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The Effect of Feeding on the Expression of the Hereditary Opportunities of Monbelyard Bulls Belonging to Different Genotypes

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Annotation: In the researches, the live weights of Montbeliard bulls of different genotypes fed under the same feeding conditions, the average daily growth indicators, the quantity and satiety of consumed feed, and the features of covering feed with live weight are presented.

As a result of feeding the bulls in the experiment on the basis of a full-value and standardized ration under the same conditions, group II (½ Aberdeen-Angus x ½ Montbelyard),Group III (½ Limousin x ½ Montbelyard) and Group IV (½ Charolais x ½ Montbelyard) F1 hybrid bulls are equalCompared to bulls of group I (pure Montbelyard breed), it was observed that during the experiment, they used feed efficiently. As a result, 39.2 kg or 8.7%, respectively, compared to pure Montbelyard breed equals (P<0.001); 28.5 kg or by 6.3% (P<0.001) and by 18.0 kg or 4.4% (P<0.01) had a high absolute weight gain and an average of 8.13 per kg live weight gain for bulls; 7.51; 7.68 and 7.86 feed units were consumed or F1 hybrid bulls 0.62 (7.6%) compared to their peers, purebred Montbelyard bulls, respectively; 0.45 (5.8%) and 0.27 (3.4%) units of feed were consumed less, which showed that full-value feeding is integral to the full development of the genetic potential of F1 hybrid bulls obtained from direct industrial breeding.

Keywords: Breed, genotype, dairy-meat, industrial crossbreed, hybrid, Montbelyard, Aberdeen-Angus, Limousin, Charolais, live weight, feed, feed unit, digestible protein.

Relevance of the topic. Today, the role of the livestock industry in meeting the needs of the population in the world for food products is incomparable. Especially in countries where cattle breeding is developed, such as the USA, Japan, Canada, Israel, Germany, and the Netherlands, in the further development of the industry, increasing the productivity of milk and meat, and to further improve them, the wide use of breeding bulls with the improving breed category of breeds of the world gene pool with high genetic potential, development great importance is attached to creating herds that fully meet the requirements of modern technologies, feeding them with full-value feed and improving the conditions of keeping.

Supplying the population with meat products is important in food security, in which Breeding and fattening of F_1 hybrid bulls for meat production is of great importance. On the basis of this event, hybrids in the first generation grow rapidly, have a high live weight, improve the properties of covering feed with live weight and have a high meat yield [1-14].

The purpose of the study. During the growth and development and fattening periods, the live weight of Montbeliard bulls of different genotypes is studied by feeding them on the basis of a complete and moderated ration.

Place, object and method of research. Studies During 2020-2023, it was conducted at "Sardoba Railway Agro-Industrial Complex" LLC, Mirzaabad District, Sirdarya Region.

As an object of research, F_1 hybrid bulls obtained by insemination of Montbeliard cows removed from the herd with the seeds of Aberdeen-Angus, Limousin and Charolais breed bulls of the world gene pool were obtained. Group I purebred Montbelyard, Group II ½ Aberdeen-Angus x ½ Montbelyard, Group III ½ limousine x ½ montbelyard and ½ charole x ½ montbelyard bulls were selected for group IV, 10 heads per group. The live weight of the bulls in the experiment was determined by weighing them separately at birth, 3, 6, 9, 12 and 16 months before morning feeding.

Feeding and keeping of experimental bulls was organized in farm conditions. To determine the amount of consumed nutrients, control feeding was conducted twice a month, and consumption of consumed nutrients was determined. The characteristics of feeding bulls by live weight were studied according to the method of V. E. Nedava (1966).

Receiveddigital data are biometrically processed using the Microsoft Excel 2010 computer program using the instructional manual of A.M.Yakovenko, T.I.Antonenko, M.I.Selionova (2013).

Research results. Livestock development largely depends on the condition of solid fodder base and proper feeding of them with full value. In order for the animal's body to function normally, it is necessary to fully provide them with a certain amount of nutrients and biological supplements, only then it is possible to reveal the genetic potential of the animal. YuIt is important to feed cows with full-value and balanced rations in order to gain live weight and meat production and to fully realize their genetic potential.

In the experiments, we studied the growth and development and live weight indicators during the fattening period of F_1 crossbred bulls of different genotypes obtained from breeding Montbelyard cows with Aberdeen-Angus, Limousin and Charolais bulls. The obtained results are presented in Table 1.

Table 1 Live weight of bulls of different genotypes, kg

Age, month	Groups, (n=10)			
	I	II	III	IV
	Genotype			
	Pure Montbeliard	½ Aberdeen-Angus x ½ montbelyard	½ limousine x ½ montbelyard	½ Charolais x ½ Montbelyard
At birth	32.6+0.62	30.2+0.55	35.2+0.49**	39.6+0.73***
3	112.7+1.25	121.1+0.64***	120.9+0.75***	121.2+0.87***
6	201.3+1.63	210.5+1.86**	213.7+1.57***	214.5+1.09***
9	294.3+3.34	308.7+3.89*	308.3+3.51*	311.7+3.59**
12	384.4+3.42	402.4+3.06**	399.7+3.64**	402.2+3.41**
16	483.4+4.49	520.2+4.68***	514.5+4.63***	508.4+4.17***

Note:*P<0.05, **P<0.01, ***P<0.001

1-table data analysis showed that the live weight at birth of bulls in group IV (½ Charolais x ½ Montbelyard) compared to their peers Group I (pure-bred Montbelyard), Group II (½ Aberdeen-Angus x ½ montbelyard) and group III (½ limousine x ½ montbelyard) compared to bulls by 7.0 kg or 21.5% respectively (P<0.001); 9.4 kg or 31.1% (P<0.001) and 4.4 kg or 12.5% (P<0.001) was higher, then group II (½ Aberdeen-Angus x ½ Montbelyard) bulls were their equals Group I (pure Montbelyard breed); Group III (½ Limousin x ½ Montbelyard) and Group IV (½ Charolais x ½ Montbelyard) compared to F_1 hybrid bulls by 2.4 kg or 7.9% respectivelyto (P<0.05); by 5.0 kg or 16.6% (P<0.01) and by 9.0 kg or 29.8% (P<0.001) was found to be low.

Live weight during the next 3 months of growth and development Group II (½ Aberdeen-Angus x ½ Montbelyard); Group III (½ limousine x ½ montbelyard) and group IV (½ charole x ½ montbelyard) F_1 crossbred bulls compared to their peers group I (pure montbelyard) bulls respectively 8.4 kg or 7.5% (P<0.001); by 8.2 kg or 7.3% (P<0.001) and by 8.5 kg or 7.5% (P<0.001)was found to be superior. B9.2 kg or 4.6% respectively (P<0.01); by 12.4 kg or 6.2% (P<0.001) andby 13.2 kg or 6.6% (P<0.001),14.4 kg or 4.9% at 9 months (P<0.05);by 14.0 kg or 4.8% (P<0.05) and by 17.4 kg or 5.9% (P<0.01) was high. Also obtained from breeding based on industrial live weight II; Group III and IV G'1 hybrid bullsGroup Icompared to purebred Montbeliard bulls, they maintained their superiority up to 12 months of growth and development period. Including II; Group III and IV F_1 hybrid bulls are their counterparts of Group Iby 18.0 kg or 4.7% (P<0.01); by 15.3 kg or 4.0% (P<0.01)and by 17.8 kg or 5.6% (P<0.01)prevailed.

Bulls in the experimentlive weight at the end of fattening (at the age of 16 months); Group III and IV F_1 crossbred bulls compared to pure Montbellard bulls of group I by 36.8 kg or 7.6%, respectively (P<0.001), by 31.1 kg or 6.4% (P<0.001) and by 25.0 kg or 5.2% (P<0.001) was found to be high. A significant difference was also observed between hybrid bulls. Including group II (½ aberdeen-angus x ½ montbelyard) bulls by 5.7 kg or 1.1% compared to group III (½ limousine x ½ montbelyard) and group IV (½ charole x ½ montbelyard) bulls; 11.8 kg or by 2.3% (P<0.05) and Group III (½ Limousin x ½ Montbelyard) F_1 crossbred bulls and Group IV (½ Charolais x ½ Montbelyard) G'1 crossbred bulls were superior by 6.1 kg or 1.2%.

As you know, one of the main indicators of growth is the average daily growth. We have presented the calculation data on the growth rate of bulls in the experiment in Table 2.

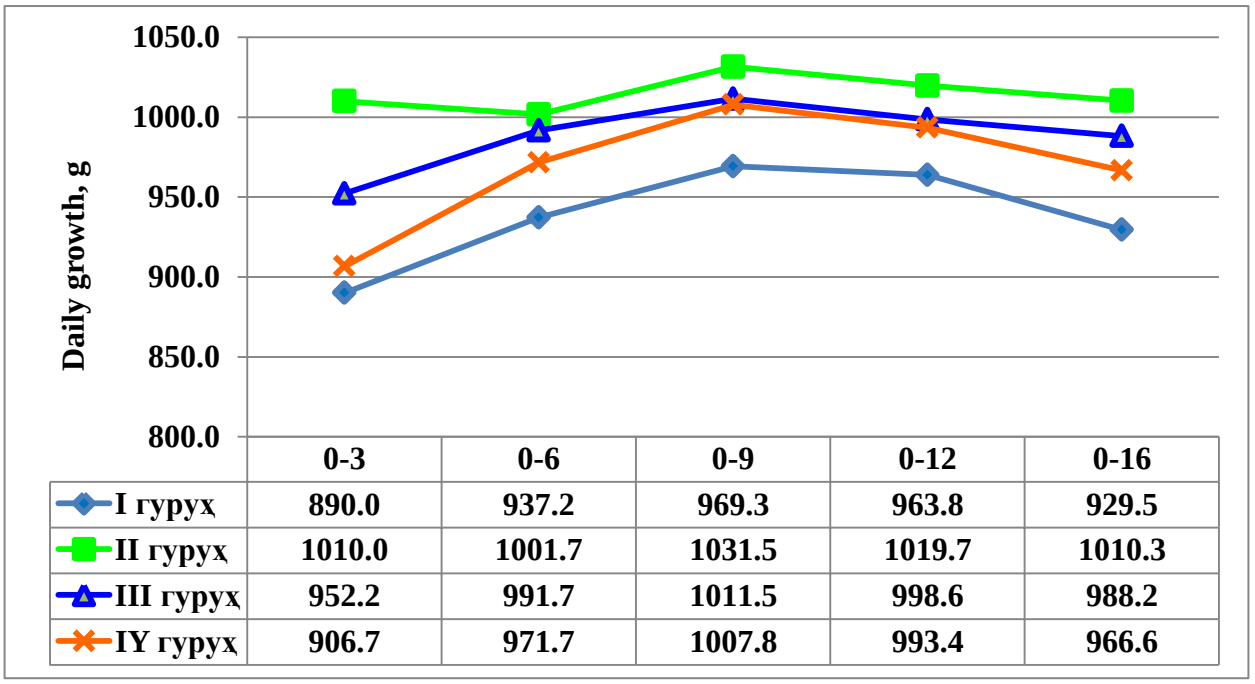
Table 2 and Fig. 1 data showed that In the first 0-3 months of the study, i.e. during the milk drinking period, the bulls of group II (½ Aberdeen-Angus x ½ Montbelyard) compared to their peers Group I (pure Montbelyard), Group III (½ Limousin x ½ Montbelyard) and Group IV (½ Charolais) x ½ monbelyard) had higher growth compared to bulls.

In particular, in the period from birth to 3 months, bulls of group II had an average daily growth of 1010.0 g, while their peers I; 120.0 g or 13.5% from bulls of III and IV groups, respectively (P<0.001); 57.8 g or 6.1% (P<0.01)and by 103.3 g or 11.4% (P<0.001) prevailed. Also bullsIt was observed that in the following months of daily growth, the first generation F_1 hybrid bulls obtained from industrial breeding were superior to their counterparts purebred Montbeliard bulls.

Table 2 Average daily growth of bulls of different genotypes, g

Growth period, month	Groups, (n=10)			
	I	II	III	IV
	Genotype			
	Pure Montbeliard	½ Aberdeen-Angus x ½ montbelyard	½ limousine x ½ montbelyard	½ Charolais x ½ Montbelyard
0-3	890.0+14.67	1010.0+8.52***	952.2+9.38**	906.7+5.54
3-6	984.4+24.07	993.3+17.62	1031.1+15.43*	1036.7+8.12*
6-9	1033.3+38.35	1091.1+53.08	1051.1+45.97	1080.0+37.65
9-12	1001.1+24.87	1041.1+11.95	1015.6+21.16	1005.6+18.46
12-16	825.0+23.80	981.7+16.52***	956.7+22.93**	885.0+13.82*
0-6	937.2+9.26	1001.7+9.44***	991.7+8.37***	971.7+5.33**
0-9	969.3+11.57	1031.5+14.83**	1011.5+12.81*	1007.8+11.44*
0-12	963.8+8.23	1019.7+8.91***	998.6+9.71*	993.4+8.13*
0-16	929.5+8.86	1010.3+9.96***	988.2+9.61**	966.6+7.52**

Note:*P<0.05, **P<0.01, ***P<0.001



	0-3	0-6	0-9	0-12	0-16
I гурух	890.0	937.2	969.3	963.8	929.5
II гурух	1010.0	1001.7	1031.5	1019.7	1010.3
III гурух	952.2	991.7	1011.5	998.6	988.2
IY гурух	906.7	971.7	1007.8	993.4	966.6

Figure 1.Plot of average daily growth of bulls of different genotypes during the experiment

Including Group II ½ Aberdeen-Angus x ½ Montbelyard; Group III ½ limousine x ½ montbelyard and Group IV ½ Charolais x ½ Montbelyard F_1 crossbred bulls by 8.9 g or 0.9%, respectively, in the next 3-6 months of the growth period from their peers Group I purebred Montbelyard bulls; 46.7 g or 4.7% (P<0.05) and 52.3 g or 5.3% by (P<0.05), at the age of 0-6 months64.5 g or 6.9% (P<0.001); 54.5 g or 5.8% (P<0.001) and 34.5 g or 3.7% by (P<0.01), 57.8 g or 5.6% at the age of 6-9 months; 17.8 g or 1.7% and 46.7 g or 4.5%, 62.2 g or 6.4% at the age of 0-9 months (P<0.01); 42.2 g or 4.4% (P<0.05) and 38.5 g or 4.0% (P<0.05), 40.0 g or 4.0% at the age of 9-12 months; by 14.5 g or 1.4%, and by 4.5 g or 0.4%, by 55.9 g or 5.8% at 0-12 months (P<0.001); 34.8 g or 3.6% (P<0.05) and 29.6 g or 3.1% (P<0.05) was higher.

G1 hybrid bulls obtained from industrial crossbreeding compared to purebred Montbellard bulls during the fattening period. (at the age of 12-16 months) high daily growth was achieved. In particular, Group II (½ Aberdeen-Angus x ½ Montbelyard), Group III (½ Limousin x ½ Montbelyard) and Group IV (½ Charolais x ½ Montbelyard) F_1 crossbred bulls, which provided high daily growth, compared to their peers Group I purebred Montbelyard bulls, respectively. 156.7 g or 19.0% (P<0.001); 131.7 g or 16.0% (P<0.01) and 60.0 g or 7.3% (P<0.05) and 80.8 g or 8.7% at the age of 0-16 months (P<0.001); 58.7 g or 6.3% (P<0.01) and 37.1 g or 4.0% (P<0.01) higher daily growth was achieved.

Hybrid bulls (F_1) also observed a significant difference in daily growth between groups. Derived from industrial breeding Group II F_1 crossbred bulls gained 25.0 g or 2.6% and 96.7 g or 10.9% respectively at 12-16 months compared to their peers III and IV group G'1 crossbred bulls (P<0.01) and during the experiment (at 0-16 months) by 22.1 g or 2.2% and by 43.7 g or 4.5% (P<0.01) high daily growth was found.

In evaluating the efficiency of use in meat production, each kilogram of live weight was usedthe amount of food and their satietyis an important economic indicator. When Montbelyard bulls of different genotypes were fed on the basis of full-value and standardized rations during the growth and development and fattening periods, it was observed that they fully revealed their genetic potential and had a high live weight. At the same time feed with

live weight It was found that the coating properties were significantly improved, as shown in Table 2.

Table 2 Bulls of different genotypes were spent during the experiment indicators of feed coverage by live weight

Group	Absolute weight, kg	In the composition of spent nutrients		In the content of nutrients consumed per kilogram of live weight	
		Food unit	Digestible protein, kg	Food unit	Digestible protein, kg
I	450.8	3666.1	438.3	8,13	0.97
II	490.0	3680.3	442.2	7.51	0.90
III	479.3	3680.0	442.2	7.68	0.92
IV	468.8	3683.5	443.0	7.86	0.94

Analysis of the data in Table 2 shows that bulls of different genotypes consumed different amounts of feed during the experiment (at the age of 0-16 months).

For example, Group II (½ Aberdeen-Angus x ½ Montbelyard, Group III (½ Limousin x ½ Montbelyard) and Group IV (½ Charolais x ½ Montbelyard) F_1 hybrid bulls are equa l3680.3 during the experiment (at the age of 0-16 months) in relation to bulls of group I (Monbelyard breed); 3680.0 and 3683.5 feed units and 442.2; 442.2 and 443.0 digestible protein consumption compared to pure Montbelyard bulls 14.2; 13.9 and 17.4 units of food consumed a lot. During this period, G'1 hybrid bulls gained 39.2 kg or 8.7% compared to pure Montbeliard bulls ($P<0.001$); 28.5 kg or by 6.3% ($P<0.001$) and by 18.0 kg or 4.4% ($P<0.01$) a higher absolute weight was obtained.

Also Group II (½ Aberdeen-Angus x ½ Montbelyard); Group III (½ limousine x ½ montbelyard)and group IV (½ Charolais x ½ Montbelyard) F_1 crossbred bulls averaged 7.51 per kilogram of live weight gain during the experiment, respectively; 7.68 and 7.86 feed units were used, or 0.62 or 8.3% compared to bulls of the Montbelyard breed in group I; It was found that 0.45 or 5.8% and 0.27 or 3.4% consumed less feed unit. During this period, 119.3 g per feed unit for group I; 119.8 g of digestible protein corresponded to group II: 119.8 g to group III and 119.6 g to group IV.

Summary. As a result of feeding bulls in the experiment on the basis of full-value and standardized rations under the same conditions, group II (½ Aberdeen-Angus x ½ Montbelyard), Group III (½ Limousin x ½ Montbelyard) and Group IV (½ Charolais x ½ Montbelyard) F_1 hybrid bulls are equal Compared to bulls of group I (pure Montbelyard breed), it was observed that during the experiment, they used feed efficiently. As a result, 39.2 kg or 8.7%, respectively, compared to pure Montbelyard breed equals ($P<0.001$); 28.5 kg or by 6.3% ($P<0.001$) and by 18.0 kg or 4.4% ($P<0.01$) had a high absolute weight gain and an average of 8.13 per kg live weight gain for bulls; 7.51; 7.68 and 7.86 feed units were used, or 0.62 (7.6%) in F_1 crossbred bulls, respectively, compared to their peers, purebred Montbellard bulls; 0.45 (5.8%) and 0.27 (3.4%) of feed units were used less, which showed that F_1 crossbred bulls obtained from direct industrial breeding were directly related to full-value feeding level in fully realizing their genetic potential.

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