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THE IMPORTANCE OF THE SCHWYZ BREED OF CATTLE IN IMMUNOGENESIS AND CELLETION

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Abstract
Describes the work and solutions related to determining the immunogenetic characteristics of cattle brought from Switzerland and the possibilities of their use in breeding, which are kept in a number of regions of our repub.

Keywords: Erythrocyte, blood groups, metabolism, productivity, Alatau breed, Caucasian brown breed, antigen.

Introduction

It is impossible to solve this problem without the use of new methods and advances in genetics in the breeding of dairy cattle. The creation of breeds with improved productivity and increased resistance to production conditions in a short period of time requires taking into account information about the structure of the genotype and the metabolism of animals in the selection process. First of all, data on immunogenetics, which studies the hereditary characteristics of blood groups, is important, because it allows the use of individual characteristics of the organism as genetic markers when selecting animals.

This article focuses on the following problems and provides recommendations and practical solutions. The works and their solutions related to determining the immunogenetic characteristics of cattle brought from Switzerland and the possibilities of using them in breeding are shown.

Based on this goal, scientific research was conducted to find a solution to the following problematic tasks.

1. To study the genetic polymorphism of erythrocyte antigens, to identify alleles controlling them and to determine the possibility of using them as genetic markers.
2. To study the relationship between blood groups of animals and milk production (milk yield, fat content in milk).
3. To determine the possibilities of using blood groups to increase the productivity of dairy cows from the first insemination.
4. To determine the effectiveness of immunogenetic control of the authenticity of the origin of livestock.

The main part: The relevance of the problems studied in the article is as follows. For the first time in the conditions of Uzbekistan, the blood groups of Swiss breed animals, as well as the nature of

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genetic processes in Swiss cattle populations during the selection process, were studied.

It was found that the level of milk productivity of cows depends on the inheritance of alternative paternal alleles of their blood groups. Homozygosity or heterozygosity of cows according to the system of blood groups affects their fertility and has its effect on productivity.

The important aspect of writing this article is that as a result of the acclimatization of studying the characteristics of the genotypes of Swiss breed animals, it allows to observe the dynamics of blood group allele frequencies. This is important because the practice of bringing purebred cattle from other regions of the world to Uzbekistan is becoming economically unprofitable. Imported animals adapt to the extreme conditions of the republic for a long time and quickly lose their productivity, especially in the hot season.

This means that as a result of spending some time, it is urgent to improve local long-term breeding and create new, high-yielding lines and species of animals suitable for use in industrial technology. At this point, it should be mentioned that the organization of the selection of Schwitz cattle on a scientific basis allows to identify the most valuable relative groups of animals, turn them into lines, and thereby accelerate the process of breeding of brown cattle in Central Asia. Taking into account the characteristics of the genotype, the selection of cattle during mating allows for the purposeful increase of the heterotic effect and the development of proposals for predicting the milk yield of animals.

Sire evaluation is based on the productivity of genuine female cattle with blood group provenance. Selection of young animals is carried out, which will be replaced by alleles of blood groups that are positively related to milk production indicators. This measure allows to fill the herds of all enterprises with high-yielding animals, to accelerate the creation of the Swiss type of dairy cattle in Uzbekistan.

It follows from the above information that the study of polymorphism of blood groups of cattle in our country and abroad showed that it is possible to distinguish lines, families and breeds with the help of markers. Each breed has its own set of blood group loci, but the presence of common loci can determine their degree of relatedness. Selection and genetic processes in farm animal populations are studied by changing the frequencies of alleles of blood groups.

Swiss cattle belong to the group of brown breeds, which are very common all over the world and are widely used in breeding other breeds. Thus, in particular, Swiss cattle were used in the breeding of the Kostroma breed, and Kostroma, in turn, participated in the creation of the Alatau and Caucasian brown breeds.

Object of Interpretation:

As mother and female herds of the “Savay” breeding farm in the District of Qurghontepa, livestock of the “Izboskan” breeding farm in the District of Izboskon, Andijan region has been studied. Groups of animals imported from abroad in the Gallaorol District of the Jizzakh region are domestic Swiss cattle, the seeds of which are brought from the Sperm Bank of the Central Research Institute.

The herd consists mainly of purebred animals, as well as 1st generation animals. Hasilcnilik farms, where research has been carried out, are the leaders in Uzbekistan in the use of Shvetsarization. The average milk yield of animals here reaches 2600-3800 kg, fat content in milk 3.7-3.9%, live

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weight 470-500 kg. Herds of these Hasil farms have a positive effect on the entire range of Swiss cattle in the region.

Relevance of Taste:

Thus, the study of blood groups of Swiss cattle determines its immunogenetic individuality not only for the whole breed, but also in smaller individual structural units.

Study of the Problem:

Reliability of Origin and well-studied data are the basis of high-performance selection and genealogical work. The presence of errors in genealogical records dramatically reduces the return of many years of labor-intensive work on improving existing breeds, lines and hybrids and creating new ones.

The principle of the new method of controlling the origin of animals lies in the Zamiri that the blood groups found in the offspring must be present in its parents and passed to the offspring according to Mendelian laws. The reliability of the lineage is determined by the antigens (by phenotype) of the parents and offspring, and the alleles that make up the genotype (by genotype). Alleles and genotypes are determined by the persecution of blood groups of familial genetic t'ahlil parents and offspring. The genotype of animals for individual immunogenetic systems can be determined directly from the data of serological tests. These systems include F and R.

Antigens are transmitted in the form of compounds in complex systems such as B, C, and S. According to the established genotypes, then the reliability of information about the origin of animals is analyzed.

The most effective will be the regular control of the reliability of the origin of each generation of animals, that is, it will be possible to observe the transition of alleles from father to offspring.

As mentioned above, blood groups have been identified in 2,115 animals, including 791 females and 624 mothers. Some mothers, by the time work began, had not been examined due to their age. Another contingent of adult animals was studied, but by this time their offspring had been sold or left the herd, which also did not allow them to identify their blood groups.

The study of blood groups of cattle was carried out according to the following scheme.

The investigation was carried out in the following groups of mature animals: fathers - adult cows - their offspring. After the antigenic composition of erythrocytes was determined in the animals under study, an examination of the origin was carried out. Later, blood group alleles of heifers, mothers and Bulls of producers from reliable offspring were installed, after which a genotype of blood groups was identified from a complex of alleles identified for all sex and age groups of animals.

The study of erythrocyte antigen polymorphism in agricultural animals has expanded the possibilities of zootechnics. For the first time, in the process of forming new breeds and breed groups, the opportunity arose to objectively assess genetic processes in animal populations. Currently, with the help of blood groups, it is possible to give a quantitative interpretation of such phenomena as various intersections that lead to the phenomenon of heterosis.

Recently, in order to increase the productivity of milk and meat in our country, it has been widely used to add the blood of animals imported from abroad to domestic, well-adapted cattle breeds.

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The intensification of livestock production led to a radical decrease in animal diversity and a decrease in pre-cattle availability. The desire to standardize storage and feeding conditions reduces the diversity of phases within breeds and lines.

The process of changing the gene pool as a result of the use of Swiss breeds consists not only in a decrease in the number of blood group alleles, but also in the loss or emergence of a number of them.

By analyzing the process of reducing the set of alleles of blood groups B and C systems as a result of selection, it can be assumed that such an event will occur in the future. This, according to some authors, can lead to a decrease in the genetic potential of animals, an increase in homozygosity, and then a decrease in a number of productive characteristics.

Antigenic factors in cattle blood can be used to determine the genetic distance between different breeds and lines of animals. Since six simple Bulls were actively used in the breeding farms we studied, no significant differences were found in the frequency of the appearance of blood group alleles between groups of animals on both farms.

Research Results:

Differeces in genotypes by blood groups have also affected reproductive functions. To study this feature, animals are divided into groups up to the number of heterozygous loci. The relationship between the number and productivity of the latter turned out to be higher, the more heterozygous loci in the genotype most clearly expressed in the Savoy genealogy.

According to many commentators, such an approach to interpreting quantitative signs in relation to the structural features of the genotype is more effective than comparing animals for a single allele.

Many authors have pointed out the advantage of heterozygotes in terms of blood groups in relation to milk production and fat content. H. Buschmann, R.D.Owen, P.F. the importance of the same or similar persecution of homo or heterozygotic loci, which represents an optimal genotypic structure, has a positive effect on milk productivity and fat content.

In connection with the difference in blood group loci, the following can be said about the reproductive abilities of cattle. Many authors have previously shown an increase in reproductive qualities with an increase in similarity in the locus of animal blood groups. It is assumed that this difference has a positive effect on the embryonic development of individuals.

The relevance of the use of immunogenetic methods for breeding cattle was established. In addition, significant inconsistencies were found in recording the pedigree of the animals, ranging from 13.1 to 66.3%, and genotypes of all introduced bulls, including those exiting the herd, were identified.

Conclusion: 1. Herd gene pool and polymorphism by blood group have been identified in leading Uzbek genealogies where Swiss cattle have been selected. 2. In Uzbekistan, a high genotypic similarity in blood groups was found between individual herds and lineages of Swiss cattle. 3. It has been found that with an increase in the heterozygous genotype of the animal, an increase in their fertility and a decrease in their arrival for repeated hunting are observed. 4. Errors in genealogical records ranged from 66.3 percent (Gallaorol breeding farm) to 13.1 percent (Savoy breeding farm) when an examination was conducted on the reliability of the origin of replacement

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pedigree animals in the herds of farms under study, and for individual fathers, these indicators were in the range of 5.5-70.5%.

With the help of blood groups, it became possible to find real fathers in 65.7% of animals with incorrect entries in genealogical documents. 5. Selection of animals according to their genotype makes it possible to increase the milk productivity in the herd under study on the basis of our data by 169 - 235 kg.

In order to increase the level of milk productivity of herds of farms under study, the use of immunogenetic tests in addition to universally recognized zootechnical methods in the selection of young animals is recommended.

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