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INDUSTRY-BASED CROSSING EFFICIENCY

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Abstract:

It has been established that the severity of the genetic potential of hybrid offspring (F_1) obtained from industrial crossing is directly dependent on their genotype and the level of complete feeding. Taking into account growth periods, ensuring the level of good nutrition and using the "heterosis" effect to accelerate their growth and development expands the possibilities for further increasing meat productivity.

Keywords: Animal husbandry, breed, breed, industrial crossing, genotype, live weight, absolute gain average daily gain, Simmental, Aberdeen Angus, Limousin, Charolais, productivity

INTRODUCTION. Cultivation of high-quality beef and its further increase is one of the most important and urgent tasks in animal husbandry, and its solution requires the effective use of existing local and imported cattle breeds, the development of livestock breeding in the specialized meat direction, the organization of industrial crossbreeding of cows and carcasses removed from the herd. is doing

One of the dairy-meat cattle breeds, the Simmental and Montbelyard breeds are distinguished by a good level of milk and meat productivity, udder and fodder characteristics, the degree of coverage of feed with milk and meat, rapid growth indicators of young cattle and a number of other important economic useful signs.

Also, in the meat direction, Aberdeen-Angus, Limousin and Charolais cattle breeds are important for having the ability to maintain stable growth energy for a long time, high productivity, good slaughter yield, quick adaptation to growing conditions, high-quality beef production and high value. is considered

One of the advantages of industrial breeding is to achieve high productivity in beef cattle based on increasing their growth rate. In order to increase the productivity and growth rate of the resulting hybrids, it is important to industrially breed high-yielding meat bulls with milk-meat cows, and the introduction of industrial breeding in cattle expands the possibilities of further improving their productivity in a short period of time [7, 8, 9 , 10].

The most important factor that determines the effectiveness of industrial breeding is the compatibility of breeds, which affects the quantity and quality of meat and ensures that the obtained hybrids are higher than the average of purebred cattle that participate as improvers of growth, development and other selection characteristics.[1, 2, 3, 4, 5].

THE PURPOSE OF THE STUDY obtained from the industrial crossbreeding of Simmental and Montbelyard cows of milk-meat direction

Determination of growth performance of F1 hybrid offspring during lactation period.

OBJECT AND METHOD OF RESEARCH. The researches are being carried out during 2020-2023 at the unitary enterprise "Sardoba Railway Agro-Industrial Complex" of Mirzaabad District, Syrdarya Region under the jurisdiction of "Uzbekistan Railways" JSC.

We studied the growth of calves of different genotypes from birth to 6 months of F1 hybrids obtained from industrial breeding of unfit Simmental and Montbelyard cows for dairy herds on a cattle farm.

For this, 8 groups of 10 heads were formed.

Group I purebred Simmental (control), Group II ½ Aberdeen-angus x

½ Simmental, Group III ½ Limousin x ½ Simmental, Group IV ½ Charolais x

½ Simmental, group V purebred Montbelyard (control), group VI

½ Aberdeen-Angus x ½ Montbelyard, Group VII ½ Limousin x ½ Montbelyard,

Group VIII ½ Charolais x ½ Montbelyard.

The obtained data were analyzed using Microsoft Excel 2010 computer program by A.M. Yakovenko, T.I. Antonenko, M.I. Selionova (2013) re-biometric processing was carried out [16].

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RESEARCH RESULTS AND ANALYSIS. It is known that an important indicator describing the growth of an animal is its live weight. Studying this during growth allows to evaluate meat productivity during the life of the animal. Also, according to many researchers, full-value feeding and storage in the same conditions is important for the productivity qualities of animals and the full manifestation of their genetic potential [11, 12, 13, 14, 15].

In order to gain 900-1000 g of additional weight for calves per day, taking into account the established standards, a 6-month feeding picture (scheme) was made, taking into account the nutrients available on the farm on a scientific basis [6].

Calves were milked for 3 months (90 days) in a special heating device at 35-380C, drinking milk from special rubber teats three times a day based on the picture (scheme).

All groups of calves in the experiment were fed the same amount and level of nutrition and composition. The experimental calves were fed a total of 500 kg (25.0%) skim milk, 290.0 kg (22.1%) alfalfa hay, 431.5 kg (14.4) corn silage, 152.0 kg (8, 1%) of hay, 204.2 kg (5.8%) of beets and 198.0 kg (24.6%) of fodder, or a total of 600.5 units of feed and 74.1 kg of digestible protein were consumed during the same period (Figure 1).

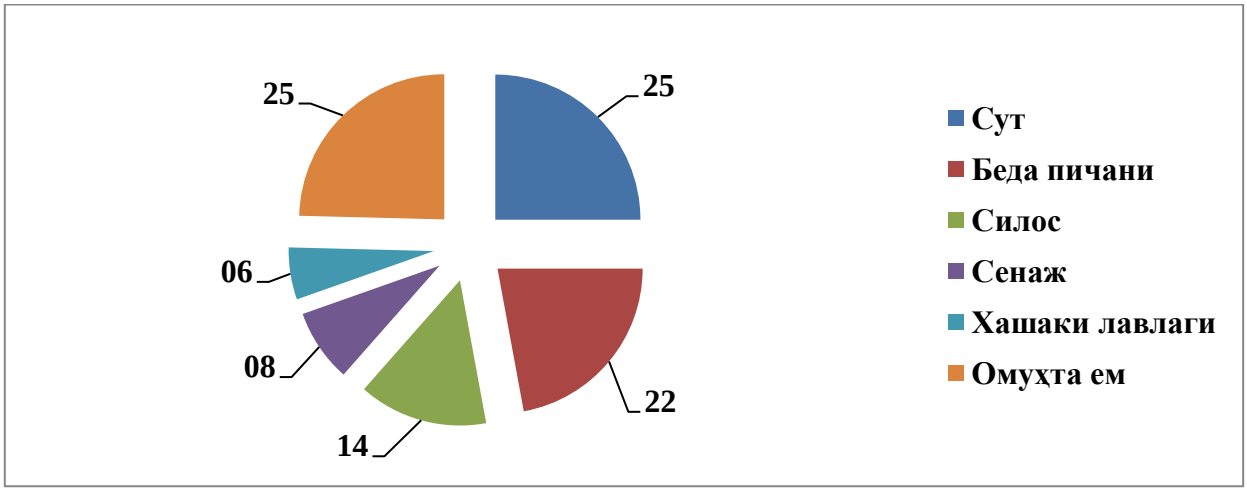

Figure 1. The composition of feeds consumed by calves in the experiment, %

1-Table Live weight of calves in experimental groups, kg($\overline{X}$ ±S$\overline{x}$)

Age, month	***Groups***							
	I	***II***	***III***	***IV***	***V***	***VI***	***VII***	***VIII***
At birth	32,3±0,47	30,8±0,53	35,2±0,29***	39,4±0,54***	32,6±0,62	30,2±0,55	35,2±0,49**	39,6±0,73***
1	56,8±1,20	53,5±0,79	64,5±0,78	66,6±1,03	56,7±0,56	55,3±0,63	64,7±0,78	67,2±0,83
2	87,1±0,60	87,6±1,17	90,5±0,58	91,6±0,69	83,5±1,12	89,9±0,55	91,6±0,60	93,3±0,60
3	116,4±0,64	120,4±0,70**	119,4±0,54*	120,8±0,59***	112,7±1,25	121,1±0,64*	120,9±0,75**	121,2±0,87***
6	200,7±1,80	209,8±1,25***	212,6±1,14***	213,1±1,18***	201,3±1,63	210,5±1,86**	213,7±1,57***	214,5±1,09***

Note: *P≤0,05, **P≤0,01, ***P≤0,001

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Calves in the experiment were separated from their mothers for 3 days after birth,

During 3-15 days, they were kept in special houses (domik), and from 16 days, 10 heads were kept in the fields (zagon).

A significant difference was found between the birth weight of purebred Simmental and Montbelyard and their hybrid progeny (G'1) obtained from industrial crossings. For example, in Group II and VI calves (½ Aberdeen-Angus x ½ Simmental) and (½ Aberdeen-Angus x

½ Montbelyard), compared to calves of groups I and V (pure-bred Simmental and Montbelyard), the weight at birth was 1.5 kg (4.6%, R≤0.05) and 2.4 kg (7.4%, R≤ 0.01), the remaining groups III, IV, VII and VIII

(G'1 crossbred offspring) 2.9 kg (8.2%, R≤0.05), 7.1 kg compared to purebred Simmental and Montbelyard calves of group I and group V, respectively

(18.0%, R≤0.001), 2.9 kg (8.2%, R≤0.01) and 7.3 kg (18.4%, R≤0.001) and

2.6 kg (7.4%, R≤0.05), 6.8 kg (17.2%, R≤0.001), 2.6 kg (7.4%, R≤0.01) and 7 It was found to be higher by 0.0 kg (17.7%, R≤0.001).

The live weights of the calves obtained as a result of the research were obtained from industrial breeding in the first month

A significant difference was observed in G'1 hybrid progeny compared to purebred progeny. (Table 1).

Table 1 shows that the live weight of II, III, IV, VI, VII and VIII group G'1 crossbred calves was superior to purebred Simmental and Montbelyard equivalents of groups I and V. Including calves at 3 months of age 4.0 kg (3.4%, R≤0.01), 3.0 kg (2.6%, R≤0.05), 4.4 kg (3.8%, R ≤0.001), 4.7 kg (4.0%, R≤0.001), 4.5 kg (3.9%, R≤0.001) and 4.8 kg (4.1%, R≤0.001) and 7 .7 kg (6.8%, R≤0.001), 6.7 kg (5.9%, R≤0.001), 8.1 kg (7.2%, R≤0.001), 8.4 kg (7 .5%, R≤0.001), 8.2 kg (7.3%, R≤0.001), 8.5 kg (7.5%, R≤0.001), as well as 9.1 kg (4, 5%), 11.9 kg (5.9%), 12.4 kg (6.2%), 9.8 kg (4.9%), 13.0 kg (6.5%) and 13, 8 kg (6.9%) and 8.5 kg (4.2%), 11.3 kg (5.6%), 11.8 kg (5.9%), 9.2 kg (4.6 %), 12.4 kg (6.2%) and 13.2 kg (6.6%) were higher (R≤0.001).

At the same time, the live weight of the hybrid progeny obtained from industrial breeding (G'1) is high, which indicates that the flexibility characteristics of the calves and the ability of the bulls to pass from generation to generation (prepatent) are very high. Half Charolais x ½ Montbelyard (214.5 kg) and ½ Charolais x ½ Simmental (213.1 kg) were the highest live weight of the experimental calves at 6 months of age.

A significant difference was found between the groups in the absolute weight of the calves in the experiment between the ages of 0-3 months (Fig. 2). During this period, calves of group II (89.6 kg) and group VI (90.9 kg) formed high absolute weight. They weighed 5.5 kg (6.1%), 5.4 kg (6.0%), 8.2 kg (9.2%), respectively, of calves of groups I, III, IV, V, VII and VIII. 9.5 kg (10.6%), 3.9 kg (4.4%) and 8.0 kg (8.9%) and 6.8 (7.5%), 6.7 kg (7. 4%), 9.5 kg (10.5%), 10.8 kg (11.9%), 5.2 kg (5.7%) and 9.3 kg (10.2%), at 6 months respectively 10.6 kg (5.9%), 1.6 kg (0.9%), 5.3 kg (6.6%), 10.3 kg (5.8%), 0.5 kg (0.3%) and 4.1 kg (2.3%) and 11.9 kg (6.6%), 2.9 kg (1.6%), 6.6 kg (3.7%) , was higher by 11.6 kg (6.4%), 1.8 kg (1.0%) and 5.4 kg (3.0%).

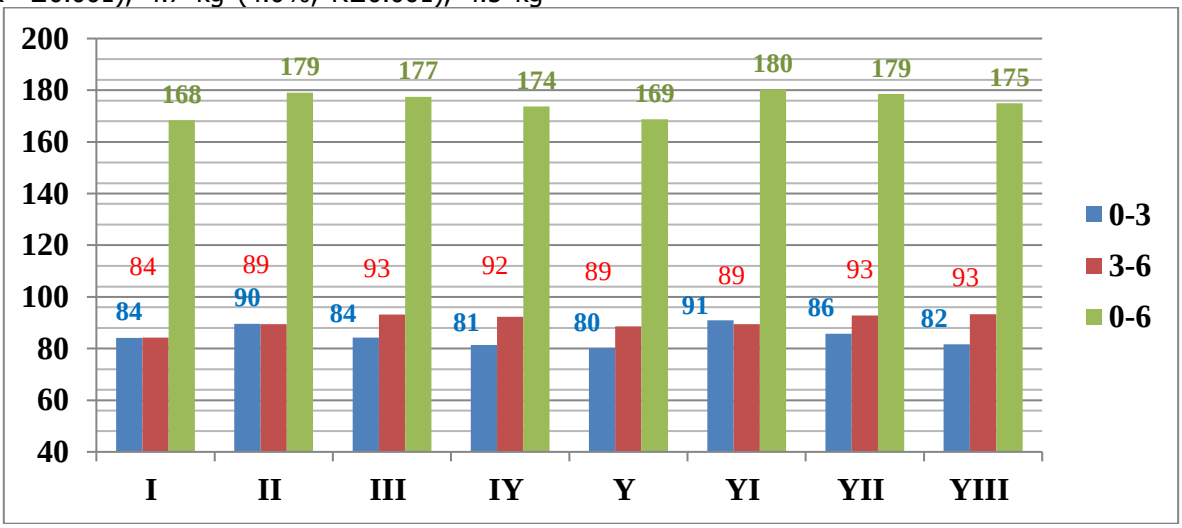

Figure 2. Dynamics of the absolute weight of calves in the experiment, kg.

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It should be noted that at the age of 0-3 months, calves of group II (½ Aberdeen-Angus x ½ Simmental) and group VI (½ Aberdeen-Angus x ½ Montbelyard) showed the highest growth energy from 996 grams to 1010 grams, respectively, while group I (pure Simmetal breed)) and in group V (pure Montbelyard breed) calf, this indicator was 934 and 890 grams, 62 g (6.2%) and 120 g (11.9%) prevailed (Table 2, Figure 3).

In the period from birth to 6 months of age, the calves of the II and VI groups were 994 g and 1002 g, while these indicators were 59 g or 5.9% (R≤0.001), respectively, compared to the I, III, IV, V, VII and VIII groups, 8 .0 g or 1.0% (R≤0.05), 29.0 g or 3.0% (R≤0.01), 57 g or 5.8% (R≤0.001), 3 g or 0 ,3%, and 23 g or 2.3% (R≤0.001) and 66 g or 6.6% (R≤0.001), 16 g or 1.6% (R≤0.05), 37 g or 3.7% (R ≤0.01), 65 g or 6.4% (R≤0.001), 10 g or 1.0% (R≤0.05) and

It was higher by 30 g or by 3.0% (R≤0.01). This indicates that the formation of meat productivity of calves is related to high genetic potential and feeding level.

2-Table

Daily growth of calves in experimental groups,g ($\overline{X}$ ±S$\bar{x}$)

Age period, month	***Groups***							
	I	***II***	***III***	***IV***	***V***	***VI***	***VII***	***VIII***
0-1	816,7±33,43	994,4+19,91	985,6+29,00	965,0±26,20	803,3±20,76	836,7±37,00	983,3±34,16	920,0±38,23
1-2	1010,0±32,22	1136,7±27,42	866,7±34,43	833,3±39,75	893,3±30,14	1153,3±25,43	896,7±42,88	870,0±31,60
2-3	976,7±26,78	1093,3±44,39	963,3±28,74	973,3±23,73	973,3±61,82	1040,0±23,20	976,7±36,53	930,0±17,53
0-3	934,4±7,11	995,6±10,63	935,6±5,44	904,4±8,15	890,0±14,67	1010,0±8,52	952,2±9,38	906,7±5,54
3-6	936,7±25,07	993,3±16,83	1035,6±15,78	1025,6±16,48	984,4±24,07	993,3±17,62	1031,1±15,43	1036,7±8,12
0-6	935,6±10,61	994,4±8,73	985,6±7,28	965,0±8,61	937,2±9,26	1001,7±9,44	991,7±8,37	971,7±5,33

Note: *P≤0,05, **P≤0,01, ***P≤0,001

Thus, when studying the growth characteristics of calves in the experimental groups for 6 months, it was found that the changes in their live weight and average daily growth were not consistent and were higher in hybrid generations obtained from industrial crossbreeding (G'1) compared to purebreds. It shows that Charolais bulls have a very high ability to pass from generation to generation (prepatent).

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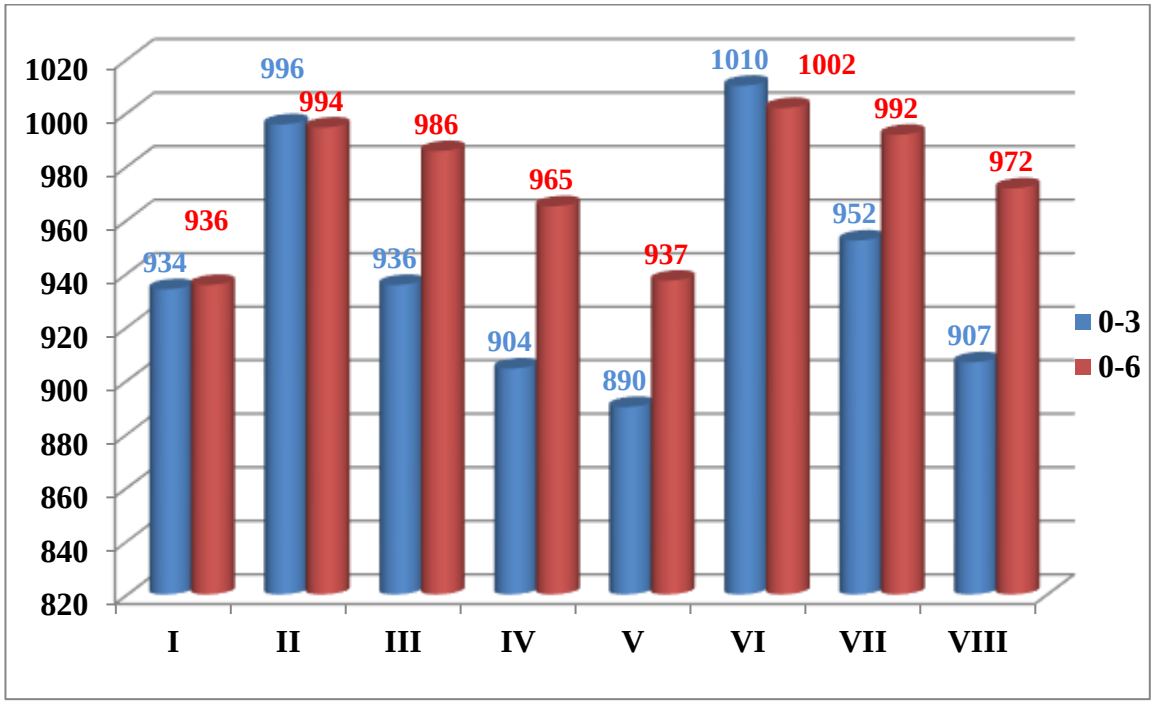

Figure 3. Daily growth dynamics of calves in the experiment, g.

SUMMARY. The results of the research show that hybrid progeny (G'1) obtained as a result of industrial crossing of Simmental and Montbelyard cows with Aberdeen-Angus, Limousin and Charolais bulls in the meat direction have high growth rates, and in revealing genetic potential, their genotype and full value nutrition it was determined that it depends on the level. Taking into account the growth periods, ensuring the level of full-value nutrition and using the effect of "heterosis" to accelerate their growth and development, expands the possibilities of further increasing meat productivity.

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