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Effect Of Chitosan and Whey Powder On The Productivity Of Broiler Chickens

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Abstract: The study investigates the impact of incorporating chitosan and whey powder into the diet of broiler chickens on their growth performance and overall productivity. Aimed at exploring alternative feed additives, the research examines parameters such as weight gain, feed conversion ratio, and health indicators. Results indicate that the inclusion of these natural ingredients positively influences broiler growth rates and efficiency, suggesting their potential as viable supplements in poultry nutrition. This study contributes to the ongoing search for sustainable and effective nutritional strategies in poultry farming.

Keywords: Chitosan, chitin, dry milk serum, nitrogen, protein, broiler, poultry.

Introduction: Chitosan-chitin product, in nature wide widespread aminopolysaccharide. These are crustaceans, arachnids, insects and other arthropods external of the skeleton, as well as some fungi, water grass and bacteria shell main structural Chitin is part of high at temperature concentrated alkalis with mutual When exposed to, it is deacetylated and yellow amorphous mass was chitosan turns into [1,5,6,7,10,11].

Serum and from it prepared of products chemical composition many scientists by Gel filtration - fractionation of serum in the form of, first, large molecular compounds - proteins and they with related

minerals, then lactose and mineral salts It turns out that ideal separation is not possible due to the heterogeneity of the system (the method is widely used for analytical purposes) [2,4,8,9].

Materials and methods

Chitosan and whey powder feed additive removes mycotoxins and heavy metals from the body and reduces the content of mycotoxins and heavy metals in poultry products, increases feed digestibility. As a result, poultry productivity increases.

Observation of physiological and biochemical characteristics of chickens in private poultry farms and in the care of the population of the Samarkand region by age, breed and season. The object of the study is agricultural broiler chickens. The development of optimal doses and assessment of the effect of the additive "Chitosan and whey powder (SZK)" on the safety and quality of broiler chicken products is carried out in the conditions of the structural unit of the scientific and production experiment. At the end of feeding broiler chickens, the digestibility of the main nutrients and the digestibility of minerals and nitrogen Two physiological exchange experiments were conducted to study.

Analysis of feed and separated litter was carried out according to generally accepted zootechnical analysis methods [3]. The following indicators were determined:

- According to GOST 13979.1-93 initial and hygroscopic moisture by drying samples in a thermostat;
- crude oil - according to GOST 13496.15-97. By the Rushkovsky method;
- raw fiber - according to GOST 13496.2-91. By the Henneberg-Shtoman method;
- crude protein - according to GOST 13496.4-93. By Keldal method;

Results and discussions

For the successful growth and development of broiler crosses, it is necessary to ensure an increase in the activity of gastrointestinal proteinases, which directly affect the digestibility of feed protein. This is especially important when the ecology and environment are disturbed, since various toxic compounds can negatively affect the synthesis of enzymes of the digestive system of poultry. Correctly select the optimal dose of sorbents, including feed containing chitosan and SZK.

Based on this, the daily nitrogen balance and its utilization in the body of poultry were studied to assess protein metabolism in broilers (Table 1).

The highest rate of feed nitrogen conversion during the experiment was observed in broiler chickens in experimental group 3, which received chitosan and SZK as part of the mixed feed at a dose of 0.10% by weight of feed. Therefore, experimental group 3, compared to the control, had a significantly higher daily nitrogen deposition of 0.167 g or 15.65%.

Table 1

Daily nitrogen balance and its use in the poultry body, g

Indicator	Group			
	1	2	3	4
Accepted with a little brother	4,350±0.08	4,370±0.06	4,460±0.09	4,360±0.07
Removed with garbage	2.035 ±0.04	1,945 ±0.05*	1,778±0.01*	1.890 ±0.02*
Digested	3,504±0.06	3,611±0.05*	3,728±0.07*	3,621±0.06*
The body remains	2,115±0.06	2,225±0.06*	2,482±0.08*	2,270±0.06*
Utilization of received nitrogen, %	50,68±0.41	52,86±0.35*	57,35±0.38*	53,97±0.34*
Digested nitrogen Wetting, %	62,30±0.47	63,43±0.38*	68,08±0.41*	64,44±0.40*

Note: *P<0.05

At the same time, we calculated the amount of nitrogen consumed from the amount taken in and digested with food in the experiment. It was also found that the birds of experimental group 3 had a significant ($P<0.05$) advantage in these indicators compared to the control group - 6.63 and 5.75%.

In our opinion, this was the result of optimizing the absorption of dietary amino acids from the small intestine into the blood of birds in experimental group 3 under the influence of mixed feed.

CONCLUSION

1. The experiment, in the presence of the risk of mycotoxicosis, the best results of digestive metabolism were observed in broiler chickens from experimental group 3, whose diet, considering environmental characteristics, included chitosan and SZK in a dose of 0.10%.

2. Broiler chicks provides a more efficient use of nutrients, which is confirmed by the results obtained in increasing growth intensity and reducing feed costs for increasing live weight. Consequently, feeding the studied feed additive at a dose of 0.10% ensured a high level of assimilation of feed nitrogen into the body of broiler chicks.

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