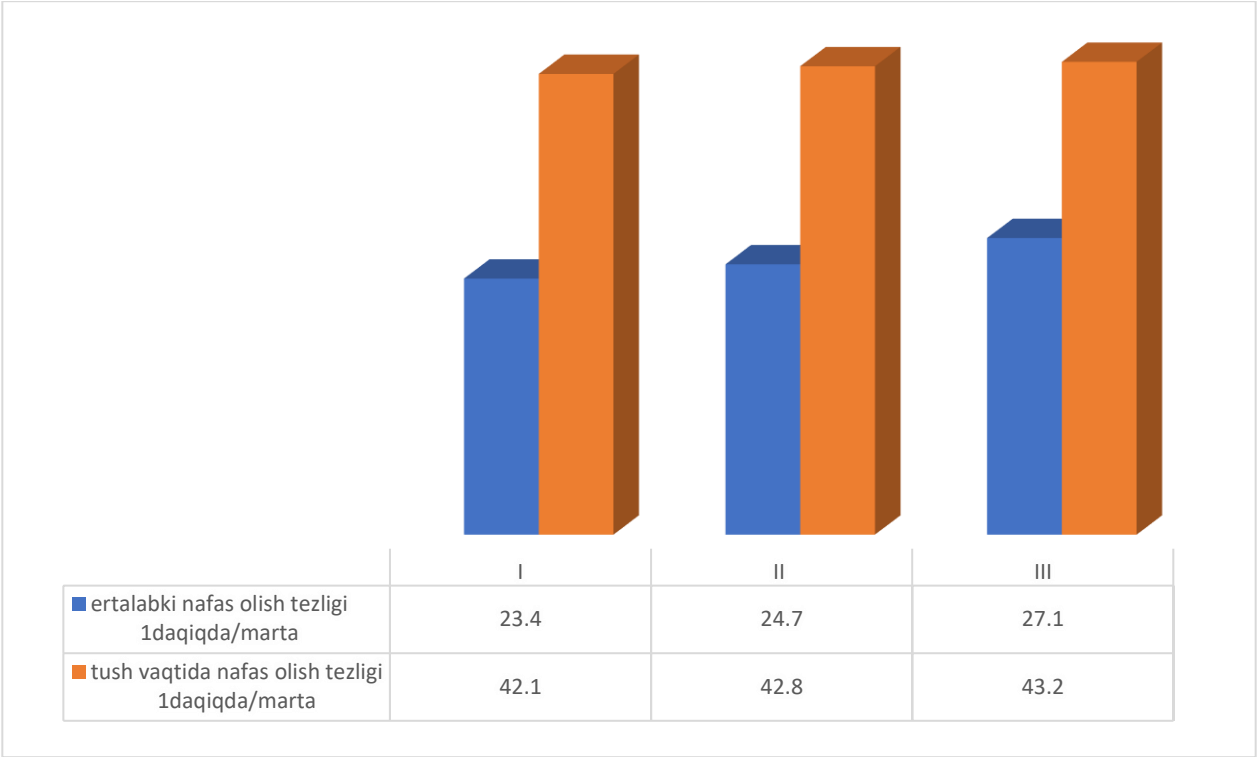
minute. In the morning, the highest respiratory rate was recorded in heifers of group III - 27.1 times per minute.

Figure 3



	Nazorat	I tajriba guruhi	II tajriba guruhi
Tana harorati ertalab °	38.33	37.65	37.99
kun davomida tana harorati	39.48	39.44	39.63
Issiqlikka chidamlilik indeksi	70.9	58.1	61.1

Figure 4. Calculation of morning and afternoon respiration rates of Aberdeen-Angus heifers, minutes



	I	II	III
ertalabki nafas olish tezligi 1daqiqda/marta	23.4	24.7	27.1
tush vaqtida nafas olish tezligi 1daqiqda/marta	42.1	42.8	43.2

With the increase of air temperature to 36.9 C, the situation changed and no significant differences were observed between the groups (respiratory rate from 42.1 to 43.2).

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After calculating the value of heat resistance, the distribution of groups of heifers is presented in Figure 5.

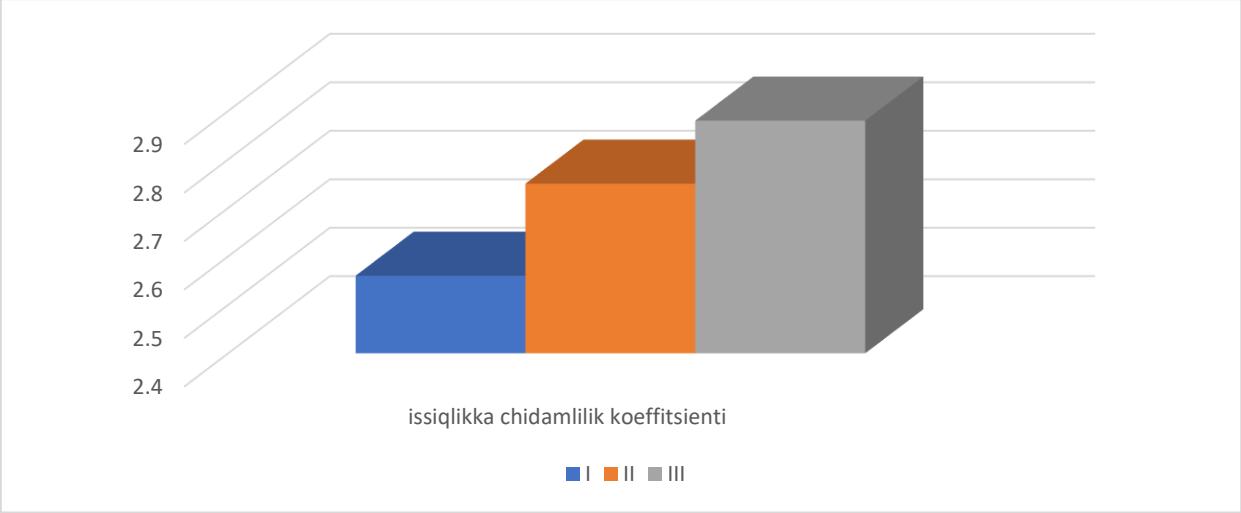

Figure 5.

Assessment of heat tolerance of Aberdeen-Angus heifers. (the lower the parameter, the more heat resistant the cattle are) heat tolerance coefficient in group I was 2.56 (P<0.95), in heifers of group II 2.76 (5>0.95), and in group III it was 2.88 (P>0.95) have

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