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Study Of Modified Granulated Compound Feed Using A Polymineral Feed Additive

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ABSTRACT

This study investigates modified granulated compound feed incorporating a polymineral feed additive. Based on the actual consumption of compound feed by broiler chickens and its chemical analysis, the intake of nutrients, minerals, and biologically active substances by the birds was calculated. The inclusion of modified compound feed in the diet of broiler chickens contributed to increased body weight gain and improved survival rates. Granulated compound feed containing a polymineral innovative feed additive at a dosage of 2%, when fed to broiler chickens from three to seven weeks of age, had a positive effect on the intensity of poultry growth.

KEYWORDS

Granulated compound feed, polymineral additives, broiler chickens, weight changes.

INTRODUCTION

Modern animal husbandry is focused on increasing animal productivity and achieving maximum economic efficiency through the concentration of production. However, this approach also raises logistical issues related to feed procurement, environmental problems, and agricultural land degradation. A sharp decline in the productive longevity of animals is observed, leading to frequent herd replacement and deterioration of

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demographic conditions [1]. At the same time, reducing import dependency through the introduction and use of technologies for producing high-quality animal feeds and feed additives should be enhanced. Improving the efficiency of feed preparation processes for livestock production remains a relevant issue.

Purpose of the Study

The aim of this study is to investigate modified granulated compound feed using a polymineral feed additive.

Objects of the Study

Granulated compound feed, broiler chickens, and physiological changes.

Research Methods

In compound feed samples, the following parameters were determined:

Dry matter — by the gravimetric method;

Ash — by the dry ashing method [2];

Crude fat [3];

Crude protein — by calculation;

Crude fiber [4];

Nitrogen-free extractive substances (NFE) — by calculation;

Calcium — by the pyrometric method [5];

Phosphorus — colorimetrically using a vanadate-molybdate reagent.

The energy nutritional value of the feeds was calculated based on their chemical composition data, following generally accepted methodologies [6].

Results and Discussion

Based on the actual consumption of compound feed by broiler chickens and the results of its chemical analysis, calculations were made for the intake of nutrients, minerals, and biologically active substances entering the bodies of birds in the control and experimental groups (Table 1).

Table 1

Consumption of mixed feed and its components

(g per 1 head per day)

Age (weeks) / Indicators		1	2	3	*4*	5	6	7
Quantity	I	22,1	39,9	75,6	98,4	123,0	148,0	174,0
corma	II	22,1	38,8	72,0	94,4	121,0	144,0	174,0
	I	0,300	0,542	1,026	1,335	1,670	2,001	2,362

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Exchange	II	0,304	0,533	0,989	1,297	1,667	1,980	2,384
energy, D'l;	I	4,58	8,28	15,7	20,4	25,5	30,5	36,1
Protein	II	5,56	9,75	18,1	23,7	30,5	36,2	43,6
Dry	I	0,74	1,33	2,52	3,28	4,10	4,91	5 80
	п	1,25	2,20	*4,08*	5,35	*6,88*	8,17	9,84
Fiber	I	1,02	1,85	3,50	4,56	5,70	6,83	8,06
	II	0,64	1,13	2.10	2,75	3,53	4,19	5,05
WIDOW	I	12,5	22,7	42,9	55,8	69,8	83,6	98,7
	II	11,2	19,6	36,4	47,8	61,4	72,9	87,8
Calcium	I	0,25	0,45	0,85	1,11	1,39	1,67	1,97
	!!	0,26	0,45	0.o4	1,10	1,42	1,69	*2*,03
Phosphoru	I	0,19	0,34	0,64	0,83	1,04	1,24	1,47
s	11	0,20	0,35	0,64	0,84	1,08	1,29	1,55
Sodium	I	0,05	0,09	0,17	0,23	0,28	0,34	0,40
	II	0,05	0,09	0,17	0,22	6,28	0,33	0,40
Lysine	I	0,28	0,50	0,95	1,23	1,54	1,85	2,18
	II	0,28	0,49	0,90	1,18	1,52	1,81	2,18
Methionine	I	0,19	0,34	0,64	0,83	1,04	*1,25*	1,47
+	II	0,19	0,33	0,61	0,80	1,03	1.22	1.47
cystine	I	0,002	0,004	0,008	0,010	0,012	0,015	0,017
	II	0,002	0,004	0,007	0,009	0,012	0,014	0,017
Iron	I	0,022	0,040	0,076	0,098	0,123	0,148	0,174
	II	0,022	0,039	0,072	0,094	0,121	0,144	0,174
Manganese	I	0,011	0,020	0,038	0,049	0,062	0,074	0,087
	II	0,011	0,020	0,036	0,047	0,061	0,072	0,087
Zinc	I	0,0006	0,0010	0,0019	0,0025	0,0031	0,0037	0,0044
	II	0,0006	0,0010	0,0018	0,0024	0,0030	0,0036	0,0044

BEV - nitrogen-free extractive substances

The presented data allow us to conclude that the splutter broiler diet ensured the entry into their body of the necessary amount of protein and essential amino acids, lipids, macro- and microelements. The influx of cadmium and lead did not go beyond the framework of the CDU.

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The introduction of modified mixed feed into the diet of broiler spiders contributed to an increase in body weight gain and preservation of the birds. It was established that in birds, a constant increase in body weight was observed and up to 4 weeks of age, it occurred practically without noticeable differences; further and until the end of the experiment, the growth intensity of the fledglings in the experimental group was higher (Fig. 1). The average daily increase over the entire period of the experiment was 33.37 g in the control group and 35.37 g in the experimental group, which is 5.99% more. At the end of the experiment, the live weight of the birds of the experimental group was significantly higher than in the control group by 5.4% ($p<0.05$).

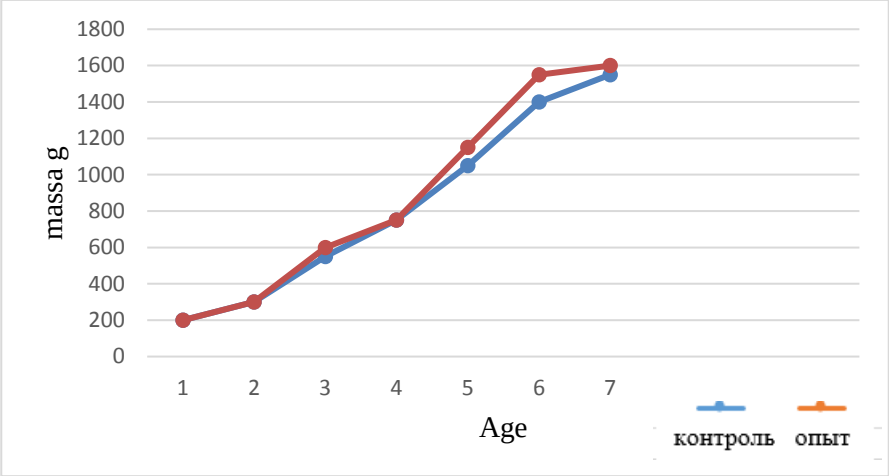

Figure 1. Dynamics of the live mass of siplyat broilers.

From the graph presented in Figure 2, it can be seen that the preservation of birds in the experimental group throughout the entire experiment was higher than in the control group. At the end of the experiment, the preservation of birds in the control and experimental groups was 85.18 and 91.89%, respectively.

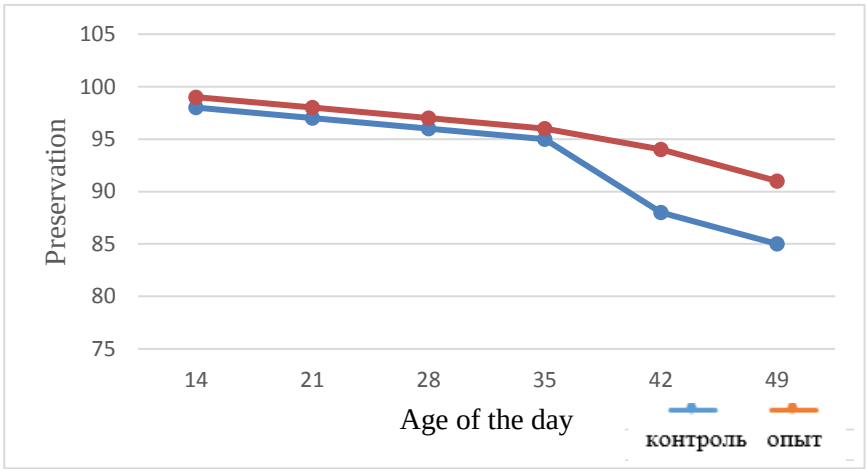

Figure 2. Storage dynamics of siplyat broilers.

Production tests of modified mixed feed were conducted at the poultry farm in Bukhara. The first group of siplyat-broilers received standard granulated compound feed. In the ration of the second group, a 2%

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polymineral innovative feed additive was added to the standard granulated mixed feed. It was established that broiler females of the experimental group surpassed the control group in terms of head preservation by 7.85, average daily growth during the entire experiment period - by 5.99, average live weight of one bird - by 5.38%. At the same time, it was possible to reduce feed consumption per 1 kg of growth by 8.32 and per animal per day by 2.19%. Gross meat yield increased by 16.35%; first-category meat yield - by 25.34%, second-category - by 17.39%. In general, the economic efficiency of using modified mixed feed amounted to 5.54 soums per 1 soum of expenses (in prices at the beginning of 2024).

CONCLUSIONS

Granulated compound feed using a 2% polymineral innovative feed additive when feeding broiler chickens aged three to seven weeks had a positive effect on the bird's growth intensity, tissue and organ histostructural characteristics, protein and mineral metabolism.

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