

scientific institutions confirms the effectiveness of enhancing apple breeding through comprehensive winter hardiness assessments. By combining field studies and controlled environment modeling, researchers can expedite variety testing, predict plant conditions after winters with varying weather patterns, and take timely measures to preserve plantation productivity. The extensive research on apple variety, form, and hybrid winter hardiness at Federal Horticultural Center for Breeding, Agrotechnology and Nursery holds both theoretical and practical importance for advancing the breeding process.

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PROBIOTICS IN FEEDING LAYING HENS

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Abstrac.: *There is an acute problem of antibiotic resistance in animals and humans worldwide. It can lead to diseases that are very difficult to treat. Therefore, the use of probiotics instead of antibiotic therapy to treat specific health problems in both humans and animals can bring the desired result. Probiotics are friendly microorganisms that, when taken in sufficient doses, have beneficial effects on the host. This review aims to demonstrate that the use of probiotics in poultry can improve the growth and productivity of laying hens.*

Keywords: *probiotic Basulifor, productivity, growth, feeding.*

Introduction. The demand for food products of animal origin continues to grow today to meet the nutritional needs of the world's growing population and the increasing financial capabilities of the populations of many countries who can now afford more animal proteins. The importance of poultry is that it is one of the most nutritious products, both in eggs and meat. They are also highly digestible, readily available and easy to breed. This steady growth in the market for food of animal origin has encouraged the expansion of intensive agriculture around the world to increase production and meet growing demand.

Antibiotics are widely used in animal feed to improve production in poultry farming. However, the use of these substances as growth promoters can lead to the development of antibiotic resistance. Several feed additives have been tried as alternatives to antibiotics in poultry with varying degrees of success [1]. These commonly used feed additives can be classified into eight major classes [2]. Among the eight classes of feed additives, probiotics have gained worldwide recognition for improving the health and growth rate of laying hens.

Probiotics are live bacteria, fungi, or yeasts that supplement the gastrointestinal flora and help maintain a healthy digestive system. Each probiotic strain provides different levels of protection, which is why many commercial products use multi-strain probiotics. Multi-strain and multi-species probiotics act at different sites and provide different modes of action, creating synergistic effects [3].

The purpose of this work is to determine the effectiveness of the use of the probiotic drug “Basulifor-C”, based on the spore bacilli *B. subtilis*, *B. licheniformis*, and *Clostridium butyricum* in feeding laying hens and their impact on growth and productivity.

Main Work. The experiment was conducted on Hysex Brown laying hens, which were divided into four groups. The first control group received only the basic diet. The second group of hens received the basic diet with the addition of Basulifor-C. The third group received the basic diet with the addition of *Clostridium butyricum*. The last group of hens received the basic diet with the addition of Basulifor-C and *Clostridium butyricum*. During the experiment, the productivity of the laying hens at the age of 50 weeks was determined by daily collection of laid eggs with calculation of the average egg weight, the weight of the birds was also measured to study the effect on growth.

The results showed that the data on growth and development of live weight of hens throughout the experiment showed that there was no significant increase in all groups, but in the control group and in the group fed with Basulifor-C and Clostridium butyricum there was a slight increase in live weight at the end of the accounting period. Regarding the egg productivity of the hens, the average daily egg production was 5.23% and 5.48% higher in the groups fed Basulifor-C and Basulifor-C with Clostridium butyricum in the main diet, respectively, compared to the control group, and the gross number of eggs per trial was 26 and 27 eggs higher in the same trial groups.

Conclusion. We can summarize the main results of previous works that the use of probiotic Basulifor with both a single additive and in combination with Clostridium butyricum in the diet of laying hens allowed to increase egg production and egg mass yield, the addition of Clostridium butyricum did not significantly affect the productivity or in the growth of laying hens compared to the control group.

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MACHINE LEARNING AS A TOOL FOR EFFICIENT MANAGEMENT IN PETROCHEMICAL ENTERPRISES

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Abstract: *The reagent selection is complicated due to high stability of emulsions. It is often ineffective and long. A study was carried out in laboratory settings on several demulsifier samples to identify their effectiveness in dehydration of heavy oil fractions. The comparison of physical-chemical properties of demulsifier reagents and water separation dynamics is presented. A program has been developed to increase the speed of determining the reagent effectiveness in the oilfield. An algorithm of work in the program is presented to*