

ANNOTATION

**of the dissertation for the degree of Doctor of Philosophy (PhD)
Makhanbetova Aizhan Bekbolatovna on the topic " The influence of
genetic factors on the reproductive ability of beef bulls ", specialty 6D080200
"Technology of livestock products"**

The relevance of the dissertation work.

Providing the population with high-quality meat products in the country is the most important task of the national economy. To perform this task, all genetic stocks of bulls of producers imported from abroad and domestic breeding are involved.

In recent years, Kazakhstan has expanded the use of highly productive livestock breeds in all regions, improved technologies for feeding and caring for breeding animals, technologies and organizational work on beef production, where meat production occupies the main place.

Nevertheless, the development of each industry depends on the timely implementation of measures through continuous improvement of the herd, as well as on properly scientifically based and correctly analyzed breeds and genotypes of animals to increase its effectiveness in a given region.

The resulting products can be achieved not only by developing the existing gene pool and increasing the number of livestock, but also by increasing the productivity of livestock.

An important place in the field of breeding work is occupied by the issues of effective assessment and selection of farm animals by productivity and breed qualities. Bulls-producers are of great importance in improving the pedigree and productive qualities of animals.

Today, the need for genetic control of the breeding process is becoming an important criterion for the development of the main branches of agriculture. The task of breeders is to preserve and consolidate in the offspring the optimal combinations of the gene obtained from its ancestors, as well as to use information about the genetic characteristics of animals in inheritance.

Even with a natural reflection from the bulls-producers, you can get 300 or more offspring per year. It is known that in the process of artificial insemination, the number of offspring increases two to three times.

The reproductive function of bulls is largely determined by the genetic diversity of the main selective abilities and the level of transmission of economically useful traits to offspring. Therefore, the best method of determining the breeding abilities of bulls producers is their assessment of the quality of offspring.

In meat animal husbandry, a two-stage evaluation of producer bulls has been adopted, including selection according to the main breeding indicators: this is an assessment of the quality of the offspring and according to the indicators of the bull's own productivity.

Since the advent of artificial insemination and its widespread introduction, studies have been conducted to identify the reproductive abilities of breeding bulls. The opportunity to obtain several thousand offspring from one bull has allowed many scientists to find solutions to the problems arising from the effective use of this potential of the bull in large-scale sorting, along with an increase in the number of offspring and an increase in the quality of sperm production by producing bulls.

Many scientists I. S. Popov, I. Durst, B.C. Kirillov, I. I. Sokolovskaya, M. F. Ivanov, N. G. Dmitriev, P. A. Varaksa, F. F. Eisner, V. I. Melnikov, G. M. Andreev, G. P. Ilyinskaya, V. S. Antonyuk, A.V. Cherekaev, L. S. were engaged in these problems. Zhebrovsky, F. G. Kayumov, V. I. Kosilov, S. S. Satygul, S. A. Zhuzenov, H. K. Amerkhanov, K. K. Bozumov, E. G. Nasanbayev and others.

The selection of breeding bulls based on the quality of production and insemination of sperm based on quantitative and qualitative indicators makes it possible to speed up the sorting process in animal husbandry.

However, in recent years, interest in this issue has been expressed. The situation that has arisen has not spared the animals belonging to the new genotypes of dairy and meat directions.

Incorrect work on the evaluation of a producer bull, which inseminates thousands of cows with sperm, in turn, can lead to significant losses not only of the gene pool of an individual herd, but also of the gene pool of the full population.

Currently, large banks of long-term sperm storage have appeared in the country, but they need to be systematically replenished with high-quality material, which is produced with a comprehensive assessment of the bulls of producers.

In this regard, the creation of market relations in agricultural production based on the improvement of beef cattle breeding in accordance with modern requirements and artificial insemination of livestock and the identification and effective use of bulls-producers of the highest class, taking into account the genetic influence and connection of breeding characteristics depending on the genotype, breed and origin of bulls-producers of sperm is an urgent problem today.

The purpose and main objectives of the study.

The purpose of the dissertation is to determine the influence of the breed and the country of origin on the reproductive ability of bulls of meat breed producers with different genotypes.

Research objectives:

1 Assessment of the genetic influence of the breed and origin of bulls-producers of different genotypes on productivity and physique;

2 Determination of the influence of sperm of breeding bulls with different genotypes on the fertilizing ability and quality indicators of sperm;

3 Determination of the effect on the sperm production of bulls of different genotypes of age and season of the year;

4 Study of physiological and biochemical parameters depending on the age of bulls of different genotypes;

5 Evaluation of heredity in the offspring of bulls-producers of different genotypes;

6 Study of the effect of growth hormone genes in the sperm of bulls of different genotypes on their offspring;

7 Calculation of economic efficiency based on the reproductive ability of bulls of producers of different genotypes.

Conditions recommended for protection:

1 the influence of genetic factors on the reproductive ability of bulls producing meat breeds of different genotypes;

2 Results of the study of the relationship between phenotypic, genetic traits and a one-time variance analysis of the studied indicators;

3 the influence of age and time of year on the studied indicators;

4 the influence of hereditary qualities and growth hormone genes on the offspring of the studied indicators;

Expected results:

1 the influence of the breed and origin of breeding bulls with different genotypes of the meat direction on the characteristics of productivity and physique has been established.

2 the relationship between the quality indicators and the effect on the ability to fertilize and the signs of sperm of breeding bulls with different genotypes of the breed and country of origin is analyzed.

3. The physiological and biochemical parameters were studied depending on the age characteristics of bulls of producers with different genotypes

4 the hereditary qualities of the offspring of breeding bulls with different genotypes of the breed and country of origin and the effect of growth hormone genes in their sperm on the offspring were studied;

5 the effectiveness of bulls of producers with different genotypes in terms of fertilizing ability.

Scientific novelty.

For the first time, the influence of the genotype, breed, country of origin on the offspring and sperm production and fertilizing ability of bulls-producers of different genotypes of beef breeds of cattle raised in the northern regions of Kazakhstan has been relatively studied. The selection and genetic parameters of sperm production indicators (variability, correlation between indicators) and the possibilities of their application in forecasting and sorting are known.

Practical significance of search work:

The main elements of information support for the sorting of breeding bulls with different genotypes in terms of sperm productivity have been developed and implemented, an information base of breed resources for breeding work has been created in Asyl Tulik JSC. Thanks to the results of the research, the links between high productive qualities and breeding characteristics of breeding bulls of different genotypes and age depending on the season of the year were revealed. Recommendations on the effective use of bulls in the process of artificial insemination are given.

Connection of the thesis topic with the state program.

This issue was executed within the framework of the project on scientific and technical research under the project of targeted financing of the Ministry of

Agriculture of the Republic of Kazakhstan 267 "Improving the efficiency of breeding methods in livestock breeding" 101 sub-item of the topic "Study of breeding problems in breeding herds and the use of modern methods to increase the yield of young animals" (state registration number of the IRN: BR06249373-OT-19) and the program "Grant financing of young scientists" within the framework of the "Zhas Galym" program 2022-2024. "The influence of genetic factors on the reproductive ability of bulls-producers of meat breeds" (state registration number of the IRN: AR14972970).

Publication and approbation of dissertation materials.

The research results of the research work have been published and the main provisions of the dissertation are presented at the annual international and republican scientific-practical and scientific-theoretical conferences "Seifullin readings" at the Kazakh Agrotechnical Research University named after S. Seifullin (Astana, 2017); monthly theoretical and scientific-practical journal "Zootechnia" No. 12, Moscow (2017); Bulletin of Michurinsk State Agrarian University (2018).

Also in the journals, in particular, the recommended committee to ensure quality in the field of Science and higher education of the Republic of Kazakhstan, Published 5 statutes and 1 Scopus article: Bulletin of Semipalatinsk State University is. Shakarima in the journal Bulletin of domestic science (2017); Bulletin of kazatu. Seifullina (2020); Kyzylorda University im. Korkyt Ata Vestnik No. 1 (64) (2023), Zapadno-Kazakhstan agrarian Technical University im. Zhangir Khana, Journal of Science and education (2019, 2023) and 1 article in journals, included in the international database Scopus: "Brazilian Journal of Biology" Brazil (Scopus, percentile 61) (2023). In addition, according to the results of the dissertation research in 2020, the publication of the recommendation "on the selection and use of breeding male bulls" in Kazakh and Russian languages "recommendations for the supply and use of breeding Bykov-producers".

Structure and scope of work.

The dissertation work consists of sections including introduction, literature review, materials and methods of research, research results, economic efficiency of research, conclusion and recommendations for production, list of references and appendices. It is typed in computer text on 123 pages, contains 39 tables, 22 figures, 11 graphs. The list of references consists of 161 sources of literature, including 22 – in official languages, 15 – foreign and 124 – sources of literature in the languages of the CIS countries.