The effect of local minerals on the productivity of meat chickens

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Abstract. Among the mineral feeds, the most popular is the snail shell, because the progenitors of this mineral feed were living organisms. The level of digestion in the bird's body is much higher than in other mineral substances. One of the most fundamental factors of all experiments is the economic efficiency of the experiments done. Therefore, we calculated the effectiveness of feed lime given to broiler chickens with zootechnical indicators and put them in the fifth table. Therefore, the search for mineral feed sources, the determination of their composition parts, the determination of the presence of additives that can harm poultry, and if everything is correct, the use of new sources of mineral feed in production is one of the most relevant and urgent issues today.

1 Introduction

Mineral elements play one of the main roles in the life of humans, animals and birds. They, like vitamins, are necessary for the bird's body. Metal ions are part of enzymes that slow down and regulate biochemical processes in the process of metabolism. Minerals help in the process of digestion, absorption of nutrients, transmission of nerve impulses to neurons, muscle tissue and a weakened organism, they are also involved in all catabiotic and anabiotic reactions occurring in the cell, replenishment of the biological function of harmonics.

Among the mineral feeds, the most popular is the snail shell, because the progenitors of this mineral feed were living organisms. The level of digestion in the bird's body is much higher than in other mineral substances. But recently, due to environmental conditions, due to the temporary suspension of the production of sea snail flakes in the Caspian Sea, the use of local mineral additives in poultry feed has become an urgent problem. Therefore, the thesis will tell you about the chemical composition of feed lime produced in Tulkubas District of Turkestan region, harmful heavy metal waste and in what quantities it is used in poultry feed. In addition, a description of the relative composition parts of natural sources of feed lime is given.

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2 Experimental part

In the main practice, we studied the effect of feed lime from three localities located in the Tulkubas district of the Turkestan region on the productivity indicators of broilers in the institution "Lenger - Kus" located in the tole bi district of the Turkestan region. The staff of the zootechnical Laboratory of this institution helped us to carry out these studies until they had the opportunity to analyze the results of the research. In these studies, as noted above, the state of the environment of the experimental and control groups corresponded to the requirements of the instructions of the All-Russian technological and scientific research institute of poultry farming (temperature, humidity, light discipline, density of planting birds). The chicks were fed with full-fledged balanced compound feed. It is developed in accordance with the instructions of the All-Russian technological and scientific research institute of poultry farming of the quality of compound feed. In February and March 2023, we conducted scientific and economic experiments in the agricultural production cooperative "Lenger – Kus" in order to check the amount of mineral feed lime produced in the Tulkubas District of Turkestan region for inclusion in the poultry diet and its productivity. To do this, we formed each group of fifty heads of broilers. We conducted the experiment using the following scheme:

Table 1. Scheme of the experiment.

Indications		**Experience groups**		
		control	**2-experiment**	**3-experiment**
		Feeding features		
Feeding time, week	2-3 week	bas feed lime ic ration +0,5%	basic ration +1,0% feed lime	basic ration +1,5% feed lime
	3-5 week	basic ration +0,5% feed lime	basic ration +1,0% feed lime	basic ration +1,5% feed lime
	6-up week	basic feed lime ration +0,5%	basic ration +1,0% feed lime	basic ration +1,5% feed lime

In order to justify the conclusions of the experiments and to prove the validity of these conclusions, we conducted a production practice in this institution. The sketch of the production experiment was in accordance with the direction of the third experiments conducted above, the difference was only in the number of heads of chicks obtained, because it is better to check the evidence of scientific experiments and their results in this way.

Table 2. Production inspection scheme.

Indications		**Option**	
		1- control	**1- new**
		Feeding features	
Stages of growing broilers, week	1-3 week	basic ration +0,5% feed lime	basic ration + 1% feed lime
	4-5 week	basic ration +0,5% feed lime	basic ration + 1% feed lime
	6-up week	basic ration +0,5% feed lime	basic ration + 1% feed lime
Number of heads		1000	1000

3 Result and discussion

We fed broiler chickens with the composition indicated in the table below. We also showed the composition parts of the composition separately. The table below presents the value of broiler chickens with the content of feed.

Table 3. The content of broiler chickens with the content of feed is given the value of feed.

Indications	Feeding phase								
	1-3 week			4-5 week			6- and up week		
	control	1-experience	2-experience	control	1-experience	2-experience	control	1-experience	2-experience
Wheat, %	40.50	40.20	40.00	43.40	43.20	43.00	44.50	44.00	43.50
Barley, %	20.20	20.00	19.70	20.76	20.76	20.06	21.96	21.96	21.96
Sunflower seeds, %	6.00	6.00	6.00	6.60	6.60	6.60	8.28	8.28	8.28
Soy Shrot, %	20.00	20.00	20.00	16.58	16.58	16.58	10.00	10.00	10.00
Fish powder, %	8.50	8.50	8.50	7.23	7.23	7.23	9.61	9.61	9.61
Sunflower oil, %	3.50	3.50	3.50	4.10	4.10	4.10	4.50	4.50	4.50
Table salt, %	0.10	0.10	0.10	0.12	0.12	0.12	0.04	0.04	0.04
Premix, %	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Feed lime , %	40.50	40.20	40.00	43.40	43.20	43.00	44.50	44.00	43.50
Composition will be in 100 grams of feed:									
Variable energy, kcal\100g	309.04	309.98	311.58	314.03	315.68	316.58	319.9	320.82	321.72
Raw protein, %	22.96	23.02	23.14	21.4	22.61	22.77	20.15	20.24	20.33
Raw lentils, %	3.83	3.86	3.93	3.71	3.81	3.84	3.28	3.27	3.28
Linoleic acid, %	3.14	3.13	3.13	3.06	3.06	3.06	3.28	3.27	3.28

This table shows the components of feed for birds in the control group and in the experimental groups, the difference is only in the amount of additional added feed lime and the amount of raw protein, raw lentils and variable energy in the feed.

The second table shows the zootechnical indicators of broiler chickens during the experiment.

Table 4. Zootechnical indicators of birds in practice (n=50).

Indications		**Experience groups**		
		control	**1- experience**	**2- experience**
Live weight, g	7 day	140.5	140.5	141.40
	14 day	309.35	324.10	321.00
	21 day	679.25	738.18	730.00
	28 day	1037.93	1120.23	1115.00
	35 day	1604.00	1722.13	1699.00
	42 day	2145.5	2290.16	2264.00
Weight connection, g	daily	57.27	61.41	60.65
	general	2004.5	2149.5	2122.6
Feed consumption	1 head	3.71	3.71	3.71
	1 kg to the weight gain	1.85	1.73	1.75

In the course of this experiment, changes in the live weight of the broiler, weight gain and feed consumption were shown. At the age of seven days of chicks, we notice that there are no significant changes in weight. The average weight ranges from 140.5 grams to 141.4 grams. However, from the fourteenth day of experiments, changes are observed according to the pattern. On the twenty-eighth day, the weight of the chicks in the control group comes from 1037.93 grams. Meanwhile, the average weight of broilers in the experiment group ranged from 1115.00 grams to 1120.23 grams. At the end of the experiment, the average weight of the broiler came from 2145.5 grams in the control group. Well, the second experience came from the average broiler weight of 2290, 16 grams. The weight of broilers in the second group was on average 144.66 grams higher than in the control group. Therefore, the amount of feed lime for birds should be one percent. The daily weight gain of the chicks was also greater than in other groups. Overall weight gain was also higher in this group. In the second group, the specified indicator is 2149.5 grams. The control group had 2004.5 G and the third group had 2122.6 grams. The feed consumption was the same in one calculation, but the added weight was the lowest in the other group.

Table 5. The meat indicators of broiler chickens were also calculated during the experiment.

Indications			**Experience groups**		
			control	**1-experience**	**2-experience**
Live weight before slaughter, g			2116.67	2260.00	2235.00
Fully cleaned broiler carcass, g			1509.03	1635.19	1609.59
Slaughter yield, %			71.29	71.35	72.02
Morphological composition, %					
Breast meat	meat	g	401.72	448.71	445.40
		%	18.98	19.85	19.93
	skin	g	57.36	55.82	56.32
		%	2.71	2.47	2.52
	bone	g	61.81	60.12	61.02
		%	2.92	2.66	2.73
Thigh meat	meat	g	191.14	212.21	204.28
		%	9.03	9.39	9.14
	skin	g	43.18	43.62	43.81
		%	2.04	1.93	1.96
	bone	g	34.08	31.19	31.74
		%	1.61	1.38	1.42

Continuation of Table 5.

Shin meat	meat	g	131.45	152.32	144.38
		%	6.21	6.74	6.46
	skin	g	32.17	35.26	34.42
		%	1.52	1.56	1.54

The meat indicators of broiler chickens were higher in the 1st experiment group. For this reason, we conclude that it is better to give broiler chickens feed lime in the amount of one percent.

One of the most fundamental factors of all experiments is the economic efficiency of the experiments done. Therefore, we calculated the effectiveness of feed lime given to broiler chickens with zootechnical indicators and put them in the fifth table.

Table 6. Efficiency of adding feed lime to feed.

Indications	**Experience groups**		
	Control	**1-experience**	**2-experience**
Number of bird heads before slaughter	50	50	50
Fully cleaned carcass weight, G	1509,03	1635,19	1609,59
All obtained meat, kg	75,45	81,76	80,48
Feed price (1 kg), tenge	108,1	108,8	111,1
Feed costs, tenge	20052,55	20182,4	20609,05
Price per 1 kg meat	980	980	980
Revenue from the sale of carcass meat, tenge	73941	80124	78870,4
Additional income by group, tenge		6183	4929,4
1 additional income in other calculations, tenge		123,7	98,6
Conditional income (per 1000 broilers), tenge		123700	98600

It is known that the number of bird heads in all groups is fifty. The weight of the cleaned carcasses came from the highest 1635.19 grams in the first group of the experiment. In the second group of the experiment came from 1609.59 grmm. The indicators of both groups are higher than the weight of the carcasses of the broiler of the control group. The weight of all received horses in the first experimental group was 81.76 kg. 8.4% higher than the weight of the control group. Therefore, it is experimentally proved that the main reason for the high indicators of the experimental group is one percent of feed lime per feed. Taking into account the current price of broiler chickens in the store at 980 Tenge, the total revenue of the total amount of tenge was 73941 tenge in the control group, 80124 tenge in the first experience Group and 78870.40 tenge in the second experience Group. Therefore, in the first experience Group, the combined income was 6183 tenge. This indicator is 123700 tenge, conditionally counting 1000 heads. This is a very good indicator. This indicator shows the correctness of our experiments, we conclude that one percent of the feed lime produced in the Tulkubas District of South Kazakhstan can be used in the diet of broiler chickens.

We conducted production experiments to prove the correctness of our experiments, the accuracy of zootechnical indicators. We made the production practice based on a pre-made drawing.

Table 7. In production practice in the process of breeding broiler chickens the specified indicators.

Indications	**Option**	
	1-control	**1-new**
In the account of the percentage of the saved head, %	97,2	98,4
Weight of 1 medium head of broiler, g	2121	2274
Weight of a fully cleaned carcass, g	1519,6	1649,59
All obtained meat, kg	1477,05	1623,20
Price per 1 kg meat	980	980

Income from the sale of carcasses, tenge	1447509	1590736
Net profit		143227

The percentage of poultry preserved in production practice was 98.4% in the new approach, and 97.2% in the basic approach. The weight of all obtained meat was 1623.2 kg in birds with the addition of one percent feed lime. And the weight of the meat obtained in the base group with the addition of feed Lime by 0.5% was 1477.05 kg. The income from the sale of these carcasses was 1447,509 tenge in the base Group, and the income from the sale of birds of the new group was 1590,736 tenge. Therefore, the net profit was 143,227 tenge per 1000 heads of broiler chickens.

4 Conclusion

1. There are more than two hundred countries around the world. Almost all of them are engaged in agriculture, as this direction is the one that leads to the food security of the state. Therefore, the search for mineral feed sources, the determination of their composition parts, the determination of the presence of additives that can harm poultry, and if everything is correct, the use of new sources of mineral feed in production is one of the most relevant and urgent issues today.
2. In this scientific work, we conducted a comparative analysis of performance indicators in the practice group and in the control group. The percentage of poultry preserved in production practice was 98.4% in the new approach, and 97.2% in the basic approach.
3. The weight of all obtained meat was 1623.2 kg in birds with the addition of one percent feed lime. And the weight of the meat obtained in the base group with the addition of feed Lime by 0.5% was 1477.05 kg.
4. Income from the sale of these carcasses in the base Group amounted to 1447,509 tenge, and income from the sale of birds of a new group-1590,736 tenge. Therefore, the net profit was 143,227 tenge per 1000 heads of broiler chickens.

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