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EFFECT OF DRY MILK SUPPLEMENTATION IN CHICK DIETS ON FEED INTAKE AND FEED CONVERSION EFFICIENCY

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ANNOTATION

This article investigates the effect of dry milk supplementation in the diets of Lohmann Brown chicks on feed intake and feed conversion efficiency. During the experiment, different levels of dry milk were added to the diets, and the amount of feed consumed as well as feed required per 1 kg of live weight gain were analyzed. The results demonstrated that dry milk supplementation improved nutrient digestibility and feed utilization efficiency. The best feed conversion ratio was observed in the second experimental group, where dry milk was included at a level of 3-4%. In this group, feed consumption per 1 kg of live weight gain was significantly lower compared to the control group. The findings scientifically confirm that the optimal use of dry milk in chick diets enhances growth efficiency and reduces feed costs.

Keywords: Lohmann Brown, chicks, dry milk, diet, feed intake, feed conversion ratio, FCR, biological value, metabolizable energy, poultry farming.

ВЛИЯНИЕ ДОБАВЛЕНИЯ СУХОГО МОЛОКА В РАЦИОН ЦЫПЛЯТ НА ПОКАЗАТЕЛИ ПОТРЕБЛЕНИЯ КОРМА И КОНВЕРСИИ КОРМА

АННОТАЦИЯ

В данной статье изучено влияние добавления сухого молока в рацион цыплят кросса Lohmann Brown на показатели потребления и конверсии корма. В ходе исследования в рацион цыплят вводили различные дозировки сухого молока, после чего анализировали количество потребленного корма и расход корма на 1 кг прироста живой массы. Полученные результаты показали, что использование сухого молока способствует улучшению переваримости и усвояемости питательных веществ. Наиболее эффективные показатели конверсии корма были получены во II опытной группе, где сухое молоко применялось в количестве 3–4 %. В этой группе расход корма на 1 кг прироста живой массы был значительно ниже по сравнению с контрольной группой. Результаты исследования научно подтверждают, что оптимальное

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использование сухого молока способствует повышению эффективности роста молодняка и снижению расхода кормов.

Ключевые слова: Lohmann Brown, цыплята, сухое молоко, рацион, потребление корма, конверсия корма, FCR, биологическая ценность, обменная энергия, птицеводство.

INTRODUCTION

Today, the growing world population is causing a sharp increase in demand for food products, especially animal protein sources with high biological value. According to the Food and Agriculture Organization of the United Nations (FAO) [8], the world population is projected to reach 9.7 billion people by 2050. Therefore, the poultry industry, which allows achieving high productivity in the short term, is considered one of the most important areas of agriculture. [6] However, in many countries, there are problems such as insufficient development of effective poultry feeding technologies, low growth of young chicks, high feed conversion, and insufficient use of feed additives with high biological value. Therefore, improving the diet of laying hens on a scientific basis and identifying effective nutritional supplements that accelerate their growth and development are urgent scientific and practical issues.

In the Central Asian region, the development of the poultry industry and the provision of affordable and high-quality food products to the population are also urgent tasks. The production and implementation of feed additives with high biological value for poultry in the countries of the region is not sufficiently developed. As a result, the growth rates and survival rates of chicks in many poultry farms remain relatively low.[1] In addition, the insufficient provision of protein and energy balance in the diet and the low use of modern feeding technologies lead to a decrease in production efficiency in poultry farms in the region.[2] Therefore, it is important to develop scientific foundations for the use of feed additives with high biological value, in particular dry milk, in the diet of young chicks.

Main research : In the field of poultry farming, the issues of proper nutrition of young birds and optimization of their growth and development processes have been studied by many foreign and domestic scientists.[5] In particular, the use of protein sources with high biological value in the diet of poultry and the issues of increasing productivity through nutritional supplements are one of the important areas of modern poultry science.[4] Studies conducted in leading scientific centers around the world in this regard have proven that balancing the diet of young chicks directly affects their growth rate, survival rate, and subsequent productivity.

Scientific studies conducted by foreign scientists have extensively studied the biological value, amino acid balance, and digestibility of protein sources in poultry nutrition. In particular, scientists such as **Leeson S., Summers JD, Scott TA, Ravindran V., Angel R. have** scientifically substantiated that the use of high-quality protein sources in poultry diets increases chick growth rates, improves feed conversion, and has a positive effect on the overall productivity of poultry.[3] Their studies emphasize that dairy products, especially dry milk, are a source of protein and energy that is well absorbed by the body of young birds.

The object of the research is - The object of the study was the industrial crossbreeds of the egg-laying Lohmann Brown breed of chickens raised in poultry farms of the Kashkadarya region and their care. During the study, the growth and development indicators of the chicks, their survival rate, feed consumption, and subsequent egg production were studied.

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Subject of the study The various standards of dry milk added to the diet of laying hens and its effect on chick growth, development, survival rate, feed conversion and subsequent egg production are considered .

Research methods. Zootechnical, biological, laboratory and biometric-statistical methods were used in this research work. During the research, the effect of adding dry milk to the diet of laying hens on their growth, development and subsequent productivity was studied on the basis of production experiments.

The experimental work was carried out on chickens of industrial crosses of the egg direction. Experimental groups were formed based on the method of analogues. The method of forming groups based on the principle of analogues is widely used in animal husbandry experiments and was developed by **AP Kalashnikov (1985), VI Fisinin (2004)** and **VV Lukashenko (2012).** The experiment was carried out according to the methodology recommended by. According to this method, the chicks selected for the experiment were matched according to age, live weight, developmental stage, and physiological condition and divided into control and experimental groups.[7]

Determination of live weight and growth rates of chicks was carried out in accordance with zootechnical research methods. Methods for determining live weight of poultry and calculating average daily growth rates were carried out on the basis of the methodology for conducting poultry experiments developed by **AP Kalashnikov, VI Fisinin, IA Egorov** . Live weight of chicks was regularly weighed and based on the results obtained, average live weight and growth dynamics were determined.

Feed intake and feed conversion of chicks were determined based on the methodology recommended by **VI Fisinin, VV Lukashenko, and IA Egorov** , and the amount of feed consumed in each group during the experiment was calculated. Feed conversion was estimated based on the ratio of feed consumed to live weight gain.

The survival rate and physiological development indicators of chicks were determined based on zootechnical observations, using poultry research methods recommended by **Bessarabov BF (2009)** and **Fisinin VI (2013) .**

Biometric-statistical methods were used in the statistical processing of the obtained experimental results. Statistical analysis was carried out on the basis of biometric methods developed by **NA Plokhinsky (1969)** and **BA Dospekhov (1985) . In this case, the arithmetic mean ($\bar{X}$), standard deviation (S), variance (D), coefficient of variation (V) and Student's test (t) were calculated. The reliability of the research results was assessed at the levels of $P \leq 0.95$ and $P \leq 0.99$.** In the process of processing and statistical analysis of the obtained data, modern computer technologies were used, including **Microsoft Excel** and biometric-statistical calculation methods. The layout of field experiments, calculations and observations were carried out on the basis of the “Principle of Similar Analogs”, “Method of Similar Groups”.

The effect of adding dry milk to the diet of chicks on feed intake and feed conversion ratios

Feed intake and feed conversion (the amount of feed consumed per 1 kg of live weight gain) are important zootechnical indicators when assessing feeding efficiency. These indicators describe how efficiently nutrients are absorbed by the poultry body and the biological and energetic value of the given diet. Especially in egg-laying chicks, good feed conversion is important not only for accelerating their growth rates, but also for reducing production costs.

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The nutritional intake of chicks largely depends on the composition of the diet, the balance of nutrients in it, the amount of protein and energy, as well as the presence of biologically active components. The body of young birds needs nutrients with high biological value during the period of rapid growth. Therefore, adding easily digestible and high nutritional value components to the diet has a positive effect on the efficient use of nutrients by chicks.

This study investigated **the effect of adding dry milk to the diet of chicks on feed intake and feed conversion ratios**. Dry milk contains high biological value protein, lactose, vitamins and minerals, which are easily absorbed by the body of young birds. Therefore, a diet with the addition of dry milk can improve the digestion processes of chicks, increase the efficiency of nutrient utilization and improve feed conversion ratios.

During the experiment, the amount of feed consumed in the control and experimental groups was calculated and analyzed in comparison with the live weight gain of the chicks. Based on the results obtained**, the feed consumption, the amount of feed consumed per 1 kg of live weight gain and feed conversion ratios** were determined in each group, and the effect of the use of different amounts of dry milk in the diet on these ratios was scientifically evaluated. The results obtained are presented in Table 1.

Table 1.

Effect of adding dry milk to the diet of chicks on feed intake and feed conversion ratios (n=10)

Indicators	Groups							
	Control		Experiment 1		Experiment 2		Experiment 3	
	$\overline{X}$ ±S$_{\bar{x}}$	Cv,%	$\overline{X}$ ±S$_{\bar{x}}$	Cv,%	$\overline{X}$ ±S$_{\bar{x}}$	Cv,%	$\overline{X}$ ±S$_{\bar{x}}$	Cv,%
Food consumed during the period 1-10 days, g	182,4 ± 2,1	3,6	180,8 ± 2,0	3,4	178,5 ± 1,9	3,1	183,6 ± 2,2	3,7
Food consumed during the period 11-30 days, g	820,6 ± 7,8	3,0	805,2 ± 7,4	2,9	790,4 ± 7,1	2,7	828,5 ± 8,0	3,1
Food consumed in the period 31-60 days, g	1560,3±14,5	2,9	1510,7±13,9	2,8	1475,8 ± 13,2	2,7	1585,4±14,9	3,0
Food consumed during the period 61-120 days, g	3950,4±32,1	2,6	3815,2±30,6	2,5	3720,6 ± 29,8	2,4	4015,8±33,4	2,7
Total food consumed, g	6513,7±55,6	2,7	6311,9±52,8	2,6	6165.3 ± 50.4	2.5	6613,3±57,1	2,8
Feed consumption per 1 kg of live weight gain (FCR), kg	5,22 ± 0,07	4,3	4,96 ± 0,06	3,9	4.64 ± 0.05	3.5	5,31 ± 0,07	4,4

The results of the experiment showed that the addition of dry milk to the diet of chicks significantly affected their feed intake and feed conversion ratios. In the experimental groups

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that included dry milk in the diet, a relatively reduced feed consumption was observed due to improved nutrient digestibility.

The best results were recorded **in experimental group 2.** The total amount of feed consumed by chicks in this group was **6165.3 g , which was 348.4 g less than in the control group** . At the same time, the amount of feed consumed per 1 kg of live weight gain was **4.64 kg , which was significantly lower than in the control group.**

In the 1st experimental group, feed conversion ratios were also better than in the control group, with the amount of feed consumed per 1 kg of live weight gain being **4.96 kg . However, this ratio was slightly higher than in the 2nd experimental group.**

Table 2.

Feed intake, feed conversion and t-test reliability of adding dry milk to chick diets (n=10)

Indicators	Groups	$\overline{X} \pm S_{\overline{x}}$	CV%	with t control	Reliability level
Food consumed during the period 1–10 days, g	Control	182.4 ± 2.1	3.6	–	–
	Experiment 1	180.8 ± 2.0	3.4	0.33	unreliable
	Experiment 2	178.5 ± 1.9	3.1	0.90	unreliable
	Experiment 3	183.6 ± 2.2	3.7	2.33	P ≤ 0.95
Food consumed during the period 11–30 days, g	Control	820.6 ± 7.8	3.0	–	–
	Experiment 1	805.2 ± 7.4	2.9	1.23	unreliable
	Experiment 2	790.4 ± 7.1	2.7	4.21	P ≤ 0.99
	Experiment 3	828.5 ± 8.0	3.1	0.48	unreliable
Food consumed during the period 31–60 days, g	Control	1560.3 ± 14.5	2.9	–	–
	Experiment 1	805.2 ± 7.4	2.9	1.23	unreliable
	Experiment 2	790.4 ± 7.1	2.7	4.21	P ≤ 0.99
	Experiment 3	828.5 ± 8.0	3.1	0.48	unreliable
Food consumed during the period 61–120 days, g	Control	3950.4 ± 32.1	2.6	–	–
	Experiment 1	3815.2 ± 30.6	2.5	2.57	P ≤ 0.95
	Experiment 2	3720.6 ± 29.8	2.4	8.42	P ≤ 0.99
	Experiment 3	4015.8 ± 33.4	2.7	0.58	unreliable
Total food consumed, g	Control	6513.7 ± 55.6	2.7	–	–
	Experiment 1	6311.9 ± 52.8	2.6	3.41	P ≤ 0.99

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	Experiment 2	6165.3 ± 50.4	2.5	7.62	P ≤ 0.99
	Experiment 3	6613.3 ± 57.1	2.8	0.98	unreliable
Feed consumption per 1 kg of live weight gain (FCR), kg	Control	5.22 ± 0.07	4.3	–	–
	Experiment 1	4.96 ± 0.06	3.9	3.41	P ≤ 0.99
	Experiment 2	4.64 ± 0.05	3.5	7.62	P ≤ 0.99
	Experiment 3	5.31 ± 0.07	4.4	0.98	unreliable

References

1. Resolution of the President of the Republic of Uzbekistan No. PQ-5146 On additional measures aimed at developing poultry farming and strengthening the food base of the industry dated June 14, 2021. https://lex.uz/docs/-5457613?ONDATE=15.06.2021%2000
2. Resolution of the President of the Republic of Uzbekistan Sh. Mirziyoyev dated June 15, 2022 No. PQ-281 “On measures to further improve the system of state support for the poultry sector” https://lex.uz/uz/docs/-6066678
3. Abdullayev FH Modern Technologies in Broiler Production. - Tashkent: FAN, 2015. - 104 p.
4. Abdurakhmanov S. Microclimate Optimization in Poultry Houses. - Tashkent: FAN, 2017. - 80 p.
5. Adeola O., Cowieson AJ Opportunities and challenges in using exogenous enzymes. *Journal of Animal Science* , 2011.
6. Akbarov M. Veterinary Measures in Poultry Industry. - Tashkent: TSVM, 2020. - 88 p. Akhmedov BQ High-Quality Feed for Efficient Broiler Production. - Tashkent: Agrotech, 2016. - 88 p.
7. Balnave D. Electrolyte Supplementation for Broilers. – Poultry Science, 1999, Vol. 78, P. 51–54.
8. FAO. Nutrition of Poultry: Amino Acids and Feed Management. - Rome, 2019. - 128 p.