ISSN: 2707-1146
e-ISSN: 2709-4189

https://doi.org/10.36719/2707-1146/50/25-29

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Quality Indicators of Seed Received From Buffalo Breeders at the Artificial Insemination Center of Nakhchivan Autonomous Republic

Abstract

The main objective of the study is to investigate and determine the factors affecting the productivity of the seed obtained from buffalo germplasm. In the research work, different factors affecting the productivity of the seed were identified. These are genotype, fodder and feeding systems, buffalo feeding.

Keywords: *buffalo, germ, artificial insemination, seed, Nakhchivan*

Introduction

Artificial insemination is considered the most efficient of the biotechnical methods applied in improving the genetic composition of buffalo breeding, intensification and improvement of reproduction, and raising the quality of breeding (Mammadov, 2021, p. 24).

In most agriculturally developed countries of the world, artificial insemination and embryo transfer are used to ensure the health of buffaloes, cattle and many other animals, to increase production in animal husbandry, to create animal breeds, to improve the breed composition of animals and to create new breeds of animals. Different factors affect the fertility of buffaloes. These factors include the following (Nasibov, Abbasov, & Abbasov, 2016, p. 26).

Research

Genotype. Genotype is one of the most effective factors affecting reproductive characteristics. First of all, genotype differs from race to race and from individual to individual within each race (Alacham et al., 1998).

Feeding of canes. Special attention should be paid to the feeding, feeding and maintenance of buffaloes in order to buy more productive breeds and to ensure the quality of the seed obtained (Seyidov, 1975, p. 18).

In order to maintain the sexual activity of buffaloes at the same level, their feed should contain enough mineral salts, proteins, vitamins and animal feed (Tandle, 2017, p. 62).

There should be a hole in the middle of the floor where the litter box is kept so that the urine can flow under the plank (Abdullayev et al., 2012, p. 102).

The data obtained as a result of our observations and research at the Nakhchivan Artificial Insemination Center are listed in the following tables.

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e-ISSN: 2709-4189

Table 1
Effect of season of the year on seed yield of buffalo germs

Originator	Ejaculate Volume, ml	Motile (total activity)	Progressive (straightforward movement)	Morphology	Density (ml)
In winter					
Bella	1.8	86	78	88	768
In the spring					
Bella	2.5	86	58	89	2195
In the summer					
Bella	5.2	81	57	93	1214
In the fall					
Bella	2.8	79	69	92	602

As can be seen from Table 1, the seasonal change of the year affects the tissue in different ways. The volume of ejaculate was 1.8 ml in the summer season, slightly increased to 2.8 ml in the autumn season, decreased again to 1.8 ml in the winter season, and increased to 2.5 ml in the spring season. Also, sperm motility, i.e. total activity, was 81 in summer, 79 in autumn, 86 in winter, and 86 in spring. The progressive movement of sperm was 57 in summer, 69 in autumn, 78 in winter, and 58 in spring. The density of sperm was 1214 ml in the summer season, in the autumn season its density decreased slightly to 602 ml, in the winter season its density increased slightly to 768 ml, and in the spring season it increased again to 2195 ml (Nasibov, Ahmadov, & Verdiyeva, 2014, p. 71).

Table 2
Effect of age of buffalo germs on seed yield

Originator	Age of originator	Ejaculate volume, ml	The density of the seed is billion/ml
Bella	2-3	2,8	3046
	3-4	2	2543
	4-5	1,8	1287

The volume and thickness of the ejaculate in buffaloes varies with age. As a result of our tests, we determined that the volume of the ejaculate was 2.8 ml, and its concentration was 3046 billion/ml in the causative agents at the age of 2-3. However, the volume of ejaculate in the seeds of 3-4-year-old progenitors decreased to 2 ml compared to 2-3 years, and the density of the seed decreased to 2543 billion/ml. The volume of the ejaculate of the seed obtained from the 4-5-year-old germs decreased to 1.8, and the density of the seed decreased to 1287 billion/ml (Abdullayev, 2020, p. 35).

The purpose of the study. The current operational accounting and reporting documents of the Artificial Insemination Center of the Nakhchivan Autonomous Republic, State Veterinary Service, annual statistical and production reports on artificial insemination, artificial insemination work carried out in individual locations, private and farm farms were organized as research material. Also, the examination of buffaloes brought to the Artificial Insemination Center of the Nakhchivan Autonomous Republic, the methods of obtaining seeds from these agents, examination and storage after obtaining seeds, filling and freezing of the seeds after inspection, quality inspection after freezing, and the work of the artificial insemination technician were analyzed (Tahirov & Huseynova, 2022, p. 85).

The object of the study is two head of breeding buffaloes kept in the Artificial Mayalana Center of the Nakhchivan Autonomous Republic. For the experiment, a clinically healthy, 3-4-year-old,

ISSN: 2707-1146
e-ISSN: 2709-4189

750-800 kg live weight bald breeder was used. The feeding, feeding and care of the germs stored in the Artificial Insemination Center, as well as the work done in this center, i.e., taking seeds from breeding germs, checking and filling them in poyets, and placing them in the deep-frozen seed bank, were carried out in accordance with all zoohygienic rules (Tahirov & Huseynova, 2022, p. 87).

Material and research methods. Seed collection from buffaloes: The seed is attached to the machine where the seed will be collected. The agent attached to the bench must be completely healthy. It is not recommended that the pathogen that is closed to receive seeds is too large (Special Issue on Buffalo Nutrition, Breeding and Diseases).

The seed is taken through an artificial vagina. The artificial vagina used for insemination should be different for each agent and the name of the agent should be written on the artificial vagina. All tools used are stored in special cabinets (Buffalo).

The artificial vagina is cleaned and disinfected after taking seeds both times. The air pressure should be equal to 35-45 mm of mercury, and the temperature should be 40-42 degrees. The surface of the artificial vagina used for seed collection should be smooth and covered with vaseline (Taghiyev, 2010, p. 94).

If one of the rules used in seed collection is violated, then the ejaculation process of the causative agent will weaken and temporary impotence will occur. The following rules are used to prepare the artificial vagina: first, the vagina is washed, then the seed collector is prepared, disinfected, hot water is filled between the walls of the artificial vagina, the seed collector and the artificial vagina are connected, the artificial vagina is filled with air and measured, the pressure is measured with a pressure gauge, and the temperature measured with a thermometer (Taghiyev, 1978, p. 93).

If the used artificial vagina is new, it is first disinfected and its inner walls are cleaned with 96 percent alcohol-refined. Depending on the air temperature, 60-80 degree hot water is poured into the artificial vagina. The amount of water varies depending on the type of animal. The amount of water in the artificial vagina should be 500-600 milliliters for heads (Perry, 1960, p. 179).

Vaseline is rubbed into the artificial vagina with a special tool. The seed collector is first washed, then disinfected and hot water of 35-40 degrees is poured into the seed collector. The seed collector, which is ready to receive seeds, is connected by means of a special rubber holder. The hole through which water is poured into the seed collector is closed with a plug. After these processes are finished, air is injected into the artificial vagina. When using the artificial vagina, it should be held so that the seed collector is behind and above. The artificial vagina is kept in a horizontal position at an angle of 35-40 degrees to the pelvic area of the agent, which is attached to the machine to receive seeds. As soon as the germinator produces seeds, the seed collector should be lowered, and the air tap should be opened so that the seeds are poured into it. The sperm collector is gently removed from the artificial vagina and the mouth is tightly closed. If the seed is collected from the same source a second time, another artificial vagina prepared in advance is used. After all these works are finished, artificial vaginas are cleaned according to veterinary-sanitary rules. A 2-3 percent soda solution is used to clean petroleum jelly, then it is washed with hot water, wiped with a towel, disinfected with a swab soaked in 96 percent alcohol, and placed in a special cabinet (Abdullayev, 2020, p. 29).

To buy seeds, the following rules should be followed:

The seed should always be taken at the same time (2-3 hours after feeding the pathogen).

Before taking seeds, the pathogen should be moved for 15-20 minutes.

It is advisable to take seeds from the bald head twice with an interval of 5-10 minutes. The seed bought the second time is often of better quality than the first (Mammadov & Yusifov, 2004, p. 13).

Research results and their discussion. The artificial insemination center covers an area of 2 hectares. Quarantine buildings, a veterinary clinic, an administrative building, a dormitory, a stable, fodder warehouses, a seed collection area, a technical park and other service buildings were built in this center. In the administrative building there is a training center equipped with an electronic board and an archive, a warehouse and a storage place for pathogens, a canteen and work rooms, a

ISSN: 2707-1146
e-ISSN: 2709-4189

veterinarian's room in the quarantine building, an animal storage area and an examination room in the veterinary clinic. A laboratory has been established in the field of seed collection. The most modern equipment imported from France was installed in the laboratory created here.

"Holstein-Friesian", "Simmental", "Caucasian buffalo", "Balbas", "Mazex", "Romanov", "Aleppo", "Saanen" and local breeds of large and small cattle are stored in the center in the dairy and meat-dairy direction (Tahirov & Huseynova, 2022, p. 91).

Picture 1 Artificial Insemination Center



Picture 2 Azerbaijani buffalo



Artificial insemination was performed on 83 thousand 610 head of cattle in the autonomous republic in 2002-2019, and 53 thousand 584 calves were purchased. "Holstein-Fries" in the dairy direction, "Swiss" in the dairy-meat direction, "Aberdeen Angus", "Limousin", "Charolle" in the meat direction, and "Simmental" in the meat-dairy direction were used in the artificial insemination of the mother cattle. In 2015-2019, 2 million 448 thousand AZN subsidies were paid to entrepreneurs for 24 thousand 485 calves purchased (Tahirov & Huseynova, 2022, p. 97).

Currently, there are 23 artificial insemination centers in the autonomous republic. There is also a liquid nitrogen production enterprise that fully meets the needs of those stations. The newly created center will further improve the work in this area, and the actions carried out in other locations will be managed from a single center.

Conclusion

1. The seasonal change of the year has different effects on the seed of buffalo germs. The volume of ejaculate was 1.8 ml in summer, slightly increased to 2.8 in autumn, decreased again to 1.8 in winter, and increased to 2.5 ml in spring.

2. As a result of our tests, we determined that the volume of ejaculate in buffaloes is higher at 2-3 years than at 3-4 and 4-5 years.

3. As a result of our observations and studies, 85 % of the spermatozoa of the sperm we received from buffalo breeders were normal, 0.14 % had a deformed head, 2.5 % had a deformed tail, 2.86 % had a twisted tail, 1.8 % had a thickened tail, 1, Adhesion of head and tail was observed in 2 % and severed head and tail in 3 %.

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Received: 02.06.2024 Accepted: 31.09.2024