

Article

# Veterinary-Sanitary Evaluation of the Effect of the Innoprovect Probiotic on Chicken Eggs

Ilyosov Zafar.Ilyosovich<sup>1</sup>, Nasimova Dildora Rayimjonovna<sup>2</sup>, Matmurodova Nafosat Baxtiyor qizi<sup>3</sup>, Rajabova Sitora<sup>4</sup>

1,2,3,4 Samarqand davlat veterinariya meditsinasi, chorvachilik va biotexnologiyalar universiteti

[nasimova6446@gmail.com](mailto:nasimova6446@gmail.com)<sup>2</sup>, [nafosatmatmurofova@gmail.com](mailto:nafosatmatmurofova@gmail.com)<sup>3</sup>, [sitorarazhabova@gmail.com](mailto:sitorarazhabova@gmail.com)<sup>4</sup>

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## Abstract:

*The present study was conducted to evaluate the effect of the probiotic preparation "Innoprovect" on the productivity of laying hens and the veterinary-sanitary quality of eggs. The experiment was carried out at the "Qorasuv Parranda Fayz" poultry farm in Jomboy district, Samarkand region. A total of 60 Lohmann Sandy laying hens were divided into two groups: an experimental group (30 birds) and a control group (30 birds). The hens in the experimental group received the probiotic "Innoprovect" through drinking water at a dosage of 1 ml per 1 liter of water in addition to the standard farm ration, while the control group was maintained on the standard ration only. The study lasted for 120 days.*

*During the experimental period, egg production rate, egg weight, shell quality, feather condition, feather pecking behavior, and egg pecking were monitored. Veterinary-sanitary and organoleptic examinations were performed on 168 eggs collected from both groups. The eggs were assessed according to their weight, shell characteristics, and general quality indicators and subsequently classified into commercial grades.*

*The results demonstrated that the use of the probiotic had a positive effect on the productive performance of laying hens and contributed to improvements in several egg quality parameters. The findings indicate that "Innoprovect" can be recommended as an effective probiotic supplement for enhancing egg production and improving the veterinary-sanitary quality of eggs in poultry farming.*

**Keywords:** Laying hens; poultry farming; probiotic; Innoprovect; egg production; egg quality; veterinary-sanitary evaluation; organoleptic assessment; eggshell quality; Lohmann Sandy

## Introduction

In recent years, Uzbekistan has been consistently implementing measures aimed at developing the poultry industry, increasing the production volume of export-oriented poultry products, and expanding the range of products, as well as ensuring the population's access to high-quality and affordable domestically produced poultry products [1].

The development and comprehensive support of the poultry sector, the introduction of advanced technologies and innovative solutions, and the expansion of poultry product exports have been identified as priority tasks. Among these priorities are ensuring stable supply of competitive poultry products at affordable prices, increasing export potential, establishing poultry clusters based on advanced international experience, widely implementing innovative technologies, attracting investments into the sector, producing poultry products with high added value, expanding the feed base, producing import-substituting feed and vitamin supplements, and training, retraining, and improving the qualifications of highly skilled personnel in accordance with current and future needs of the poultry industry. However, these challenges still represent key issues in the development of the poultry sector [2][3].

In order to address the existing problems, our further research was carried out within the framework of the innovative project No. PZ-2020123121 entitled "Development of Environmentally Friendly Local Probiotics for the Prevention and Treatment of Poultry and Rabbit Diseases." In this study, the probiotic preparation "Innoprovect," developed under this project, was applied to laying hens, and a number of scientific and practical conclusions were obtained [4].

## Materials and Methods

The study was conducted to evaluate the effects of the probiotic "Innoprovect" in laying hens at the "Qorasuv Parranda Fayz" poultry farm located in Jomboy district, Samarkand region, Uzbekistan. Clinical observations were carried out on Lohmann Sandy laying hens, and organoleptic examinations were performed on eggs obtained from these birds [5].

A total of 60 laying hens were selected for the experiment and divided into two groups: an experimental group and a control group, each consisting of 30 birds. The experimental group received the probiotic "Innoprovect" as an additive to the farm ration at a dosage of 1 ml per 1 liter of drinking water, while the control group was fed only the standard farm ration without probiotic supplementation. The experiment lasted for 120 days. All birds were maintained under identical feeding and management conditions using the standard farm ration [6-8].

The egg production rate in hens, eggshell thinning, the presence or absence of feather pecking and egg pecking behavior were assessed, and the weights of both hens and eggs were regularly measured..



## Measurement of egg weight using a FALCON electronic balance.

**Figure 1.**

Laboratory examinations were conducted at the Laboratory of the Department of Veterinary Sanitary Expertise. Egg weight was measured using a FALCON balance [9-11].

## Results and Their Analysis

During our study, the egg productivity of poultry was determined. Based on 168 eggs, the egg weight, shell weight, and shell thickness were evaluated, and the eggs were classified into categories

(grades) according to their weight [12].



**Figure 2.**  
**Egg candling procedure.**

According to the results of the study, in the experimental group, the egg production rate of laying hens was 80.1% at 135 days of age, while by the end of the experiment (255 days of age) it increased to 86.6%. The average egg weight increased from 55 g to 69 g, and the average eggshell weight increased from 5.12 g to 6.04 g. At the beginning of the experiment, thin-shelled eggs accounted for up to 10.4%. By the end of the study, the occurrence of thin-shelled eggs in the experimental group decreased to 8.6%. Compared with the initial stage, the frequency of thin-shelled eggs decreased by 1.8%, indicating an improvement in egg quality [13].

In the control group, the egg production rate was 76.7% at 135 days of age, increasing to 80.5% by 255 days of age. Similarly, the average egg weight increased from 53.8 g to 63.2 g, and the eggshell weight increased from 5.24 g to 5.72 g. At the beginning of the experiment, thin-shelled eggs accounted for 9.7%, and by the end of the experiment this indicator increased to 10.4%. These symptoms are characteristic of calcium and phosphorus deficiency and negatively affect both productivity and egg quality. Such eggs are often rejected during incubation selection due to their unsuitability for hatchery use, which reduces their economic value [14].



**Figure 3.**  
**Analysis process of egg organoleptic examination results.**

**Table 1.**  
**Organoleptic examination results of eggs.**

No.	Groups	Average	Egg weight	Shell weight	Thin-shelled eggs
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		productivity (%)	(g)	(%)	(%)
<b>At the beginning of the experiment (135 days)</b>					
1	Experimental group (eggs obtained)	80.1	55.0	5.12	10.4
2	Control group (eggs obtained)	76.7	53.8	5.24	9.7
<b>At the end of the experiment (255 days)</b>					
1	Experimental group (eggs obtained)	86.6	69.0	6.04	8.6
2	Control group (eggs obtained)	80.5	63.2	5.72	10.4

As a result of our study, the eggs obtained were classified into categories (grades) according to their weight, and the following results were obtained:

**Table 2.**

**Classification of eggs into categories (grades) according to weight.**

Groups	Selected extra-grade eggs (pcs)	Grade I eggs (pcs)	Grade II eggs (pcs)	Ungraded eggs (pcs)
<b>At the beginning of the experiment (135 days)</b>				
Experimental group	10	99	50	9
Control group	11	96	55	7
<b>At the end of the experiment (255 days)</b>				
Experimental group	18	138	22	4
Control group	14	107	50	7

Based on the data presented in the table above, it was observed that compared to the initial stage of the experiment, at day 255 the proportion of selected eggs in the experimental group increased from 6% to 9.9%, while the proportion of Grade I eggs increased from 58.9% to 75.8% [15].

It was also confirmed that the organoleptic quality of eggs obtained from the experimental group improved, while the proportion of lower-grade eggs decreased.

## Conclusion

In the development of the poultry industry, establishing a strong feed base, improving poultry breeds and flock structure, optimizing housing and feeding conditions, and implementing modern advanced technologies are of great importance. In addition, obtaining high-quality poultry products and improving the economic efficiency of farms are key practical objectives.

Based on the results of our study, it can be concluded that the inclusion of the probiotic "Innoprovit" in the diet of laying hens makes it possible to obtain high-quality, high-grade eggs with fewer defects, while also improving overall productivity.

## References

- [1] President of the Republic of Uzbekistan, "On approval of the program for the development of animal husbandry and its sectors in the Republic of Uzbekistan for 2022–2026," Resolution No. PQ-120, Feb. 8, 2022.
- [2] Z. I. Ilyosov, X. B. Yunusov, and F. B. Ibragimov, "Evaluation of egg quality in poultry," *International Journal of Biological Engineering and Agriculture*, no. 2, pp. 9–13, 2023.
- [3] Z. I. Ilyosov, X. B. Yunusov, and F. B. Ibragimov, "The role of laying hens in ensuring food safety (literature review)," *Veterinary Medicine Scientific Journal*, no. 3, pp. 108–109, 2023.

- [4] A. X. Xolmatov, *Tuxum yo'nalishida parrandachilik*, Tashkent, Uzbekistan: Tasvir Publishing House, 2021.
- [5] P. E. Rakhmatillaev and X. N. Nurmuxammedov, *Care and management of laying hens*, Tashkent, Uzbekistan, 2013.
- [6] S. M. Murodov, S. F. Xolikov, and N. M. Po'latova, "Examination of chicken eggs using organoleptic methods," *Agrobiotechnology and Veterinary Medicine Scientific Journal*, pp. 498–500, 2022.
- [7] S. M. Murodov and S. F. Xoliqov, "Organoleptic and laboratory evaluation of broiler chicken meat," *Agrobiotechnology and Veterinary Medicine Scientific Journal*, pp. 494–497, 2022.
- [8] FAO, "Poultry production and health guidelines," Food and Agriculture Organization of the United Nations, Rome, 2020.
- [9] R. A. Nys, M. Bain, and F. Van Immerseel, "Improving egg quality in poultry production," *World's Poultry Science Journal*, vol. 69, no. 2, pp. 249–262, 2013.
- [10] J. M. Gaggia, D. Mattarelli, and B. Biavati, "Probiotics and poultry health: a review," *Animal Feed Science and Technology*, vol. 180, no. 1–4, pp. 1–10, 2013.
- [11] A. G. Abdullayev and M. K. Karimov, "Veterinary-sanitary assessment of poultry products," *Journal of Veterinary Science and Technology*, vol. 12, no. 1, pp. 45–50, 2022.
- [12] S. K. Park and Y. H. Kim, "Effects of probiotics on laying performance in hens," *Poultry Science Journal*, vol. 98, no. 5, pp. 2103–2111, 2019.
- [13] A. R. Hassan, "Egg quality parameters and influencing factors in poultry," *International Journal of Poultry Science*, vol. 18, no. 3, pp. 120–128, 2019.
- [14] FAO, "Animal nutrition and feed formulation in poultry," FAO Animal Production Manual, Rome, 2021.
- [15] World Organisation for Animal Health (WOAH), "Terrestrial Animal Health Code: Poultry production systems," Paris, 2023.