JOURNAL OF APPLIED SCIENCE AND SOCIAL SCIENCE
eISSN 2229-3113 pISSN 2229-3205

Volume 15 Issue 03, March 2025

Impact factor: 2019: 4.679 2020: 5.015 2021: 5.436, 2022: 5.242, 2023: 6.995, 2024 7.75

THE CONCEPT OF BEHAVIORAL GENETICS AND ITS IMPORTANCE IN ANIMAL HUSBANDRY

Muratbayeva Biybimar'yam Jalgasbay kizi

Lecturer at the Samarkand State Veterinary

University of Animal Husbandry and Biotechnology.

Kalenderov Azat Kurbanalievich

Lecturer at the Samarkand State Veterinary

University of Animal Husbandry and Biotechnology.

Bazarbaeva Bibinur Perdebat kizi,

Abdullaeva Diana Begdulla kizi

Students at the Samarkand State Veterinary

University of Animal Husbandry and Biotechnology

Abstract: Behavioral genetics is an interdisciplinary science that studies the influence of genetic factors on the behavior of living beings. In animal husbandry, this area plays an important role, helping to optimize selection processes and improve animal welfare. Genetic influence on animal behavior determines their stress resistance, adaptation to environmental conditions, as well as productive qualities such as growth, development and feed efficiency. Knowledge of animal behavioral characteristics allows for more accurate selection, ensuring better results in the production of meat, milk and other products. Research in behavioral genetics also contributes to improving animal welfare by minimizing stress and aggression, which in turn improves their health and productivity.

Keywords: behavioral genetics, animal husbandry, selection, animal behavior, stress resistance, productivity, selection, adaptation, animal welfare.

Behavioral genetics is an important scientific field that studies the influence of genetic factors on various forms of behavior in living beings. This discipline combines the achievements of genetics, neurobiology and psychology to better understand how hereditary factors can influence individual and group behavior of animals. In recent decades, research in the field of behavioral genetics has undergone particular development, as its results significantly expand the possibilities for managing animal behavior in various fields, including agriculture and livestock breeding.

In the context of animal husbandry, behavioral genetics plays a key role in increasing production efficiency and improving the quality of life of animals. Knowledge of the behavioral characteristics of breeds and individuals allows us to optimize breeding processes, selecting

JOURNAL OF APPLIED SCIENCE AND SOCIAL SCIENCE
eISSN 2229-3113 pISSN 2229-3205
Volume 15 Issue 03, March 2025
Impact factor: 2019: 4.679 2020: 5.015 2021: 5.436, 2022: 5.242, 2023: 6.995, 2024 7.75

animals for various purposes and housing conditions. Research shows that certain genetic traits, such as a tendency to stress or aggressive behavior, can have a significant impact on the productivity and health of animals.

Thus, behavioral genetics in animal husbandry is not only a tool for improving economic indicators, but also a way to improve animal welfare. Modern research in this area opens up new horizons for creating more resilient and productive animals, which is important for the sustainable development of agriculture.

Theoretical foundations of behavioral genetics

Behavioral genetics is based on the principles of classical and molecular genetics. It studies how hereditary factors affect animal behavior, including aspects such as aggression, anxiety, learning and social interactions. The main research methods are genetic selection, crossing, and modern molecular genetic methods, including gene polymorphism analysis, gene expression, and genomic associations.

In animal husbandry, the behavioral characteristics of animals are important for increasing their productivity and resistance to various external factors. For example, studying the genetic factors that influence stress resistance helps to select more adapted animal breeds that can better tolerate intensive production conditions and stressful situations, such as transportation or dietary changes.

Aggression and social behavior are important for herd management and preventing conflicts between animals. Behavioral genetics helps to identify genetic factors associated with aggression, which allows you to select less aggressive animals for breeding. This is especially important in large farms, where conflict situations can lead to injuries and losses in productivity.

Stress resistance is an important characteristic for animals raised in intensive livestock farming. Studying the genetic basis of stress helps to identify animals with high resistance to adverse conditions, which contributes to improved health and increased life expectancy of animals. It is also important to consider the behavioral responses of animals to changes in the environment and interactions with other individuals, which can affect their productivity. Selection in animal husbandry includes not only improving the physical productivity of animals, but also optimizing their behavior. Behavioural genetics allows taking into account behavioral traits when selecting animals, which helps to create more resilient, calm and productive animals. In particular, selection for traits such as calmness, learning ability and social adaptation can improve the efficiency of farms.Behavioural genetics plays a key role in the development of modern animal husbandry, providing opportunities to improve both the productive and behavioural characteristics of animals. Research in this area allows not only to increase production efficiency, but also to improve the conditions of keeping animals, ensuring their health and well-being. Genetic influence on such qualities as stress resistance, aggression, adaptation and social behaviour helps to optimise the selection and breeding processes, creating more resilient and productive animals. Particular attention in behavioural genetics should be paid to ethical aspects, since changes associated with selection for behavioural traits can affect the psycho-emotional state of animals. This underlines the importance of using humane methods and a careful

JOURNAL OF APPLIED SCIENCE AND SOCIAL SCIENCE
eISSN 2229-3113 pISSN 2229-3205
Volume 15 Issue 03, March 2025
Impact factor: 2019: 4.679 2020: 5.015 2021: 5.436, 2022: 5.242, 2023: 6.995, 2024 7.75

approach to animal welfare in the process of selection work. In the future, advances in technologies such as genomics and epigenetics will open up new avenues for a deeper understanding of the genetic basis of behavior, which in turn may lead to the creation of animals that not only perform well but are also better adapted to their environment. Therefore, behavioral genetics will continue to be an important tool in animal husbandry, contributing to the sustainability of the industry and improving the quality of life of animals.

References

1. Belyaev, D. K. (1979). The fate of the silver fox: selection and evolution of behavior. Journal of Heredity, 70(6), 482-494.
2. Falconer, D. S., & Mackie, T. F. K. (1996). Introduction to Quantitative Genetics (4th ed.). Longman.
3. Harris, A. M., & Patterson, R. L. (2000). Behavioural Genetics in Animals. Cambridge University.
4. Lynch, M., & Walsh, B. (1998). Genetics and Analysis of Quantitative Traits. Sinauer Associates.
5. Saveliev, S. V., & Schmidt, D. A. (2012). Behavioural Genetics of Farm Animals: Applications and Prospects. Springer.
6. Zhang, L., & Xu, H. (2018). Behaviour Genetics in Farm Animals. Springer.
7. Van Oers, K., & Knowles, S. (2015). Genetic Basis of Animal Behaviour and Environmental Influences. Animal Behaviour, 105, 1–13.