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PHYSIOLOGICAL INDICES OF CHICKENS-BROILERS AFTER INTERNAL APPLICATION OF MINERAL COMPLEX Mg++ IN TERMS OF ECONOMY

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Given results of test on 537 chickens-broilers (635 of control) in terms of economy drug produced on the basis of the solution of Poltava bishofit (SPB). Drug was given chickens-broilers of 5-day age group method internally with water in 3 cycles of 24-hour intervals over 7 times in each cycle and 7-day interval between cycles. The chicks, which were given the drug, compared with the control, had a greater average live weight of the body in 43-day age of 50 g, 73-day – 128 g and 111-day – 103 g it shows its positive effect on organisms of chicks up to 2,5 months (time of observations) after the last application in 38-th days of their lives. The drugs based on the SPB will have greater efficiency in the application of the repair chicks and adult hens, i.e. those who live more than 2,5 months. The 43-day age 16 broiler died of the calculation of the initial total number (2,9 %) in experimental group and 30 (4,72 %) in the control. On control broilers, compared with research, savings on the drug, which is not used, and smaller amounts of used feed, but we received much more losses due to lower increases in live body weight and more fatalities. The total value of the economic benefits of the drug only to 43-day age of chicks is 5,8 UAH on each invested 1 UAH.

Key words: *chickens-broilers, bioprotektor mineral Mg++, solution of Poltava bishofit (SPB).*

Statement of the problem. After use in a laboratory research mineral complex Mg++ with food and water to the broiler we watched satisfactory clinical condition and the probable increase in their blood the number of red blood cells and hemoglobin in 43-day age of hens which had a live body weight at 303,9 g and cocks – 271 g greater than control [1, 5]. Such results give reason to test the drug in terms of the economy.

Analysis of main studies and publications which discuss the problem. In available literature we found a private message about the results of SPB and several drugs based on it on the chicken-broiler. Their use of fodder and water in single twice doses of magnesium content [4] have received positive results [1, 5] therefore need to compare them with the results of the test drugs in semi manufacturing research, i.e., the more number of broiler in terms of economy.

The aim of the research – explore the physiological indices of chickens-broilers with internal use of mineral complex Mg++ with water.

Materials and methods of research. Experiment was carried out on the chicken farm of one of the farms of Poltava region in the period from 10.02. to 23.03.2016 (the main part). Chicks were killed by parties as applications of trade organizations. The last party was clogged 30.05.2016.

Chicks of 2-day age were brought from Lutsk poultry and placed in the spacious room, divided on two machines in one of them was 537 (Group 1), and in another 635 (Group 2, control). Indoors maintained the required temperature with firewood ovens. Chickens were full-feed: up to 20-day age «Starter», from 21 to 33-day – «Grover-1», and from the 34-day and slaughter «Grover-2» and forage, which are prepared in the economy. The water for chicken were poured in two water supply automatic drinking bowl of the two tanks with a capacity of 50-70 l separately in each machine.

A day of settling on the farm chickens-broilers were used internally a vitamin preparation «Introvit» with water, from 2–5 days – antibiotic «Enrofloks» (0,5 ml×1 l of water), from 7–10 day – «Introvit», from 10 to 12 day – coccidiostatic and three weeks 2 days in a row – again coccidiostatic.

Chicks of 5-day age of group 1 were given the drug by group method with water for 3 cycles of 24-hour intervals over 7 times in each loop and 7-daily interval between cycles, and group 2 – only water, so as grown rapidly added in live mass of the body, each day of each of the three cycles of about 10 % (50–55 heads) of their total number in the group, drag and calculated the average live body weight and then the live mass of bodies of all chicks group. Next we calculated 1-day need of chicks in the water that is poured into the tank. There we added drug dose which is for chicks of all groups defined for the described method [4]. The use of the drug and after 22-24 hours after the end of each cycle of 7 chicks research and reference groups of selected samples of blood from

the veins of the wings they have investigated the number of red blood cells, white blood cells and hemoglobin by accepted methods [3].

The number of used chickens of separate groups 1 and 2 feed we determined by dividing the total amount of feed on the number of feed days.

The results of the research. During the period of experiment chicks were clinically healthy. Results of hematology of the research are presented in table 1.

1. The results of the determination of the number of red blood cells ($\text{mm}^3/\text{million}$), leukocytes ($\text{mm}^3/\text{thousand}$) and hemoglobin (g/%) in the blood of chickens-broilers, $M \pm m$, $n7$

Groups	Sampling of blood in the chicks through 22-24 hours after cycles								
	1			2			3		
	erythrocytes	leukocytes	hemoglobin	erythrocytes	leukocytes	hemoglobin	erythrocytes	leukocytes	hemoglobin
1	$2,88 \pm 0,10$	$1,90 \pm 0,06$	$7,35 \pm 0,86$	$2,99 \pm 0,06$	$1,91 \pm 0,06$	$9,27 \pm 0,39$	$3,05 \pm 0,04^+$	$1,97 \pm 0,04$	$9,33 \pm 0,25^*$
2 k	$2,79 \pm 0,09$	$2,88 \pm 0,10$	$6,82 \pm 0,72$	$2,80 \pm 0,09$	$1,91 \pm 0,04$	$7,71 \pm 0,46$	$2,87 \pm 0,05$	$1,88 \pm 0,06$	$8,25 \pm 0,21$

Note: 1. The difference in indicators of the blood of chickens of groups 1 and 2 to the use of the drug were not likely ($p > 0,05$). 2. $^+$ - $r < 0,05$, * - $p < 0,01$.

From table 1 we see that after the third cycle of the drug in the blood of chicks probably increased the number of red blood cells ($p < 0,05$) and hemoglobin ($p < 0,01$). These indicators show that prophylactic dose of the drug is selected correctly and it was in organisms of chicks.

2. The average live bodies' weight and saved number of broiler

Age, days	Research group – 550 heads		Control group – 635 heads		The difference in live mass of the body of researched chicken, compared with control, +g
	the average weight of a body, g	died	the average weight of a body, g	died	
4	84	-	83	-	1
11	230	10	215	14	15
12-18	break	5		6	
25	737	1	701	0	36
26-32	break	0		7	
39	1600	0	1575	1	45
40-43	break	0		0	
43	1936	0	1886	2	50
73	3826		3698		128
111	4500		4397		103
Together died		16		30	

Note: In bold there are days of ending cycles of the drug: the first is 5-11 days, the second and third – 19-25 and 33-39.

Data in table 2 show that on the day of life of researched chickens, compared to control, average live body weight more on the 1 g, 11th (1 cycle) – 15 g, 25th (2nd cycle) – 36, 39th (3rd cycle) – 45 g, 73th – 128, 111th day – 103 g. From indicated data we see that the positive impact of the drug on the body of chicks continued up to 2,5 months (observations) after the third cycle. Died chickens in the group 1 – 16 (2,91 %) and in a group 2 – 30 (4,72%) with a total living mass of bodies 2870 grams and 11700 g respectively (difference is 8830). And most of them died during the 18-day age.

Therefore, 605 chickens of control group in 43-day age did not receive benefits: $605 \times 0,05 \text{ g} = 30,25 \text{ kg}$ of live body weight chicks or $23 \text{ kg chicken} \times 28 \text{ UAH} = 644 \text{ UAH}$. Estimated cost of chicks' meat who died in this group, up to $28 \text{ UAH} \times 6,7 \text{ kg} = 187,6 \text{ UAH}$. Total amount of not received benefits equal to 831,6 UAH. For three cycles on one chicken took the drug on the amount of 10,3 kopecks and received 1,06 UAH of profit or for 10

kopecks of cost – 96 kopecks given and of dead chicks total damages estimated is 831,6 UAH: 605 = 1,37 UAH or for 1 UAH of costs it can be obtained for 12,7 UAH of profit.

3. The results of the determination of the loss of economic benefits on 43-day old chicken of control group

The number of heads	Because of the smaller on 50 g increments of live body mass				Because of the death			
	live body mass, kg	chickens, kg	cost, UAH		live body mass, kg	chickens, kg	cost, UAH	
			1 kg	total			1 kg	total
605	29,98	23	28	644				
14*					8,83	6,7	28	187,6

Note: /* The difference between the number of died in the control and group 1.

According to the accounting documents of the poultry farm, 18 days (in the period from 11.03 to 28.03.2016) broiler of group 1 ate 1785 kg of feed, and group 2 (control) – 2005 kg per dubbed period in group 1 was constantly 536 chicks, and in group 2 – at the beginning 615, and at the end through the death – 605. In the experimental group was 9649 feed days and in control – 10964. Hence the calculated amount of feed consumed on average one chick one day fodder of group 1 and group 2: 1785 000 g: 9649 = 184,99 g 2005000:10964 = 182,87 g. Difference between them was 2,12 g. Cost of 1 kg of the compound amounts to 8,5 UAH and 2,12 – 1,8 kopecks. Chickens of group 1 18 days spent additionally on forage 1,8 kopecks x 18 = 38,16 kopecks. For 38 days (the period of the main experiment) this is the maximum 68,4 kopecks.

Therefore, the total amount of losses (137 kopecks) subtract the cost of the drug (10 kopecks), and extra food for 38 days (68,4 kopecks) and receive the lost profit in the amount of 58,6 kopecks. Thus, for every spent 1 UAH per drug and feed due to increases in the living body mass and the preservation of livestock will be obtained profits totaling 5,8 UAH.

It should be noted that chickens-broilers of experiment in 43-day age had an average live weight of body in the group 1 – 1936 g, while in group 2 – 1886 g. In a laboratory research [5] the average live weight of bodies of broiler where we used identical drug included: hens 2936,43 +77,46 grams and cocks 3281,25 + 35,73 g, and control 2632,50 +43,97 +3010,00 g and 99,87 g respectively. The difference between obtained data in the laboratory research and economic are quite significant and, among other factors, mainly the result of insufficiently balanced rations of feeding chicks.

Conclusions:

1. After use of the drug, produced on the basis of SPB, internally with water by group method in chickens-broilers, compared to control, was more the average live weight at the 43-day age of 50 g, 73-day – 128 g and 111-day – 103 g. It demonstrates the fact that the drug has a positive effect on chicks' organisms up to 2,5 months (observations) after the last application on 38th day of their lives. Because the drugs based on the SPB it will be greater efficiency in the application of occupied on young and adult hens, i.e. those who live more than 2,5 months. 43-day age ones died of the calculation of the initial total number of 16 (2,9 %) broiler in experimental group and 30 (4,72 %) – in the control.

2. Chickens-broilers, which were used the drug on the basis of SPB, daily consumed on 2,12 g feed more and had, compared to control, higher increases in body mass of living that, presumably, it is the result of increased appetite, more intensive digestion of feed and better absorption of products of its schedule.

3. On control broilers, compared with research, savings on the drug, which was not used, and the lesser of used feed, but received much more losses due to lower increases in live body weight and a greater number of victims. The total value of the economic benefits of the drug only to 43-day age of chicks is 5,8 UAH on each invested 1 UAH.

4. The obtained results show the need to continue testing preparations on the basis of SPB on different age group of chickens in other chicken economies and farms.

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