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Insemination benefits of artificial breeding of cattle in the Republic of Karakalpakstan

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Аннотация:

В статье описаны сведения о продуктивном скотоводстве, со сравнительной оценкой по сравнению качественного и количественного показателей местного и племенного скота. Выбор высокоэффективных методов искусственного осеменения коров с использованием современных методов ведущих стран мира по созданию племенного стада крупного рогатого скота.

Annotation:

The article describes information about productive cattle breeding, with a comparative assessment of the qualitative and quantitative indicators of local and pedigree livestock. The choice of highly efficient methods of artificial insemination of cows using modern methods of the leading countries of the world to create a breeding herd of cattle.

Key words: *domestic, purebred, heredity, Simmental, қора ола, Қозоқ оқ бои, Голштейн, chlamydia, brucellosis, trichomoniasis and campylobacteriosis.*

The Decree of the President of the Republic of Uzbekistan No. PF-5696 dated March 28, 2019 "On Measures to Radically Improve the State Administration System in the Field of Veterinary Medicine and Livestock" and Resolution No. PP-4576 dated January 29, 2020 "On Additional Measures to Support the Livestock Sector by the State" serve to develop the livestock sector.

In order to fulfill the tasks set out in these resolutions, pedigree cattle were imported from foreign countries to the Republic of Karakalpakstan in 2020-2021. In 2020, 1,013 heads of Simmental, Kara-Ola, Kazakh White, and Holstein cattle were imported, and in 2021, 189 heads of Simmental, Kara-Ola, Kazakh White, and Holstein cattle were imported. The pedigree cattle imported to the republic are mainly intended for meat and dairy production. Artificial insemination of these pedigree cattle is a type of reproductive technology, in which the sperm of a male animal is removed and placed in the female's reproductive organ at the appropriate time and without the participation of the male animal.

This technology is especially relevant in cattle farms specializing in breeding and dairy farming, creating the basis for a several-fold increase in animal productivity. The semen used for artificial insemination is obtained from bulls with high breeding performance and productivity. For example, the average annual milk yield of local cows is 1000-1500 kg (i.e. 3.5-6 kg per day), while that of purebred cattle is 9000-10000 kg (i.e. 40-45 kg per day). It is the male offspring of cattle of this breed that are most often used for artificial insemination. Artificial insemination allows you to plan the breed and productivity of the herd, since you can get acquainted with

complete information about the offspring of various breeds and inseminate cows with the necessary semen. At the same time, by selecting and selecting in the herd, you can strengthen the beneficial properties of animals. As a result, it is possible to increase the productivity of cattle, improve herds, increase the production of livestock products and reduce their cost. Also, artificial insemination can prevent a number of infectious, non-infectious and parasitic diseases in animals, since some sexually transmitted diseases cause infertility in cows in the long term, causing great economic damage to the animal owner.

When using artificial insemination, there is no need to keep bulls of low breed and productivity, and they can be fattened and sold in a timely manner, while it becomes possible to use feed efficiently. If with natural insemination 40-80 calves are obtained from one bull per year, with artificial insemination 15-20 thousand calves can be obtained. Calves obtained by artificial insemination have advantages over calves obtained by natural methods in terms of rapid growth and resistance to diseases. Therefore, great attention is paid to artificial insemination in the Republic of Karakalpakstan. Almost all farms and veterinary and livestock development departments have artificial insemination stations equipped with frozen semen, insemination equipment and tools. The effective use of artificial insemination in cattle farms in the Republic of Karakalpakstan will lead to improved breeding performance of cattle and will allow for the further development of artificial insemination work.

❖ **Advantages of artificial insemination** - Artificial insemination has the following advantages over natural insemination:

❖ The main one is the ability to deliver the semen of one good bull to several farms. Usually, in natural methods, one bull serves only one farm's cattle.

❖ It is possible to carry out selection work on a large scale.

❖ The spread of infectious diseases such as chlamydia, brucellosis, trichomoniasis and campylobacteriosis is prevented.

❖ Through artificial insemination, thousands of purebred calves can be obtained from a purebred bull, while in the natural method, a local bull is able to sire only 50-60 cows per year, and the productivity of its offspring is lower than that of purebred calves.

❖ In livestock farms, it is not necessary to keep bulls to sire cows, because there are many worries associated with keeping a bull: buying feed, paying a salary to a breeder, trauma to other animals, etc.

❖ Livestock farms that use live bulls face the problem of finding and purchasing a new bull every two years, otherwise inbreeding (sexual mating of closely related animals) may increase on the farm.

❖ With artificial insemination, they could only choose the right bull from the list of the semen supplier.

❖ Cattle obtained through artificial insemination are distinguished by faster weight gain, growth, increased milk and meat productivity, and a large difference in their price when sold live on the market compared to cattle obtained through natural insemination.

❖ Through artificial insemination, highly productive and local animals that are thousands of kilometers apart can be easily mated.

❖ If the requirements of semen storage technology are not violated, it is possible to use even bull semen that has long passed away.

❖ In private, personal and livestock farms, it is possible to use several bull semen to create diversity within a breed.

Analysis of advantages of local and bred cattle in the conditions of the Republic of Karakalpakstan.

1-table

№	Large horned cattle group	Local bulls			Breeding bulls		
		age	Live weight (кг)	Trade price (млн сум)	age	Live weight (кг)	Trade price (млн сум)
1	Dairy cows	5-7	210-240	10,71-12,24	5-7	450-500	27,7-30,9
2	Bulls	3	180-250	9,18-12,75	3	550-650	34,0-40,2
3	2 year old heifer	2,5	120-150	6,12-7,65	2,5	300-350	18,6-21,7
4	Heifer up to 2 years old	2,0	80-100	4,08-5,1	2,0	160-200	9,9-12,4
5.	Male body up to 1 year old	2,0	70-90	3,57-4,59	2,0	180-200	8,0-12,4
6	6 months old	6 ой	40-60	2,04-3,06	6- ой	90-130	5,6-8,4

Based on the results of artificial inbreeding, we witnessed that the following indicators were achieved when comparing the live weight and meat products of imported cattle from foreign countries to the live weight and meat products of local cattle..

Domestic dairy cows weigh 210-240 kg at the age of 5-7 years. The market price is 10.71-12.24 million soums. Breeding cows weigh 450-500 kg at 5-7 years of age. externalizes The price when sold in the market is on average 27.7-30.9 million soums.

The live weight of a local bull at the age of 3 is 180-250 kg. When sold in the market, the price is 9.18-12.75 million soums. At the age of 3 years, the weight of a purebred bull is 550-650 kg. externalizes The price when sold on the market is on average 34.0-40.2 million soums.

A local 2-year-old heifer is 2.5 years old, live weight 120-150 kg, the market price is 6.12-7.65 million soums. The live weight of a 2-year-old heifer is 300-350 kg, the market price is 18.6-21.7 million soums.

Local heifers up to 2 years old are 2.0 years old, live weight 80-100 kg, and the market price is 4.08-5.1 million soums. Pedigree heifers up to 2 years old are 160-200 kg, and the market price is 9.9-12.4 million soums.

Local male cattle up to 1 year old, live weight 70-90 kg, and the market price is 3.57-4.59 million soums. Pedigree heifers up to 1 year old are 180-200 kg, and the market price is 8.0-12.4 million soums.

A local 6-month-old male calf has a live weight of 40-60 kg and a market price of 2.04-3.06 million soums. A 6-month-old pedigree heifer has a live weight of 180-200 kg and a market price of 5.6-8.4 million soums.

Compared to domestically bred cattle, the rapid growth of the organism, high live weight and productivity, and a large difference in market prices provide an economically effective result for the farm.

Artificial insemination methods - The technique of artificial insemination in cows is based on the peculiarities of the reproductive system of domestic cattle: they are a type of animal in which the semen is placed in the vagina.

That is, during natural insemination, the bull releases its semen into the cow's vagina, while in even-toed animals: horses, donkeys and zebras, the semen is placed directly into the uterus. Therefore, in previous methods of artificial insemination, the semen was placed in the vagina, as in natural conditions. This method only fulfills the function of replacing a live bull (bull semen is consumed more), but the task of using bull semen more efficiently is not realized. Because when placed in the vagina, the level of fertility of the semen is low and a large amount is required. The visocervical method of artificial insemination, that is, using a vaginal mirror, is easy to use, but its technological and sanitary-hygienic requirements are so complex that it is difficult to perform this method correctly. This method has been replaced by the rectocervical method.

In the rectocervical method, a disposable sterile sheath is the only device that touches the inner walls of the cow's reproductive organs, eliminating the risk of foreign harmful substances entering these delicate organs and ensuring the safe implementation of the artificial insemination process. This method should be performed slowly and gently.

The cow should not startle or jump from external influences, and since the uterine body is short, the syringe should not be inserted with excessive force, otherwise the catheter may pierce the uterine wall. A syringe-catheter covered with a disposable sheath is inserted into the cervix, and at this time the cervix is held with the other hand inserted through the rectum. The rectocervical method is more difficult to learn than the visocervical and monocervical methods, but this method is distinguished from other methods by its advantages.

Conclusion

The above methods were analyzed for the implementation of artificial insemination of cows. Of the methods listed, we considered the rectocervical and monocervical methods to be the most effective and give the best results in practice.

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