Prospects of modernization of cattle breeding processes

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Abstract. The development of livestock in industrialized nations has shown that when breeding activity is well-organized, it is feasible to enhance breeds and quickly boost output. Famous breeds including the Holstein, Swiss, Simmental, Hereford, Brangus, Charolais, Kian, and many other dairy and meat breeds came into being. In the article In the republican breeding system, improvement of breeding methods, such as evaluation and selection and sorting of cattle according to selection marks, introduction of advanced technologies in the care of young cattle and breeding of cows, formation of farms of the type of breeding factory and breeding farms, closed areas in solving the problems of the feed base problems such as bringing to at least 0.6 and 1 hectare, introducing a 6-field short rotation cropping system and increasing productivity to 8-9 thousand units of feed, providing breeding cattle with concentrated feed in moderation, wide introduction of artificial insemination and wide use of breeding bulls and factors are highlighted.
Keywords. Cattle, breed, Holstein, breeding work, selection, improver.

1 Introduction

Breeding work is a system of organizational and zootechnical activities aimed at improving the quality of livestock breeding and effective use of breeding animals. Modernization of this system gives its prospects in the present time [1].

It is known from the history of livestock breeding in developed countries that when the breeding work is well organized, it is possible to improve the breeds and rapidly increase their productivity. World-famous breeds - Holstein, Swiss, Simmental, Hereford, Brangus, Charolais, Kian and a number of other dairy and meat breeds were formed [2].

For example, Israeli Holsteins were created as a result of the use of selection and technological methods even in the hot climate of Israel. The average milk yield of cows reached 12,000 kilograms and rose to the first place in the world. It should be noted that these breeding achievements were achieved as a result of the continuous and widespread introduction of breeding methods over the next 40 years [3, 4].

Selection reports aimed at improving cattle in the breeding system were produced in 90 percent of the herds under a special control system, and selection and sorting methods were controlled. In the Israeli breeding book, information on breeding and veterinary services is summarized on the basis of a special program. In terms of selection, great worldly achievements have been achieved [5- 7] .

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Here, it is worth noting that there are a number of best practices that can be studied and applied, which can be effectively used in the system of republican breeding work. The work of our ancestors in the long past in terms of breeding work in animal husbandry is an exemplary example for our generations and inspires our dedication. It is known that in the chapters "Gaytlar" and "Vendidod" of the book "Avesta", which was written 3000 years ago, there are the following texts about the observance of the laws of animal care, selection and selection: who cannot destroy", "...bring there (to our homeland) various breeds of the greatest, highest, good animals from the earth", "...make pairs so that they do not die and do not disappear". These inscriptions show how much attention was paid to the work of breeding. During their time, they managed to create Akhaltaka and Karabair three-horses, Karakol, Jaidari and Khysar, valuable sheep breeds, large and productive cattle herds, Bactrian and dromedary camels, huge and beautiful types. There are reports that they exported a lot of breeding cattle, leather raw materials, butter processed from milk and many others to foreign countries [8-10].

Breeding work, which is characteristic of selection and sorting of livestock, has been continued by the population since the distant past. Breeding works initiated by ancestors have been carried out for many years, especially during the 1960s-1990s, in state and collective farms. Breeding and productivity qualities of cattle have improved, the milk yield of cows has increased to 2971 kilograms on average, and the live weight of young cattle for meat has increased to 401 kilograms on average. The livestock breeding base has been strengthened, and a number of breeding plants, breeding farms and breeding farms have been operating. Registration of breeding stock in breeding books, carrying out breeding selection work, drawing up breeding work plans for breeds and farms, wide promotion of best practices ensured the effectiveness of breeding [9, 10].

During the years of independence of the republic, the government and personally initiated by the President of the Republic took great measures in animal husbandry. As a result of economic reforms, farmers and farms were established, and a number of benefits were created for their development. As a result, the number of livestock and production indicators of livestock products increased sharply [1-4].

The timely adoption of the "Breeding Works" law and "Selection Achievements" regulatory documents created opportunities to improve the breeding system. During 2006-2022, more than 22 thousand breeding carcasses and heifers were imported to the republic from developed foreign countries, herds of breeding farms were expanded, reproduction farms were formed, and the conditions for establishing breeding factories were improved [2, 3].

"Uznaslchilik" enterprise succeeded in selecting breeding bulls and artificial insemination lines and improving its operations. As a result of the given benefits, the quantity and quality of artificial insemination of cows increased in more than 340 specialized breeding farms in the republic. It is true to say that the establishment of artificial insemination centers in the territory of all the districts, equipping them with modern equipment and providing them with insemination and technical personnel was a great event in improving the herds of personal assistants and farmers, increasing their breeding and productivity.

Although the number and quantity of cattle breeding is rapidly developing due to the government's care and practical assistance and benefits, the productivity indicators of livestock have not increased for several years. It will be useful for us to pay special attention to it now, objectively reveal its causes and show the available opportunities.

In fact, it is worth noting that there are a number of non-launched authority works in the activities of organizations, enterprises and farms typical of the breeding system of the republic. In particular, selection and selection of animals in breeding, keeping selection reports on the basis of approved forms, leaflets, vedomosts and magazines, annual inspection of animals in breeding farms, determining the breeding category of animals, forming the

selection and breeding core of the herd, breeding groups of young animals intended for repair and sale , how can we understand that a number of selection works are not being carried out, such as keeping breeding cards (2nd milk form) in determining and evaluating their genotype.

Therefore, we can be sure that the inspection and monitoring of results by the relevant departments of the Ministry of Agriculture of the Republic and the Union of Republican Farmers will have a positive effect on the improvement of herds.

There are laws in conducting breeding work and strengthening the breeding base, and it is permissible to take measures to implement them. In order to fill the herds of personal assistants, farmers and farms with productive and breeding animals, it is first necessary to strengthen the breeding base, expand herds of breeding animals and breeding farms. It depends on the availability of breeding cattle in the breed, the widespread use of artificial insemination with the seeds of "improving" bulls, and the duration of effective use of the offspring of original bulls characteristic of the world gene pool, among other factors.

In the formation of a solid breeding base, it is acceptable that the weight of breeding stock in breeding factories, breeding herds, including cows, is 10-12 percent of all categories of stock. For example, when increasing the number of cows in Uzbekistan from 4,000,000, 400-450,000 of them should be breeding cows. This is a huge task! Because currently the weight of cows in breeding farms is only 1%. The main source of fulfillment of the task is, firstly, raising the breeding, breeding and productivity qualities of cattle in all farm herds, wide use of the seeds of "improving" bulls in artificial insemination and their transfer to the breeding category, and secondly, the import of carcasses and heifers of improving breeds from developed countries, reproductive breeding plants It is considered to increase farms, breed the obtained offspring according to the standard, and rapidly expand the herds of the breeding plant. It is known that about 50 breeder farms have been formed due to the import of breeding animals. Cattle originated from maternal ancestors and "improving" bulls that give 8-11 thousand kilograms of milk according to genotype.

Breeding cattle are the "golden fund" of the republic. We need to create the necessary incentives to transfer breeding farms to the category of breeding plants and improve their activities.

The breed of cattle bred at the breeding plant is improved, young cattle are taken care of that replace import and export, selection and sorting according to breeding and productivity characteristics, breeding according to bull systems, effective use of unique breeding bulls of the world gene pool and famous record-breaking cows, formation of groups of bull producing cows and a number of selection tasks are performed from them, such as breeding "improving" bulls.

2 Materials and methods

In Uzbekistan, it is proposed to expand herds and farms formed at the expense of regionalized breeds and their improved breed genotypes in the breeding category and create the corresponding privileges for them. This event serves as a factor in strengthening the breeding base. The main goal of breeding is to dramatically increase the number of animals with this genotype, to increase the quality of breeding and productivity. Farms in the breeding category carry out breeding work on the improvement of one of the regionalized breeds in the republic. It carries out breeding activities such as replenishing the herd of cows with productive animals, taking care of young animals according to standard requirements, using "improving" bulls for breeding, and supplying young breeding animals for commodity farms.

Taking into account the huge responsibility of the breeding work and the breeding base, we should use the following main factors and give benefits [3-6]:

1. In the enterprises, organizations, associations and farms responsible for the breeding work in the breeding system, keeping appropriate selection reports, carrying out

annual audits and, based on its results, organizing and supervising the selection and sorting of animals. In this regard, introduction of zootechnician-breeder positions in each state of farm and enterprise and provision of personnel, improvement of their qualifications. To enter the position of zootechnical inspector in the state of associations and state inspection and to provide qualified personnel. These personnel carry out selection reports on farms and inspect goods.

2. Transfer of herds and farms to a two-stage breeding category: breeding plant and breeding farms, taking into account the genetic qualities of productivity of the breeding stock in the herd. Because according to their breeding category, appropriate privileges are given. In particular, it is permissible to transfer the breeding farms formed at the expense of imported improving breeds to the breeding plant.

3. To demonstrate the genetic potential of livestock productivity at a high level and to reduce the impact of stress factors on them, to provide modern buildings with natural ventilation of light type, protecting them from the effects of hot temperatures, to implement activities in the design and construction of livestock buildings, and to consider measures to provide them with relevant benefits.

4. One of the most important activities is the problem of expanding the feeding areas of the breeding base under preferential conditions by the state. In the warm climate and natural and economic conditions of the republic, 8-9 thousand units of feed are required for each conditioned animal to express the productivity genetic potential of imported breeding cattle at 75-80 percent, to milk an average of 7-8 thousand kilograms of milk from cows. 35 percent are concentrate feeds, their quantity corresponds to 2.8-3.0 thousand feed units.

The feeding of imported breeding stock and their offspring in the current conditions of farms does not meet the requirements of the breed. Or, the current regulations regarding the allocation of land areas for the feed base and the provision of concentrate feeds by grams do not meet the requirements at all. Breeding factories and breeding farms should be given the same land area as commodity farms (0.30-0.45 ha) and with an average yield of 50-55 t of feed units, each conventional animal will receive 17-19 quintals of feed unit. Currently, the average milk yield of cows does not exceed 1900-2100 kilograms.

Therefore, it is necessary to consider measures to strengthen the feed base of breeding farms, to provide juicy, coarse and concentrated feeds with at least 1 hectare of irrigated land and 1.5-2 tons of mixed fodder by the state at the expense of 1 conditional animal. .

Although the productivity of cows in herds of breeding farms is equal to 3800-4000 kg, their use is twice as low. The reason for this is, firstly, defects in the selection work, and secondly, the lack of the required amount of nutrients.

In order to show the productivity potential of breeding farms, it is necessary to consider the problems of providing at least 0.6 hectares of land for each conditional animal and 1.0-1.5 tons of mixed feed by the state.

5. Measures to increase the productivity of nutritious crops are implemented in solving the problems of the livestock feed base, providing livestock with juicy, coarse and concentrated feed. The only way to do this is to introduce a 6-field short rotation cropping system, moving cattle to the same feeding system. By planting alfalfa in 2 fields and main and intermediate nutritious crops in 4 fields, it is possible to increase productivity by 8-9 thousand units of food.

3 Results and discussion

Implementation of the programs that have been tested in developed foreign countries and are widely used in practice in the farms of the republic will give positive results in eliminating the deficiencies in cattle care and milk production technologies.

It is known that in the care of young animals, attention is paid to the realization of high productivity potential in heredity during all periods of their growth.

The growth of moles is controlled for various reasons:

- prevention of prolongation of first birth due to slow growth;
- determination of overfeeding or malnutrition;
- to reach the "ideal" weight of the body during the first birth and thereby prevent problems during childbirth.

In the practice of foreign countries, ensuring the growth of live mass of young animals is controlled. Its optimal rate for breeds in Uzbekistan is given in Table 1.

Table 1. Growth of live mass of young female cattle.

Breed	Mass at birth, kg	On the first escape		In first birth		Average daily growth, g	Mature cow mass, kg
		Mass (kg)	Age (months)	Mass (kg)	Age (months)		
Holstein	40-45	350-380	14-16	520-580	23-26	750	650-700
Schwitz	38-43	330-360	13-15	480-520	22-24	750	600-650
Black	35-40	300-330	13-15	440-480	22-24	650	550-600
Red desert	30-35	280-300	13-15	400-440	22-24	600	450-500
Bushuev	30-35	280-300	13-15	400-440	22-24	600	420-500

It is ensured that the live mass of the first calving periods (14-16 months) is 50-55% of the mass of mature cows of the breed, and 80-85% of the first calving cows. In order to achieve the stated "ideal" mass, feeding rates and types are controlled (Table 2).

Table 2. The amount of feed given to young cattle of large breeds.

Foods	Age in months				
	0-3	3-12	12-24	0-24	24-25
Juicy and coarse feeds, kg	65	1250	4585	6000	375
Corn and grain*, kg	75	350	100	525	-
Protein feeds-meat**, kg	25	45	10	80	-
Calcium-phosphorus, kg	2.2	11.3	13.6	27.1	1.5
Microminerals, kg	0.45	10.0	11.0	21.0	0.8
Artificial milk, kg	18	-	-	18	-

Crude protein content in succulent feeds is 8%. The amount of crude protein in hay is 15%.

** soy and cottonseed meal - source of protein.

* grain concentrates - source of energy.

+dicalcium phosphate (24% Sa and 18% R).

In the absence of artificial milk, natural milk (in the amount of 10% of birth weight) is given for 8 weeks (56 days). For example, if the birth weight is 30 kg, 3 kg, 3.5 kg at 35 kg, and 4 kg at 40 kg are given in two doses. Then the amount of milk is 185-210 kilograms.

the lactation period, the amount of concentrate and hay feed is increased without changing the amount of milk (Table 3). It is transferred earlier to the consumption of plant foods.

Table 3. Average daily feeding amount of calves during the lactation period (birth weight 35-40 kg).

Variation in the age of calves		Daily amount of milk, kg	Quality concentrates (bran, corn and other cereals) daily cost, grams	Alfalfa hay (daily cost), kg
week	day			
1	7	3.5-4.0	Learning	-
2	14	3.5-4.0	80-90	learning
3	21	3.5-4.0	100-110	0.50

4	28	3.5-4.0	190-200	0.60
5	35	3.5-4.0	350-370	0.70
6	42	3.5-4.0	500-520	0.80
7	49	3.5-4.0	780-800	0.90
8	56	2.0-2.0	1150-1200	1.50
Total:	56 kn	185-210	21.2-23.1 kg	35.0

By optimizing the sources of energy (cereal concentrate feed) and protein (soybean and other vegetable meal) in feeding, the growth of the body of young cattle in height (cm) and mass (kg) is controlled in one way (Table 4).

Table 4. Growth chart of young female cattle and criteria for evaluation of sire.

For large breeds			**For medium breeds**			**For smaller breeds**		
Age, month	**Height, cm**	**Live weight, kg**	**Age, month**	**Height, cm**	**Live weight, kg**	**Age, month**	**Height, cm**	**Live weight, kg**
2	90	80	2	87	80	2	77	60
4	100	120	4	96	120	4	88	100
6	106	175	6	105	170	6	94	130
8	112	220	8	111	220	8	102	160
10	117	270	10	116	260	10	105	200
12	120	320	12	120	310	12	110	230
14	124	380	14	124	340	14	113	260
16	128	430	16	127	380	16	116	290
18	132	470	18	130	420	18	118	310
20	134	520	20	132	450	20	120	340
22	137	580	22	134	480	22	122	360
24	140	620	24	135	510	24	124	385

By controlling the growth of the body of young animals in height and mass, the following is ensured: adequacy of feeding, storage and maintenance; periods of sexual maturity (sexual maturity, fertilization and first childbearing age); economic efficiency; being a sersut in the future.

The second technological problem is milking cows. It is known that the milk yield of cows is determined by heredity and is manifested under the influence of external environmental factors. Nutritional factors have an effect of 60-65% on the manifestation of the productive genetic potential of high-yielding and especially Holstein breed and Holstein genotype Black-Ola cows.

Therefore, the development and implementation of the program of feeding productive cows will be effective.

For productive cows, the rate of concentrate feed is determined depending on the quality of fodder (silage, hay and hay) and the amount of milk.

Forage feeds (silage, silage, hay) as different (low, medium and high) milk yield from 20, 28 and 37 kg respectively and 8.3 kg at 3.5% milk fat and 9.1 kg at 4.0% fat concentrate feeds are given. Or for cows eating low-quality feed and giving 32 kg of 4.0% fat milk, concentrate feeds from 441 grams (14.1 kg) per 1 kg of milk, and from 352 grams (352 grams) when eating medium-quality feed and giving 4.1% milk from 40 kg. 14.1 kg) and 290 grams (14.1 kg) of concentrate feed is used to produce 49 kg of 4.0% fat milk in high-quality forage feed. The higher the quality of fodder feeds, the more milk is milked, and the rate of concentrate feed used for milking 1 kg of milk decreases. The higher the quality of fodder, the lower the cost of concentrate feed. This is one of the factors of complete nutrition.

Feeding rates and types of cows are organized taking into account the stages of lactation. Special attention is paid to their proper preparation for calving during the weaning period (Table 5).

Table 5. Mature cows of Holstein breed and Holstein genotype (weight 550-600 kg, milk yield 8000-9000 kg, fat content 3.6-3.8%) exemplary ration of the same type of feeding (with high-quality fodder) by lactation phases, kg.

Foods	Dividing the cows in the herd into groups					
	I	II	IIa	III	IV	V
	Lactation phases of dairy cows				Weaned beef cows (period)	
	70 days	From 70 days to the 3rd month of pregnancy	From 150 days to the 6th month of pregnancy	The month of lactation until the last weaning	The first 50-55 days	1 week before delivery
High-quality mixed fodder	4	4	4	-		
Soya flour	2.5	2.5	2.5	1	-	-
Shot	1.5	1.5	1.5	1	-	-
Beer waste	8	8	8	5	5	-
Food beets	8	8	8	5	5	-
Senage	6	6	6	6	3	1
Silos	16	16	16	4	3	9
Alfalfa hay	5	5	5	5	5	5
Table salt, g	150	150	150	150	150	150
Calcium carbonate, g	100	100	100	50	-	-
Dietary satiety: dry matter	23.5	23.5	23.5	11.0	10.5	12.5
Exchangeable energy, MDj	23700	23700	23700	10727	9362	12675
Digestible protein, g	3210	2310	3210	1530	1380	1760
Energy food unit	23.7	23.7	23.7	10.7	9.4	12.7

According to the experience of developed countries, after the cows are well prepared for calving in the calving period, they are fed with the same type and rate of feeding until the 240th day of lactation at the level of medium fatness. This technological event is very different from ours. In the example ration presented in the table, 8 kilograms (270-300 grams per 1 kg of milk) of concentrate feeds are used for an average milking of 26-30 kilograms per day. Milking 1 kg of milk costs 0.8-0.9 nutritional units and 110-130 grams of digestible protein. Cows are fed only high-quality juicy and coarse feed during the calving period.

4 Conclusions

The daily content of the ration during the resting period of wheat (55-50 days) corresponds to 10.5 kg of dry matter, 9.4 energy food units and 1380 grams of digestible protein. 1 week before calving, beer waste, nutritional beets and haylage are removed from the diet, the amount of silage is increased, and the nutrition of the diet increases to 12.5 kilograms of dry matter, 12.7 energy units and 1760 grams of digestible protein.

Thus, the implementation of measures to eliminate the shortcomings and problems observed in breeding work and the breeding base, as well as to use the mentioned factors,

ensures the achievement of the intended goals and tasks. It is proposed to use this feeding system, type and rate of productive cows in the breeding plants of the farms of the republic.

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