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Effect of time, amount and frequency of feeding on blood parameters of broiler breeder flocks

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ABSTRACT

This experiment was performed in order to investigation on effects of the time, amount and frequency of feeding on blood parameters in broiler breeder aged 31-38 weeks. Experiment was conducted based on a completely randomized design with 15 treatments. Treatments included 1, 2, 3 and 4 times feeding per day. Glucose, triglycerides, and cholesterol were measured and studied. Based on obtained results, dietary program included more than once feeding per day had significant differences for the concentration of blood parameters ($P<0.05$).

Keywords: frequency of feeding, glucose, triglycerides, and cholesterol

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INTRODUCTION

Today, the there is rapid growth in agriculture and animal husbandry throughout world. But based on response to growing demand, insufficient to determine what course to achieve efficient and effective management in the dairy industry should be a priority, including technical changes, structural changes, pathways, production systems, consider the space business is. Therefore, any improvement in the poultry industry and scientific progress will play an important role in promoting human welfare.

The cattle breeder, blood parameters have a great impact on the health and performance of broiler breeder flocks. Since the timing, amount and frequency of feeding on blood parameters of broiler breeder has studied. In this experiment, the effect of the timetable, amount and frequency of feeding on blood parameters of broiler breeder stocks has studied.

MATERIALS AND METHODS

Treatments were applied according to Table 1.

Studied traits

Measured traits in this experiment were glucose levels, cholesterol levels, and triglycerides concentrations.

Measured traits

Peak blood during the first two stages (31 weeks and 36 weeks of the onset of peak production, peak production day). Samples from each treatment in each trial, a view from the wing vein before and two hours after feeding 5^{cc} of blood were taken Transferred to sterile tubes containing EDTA as anticoagulant and immediately placed on ice. Samples of blood from the blood after a time period of up to fifteen minutes at 3000 rpm centrifuge, plasma separated, and the environment - $20^{\circ C}$ were transferred. Sampler use of reserves for metabolic parameters Apndrvf isolated from a blood sample containers (Kvvt) discharge and then were transferred to centrifuge. Blood plasma concentrations of metabolic reserves, glucose, triglycerides and cholesterol with Enzymatic - colorimetric method using commercial kits and test pars Taken into order dispersion coefficient of 1.8%, 2.6% and 3.2% were measured. Test data were analyzed in a completely randomized design.

Table 1: The timetable and amount of feed in the studied treatments

Timetable→ Parameters↓	Percent of the total feed ration	Feeding time	Percent of the total feed ration	Feeding time	Percent of the total feed ration	Feeding time	Percent of the total feed ration	Feeding time
1 (Control)	100	4 am	-	-	-	-	-	-
2	50	4 am	50	16 pm	-	-	-	-
3	75	4 am	25	16 pm	-	-	-	-
4	50	4 am	50	12 am	-	-	-	-
5	75	4 am	25	12 am	-	-	-	-
6	75	6 am	25	16 pm	-	-	-	-
7	50	6 am	50	16 pm	-	-	-	-
8	50	4 am	25	12 am	25	16 pm	-	-
9	33	4 am	33	12 am	33	16 pm	-	-
10	25	4 am	50	12 am	25	16 pm	-	-
11	25	4 am	25	12 am	50	16 pm	-	-
12	50	6 am	25	12 am	25	16 pm	-	-
13	33	6 am	33	12 am	33	16 pm	-	-
14	33	4 am	22	8 am	22	12 am	22	16 pm
15	50	4 am	17	8 am	17	12 am	17	16 pm

RESULTS

Obtained results of blood parameters are presented in Table 2. In the present study, serum glucose, triglycerides and cholesterol as a provider of resources and energy metabolism were studied. The results of the analysis showed that more than once a day feeding treatments were significantly different from the control group (feeding once a day) were ($P<0.05$). Dietary treatments more than once a day, compared with controls, differences in metabolic parameters reserves include glucose, cholesterol and triglycerides were observed ($P<0.05$). The increase in plasma glucose feeding day at age 31 weeks in the fall Treatments. However, the amount of cholesterol and triglycerides in experimental treatments same age increased (Table 2). The results showed that the level of reserves in metabolic parameters at 36 weeks of age treatments with more than 1 meal a day diet compared with the control group were significantly different ($P<0.05$). The levels of glucose, triglycerides and cholesterol at 36 weeks of age treatments with more than 1 meal a day diet decreased compared to the control group (Table 2). Statistical analysis of the results of variations in plasma concentrations of metabolic parameters Reserves at age 31 weeks to 36 weeks was shown to increase the frequency of eating more than 1 meal a day compared with the control group was significantly difference ($P<0.05$).

Also, the study found, the number thirteen other treatments except for treatments with diet fed more than once a day had increased serum triglycerides than control group while the amount of cholesterol and glucose in more than treatments fed once a day had declined compared to the control group (Table 2). Rating treatments were tested in this manner for each of the traits based on the evaluation criteria and the transverse axis of the table 2 is presented. Cholesterol levels at age 31 weeks in the treatment group increased by more than 1 meal a day at 36 weeks of age were significantly decreased ($P<0.05$)

Rating treatments were tested in this manner for each of the traits based on the evaluation criteria and the transverse axis of the tables 3 and 4 is presented. Scores based on the formula presented in this paper and insertion characteristics were obtained from the formula is obtained by using Excel software the values obtained using the treatments can be compared in terms of quality.

Table 2: Effects of feeding timetable on mean (±SE) serum concentrations of blood parameters in broiler breeder

Treatment	Glucose (mg/dl)	Triglycerides (mg/dl)	Cholesterol (mg/dl)
1 (Control)	$154.13^{a} \pm 2.91$	$684.31^{e} \pm 13.66$	$145.71^{a} \pm 10.48$
2	$149.34^{b} \pm 4.50$	$699.57^{abcd} \pm 4.52$	$125.34^{bc} \pm 3.22$
3	$145.57^{c} \pm 3.45$	$699.46^{abcd} \pm 4.65$	$123.90^{bc} \pm 3.22$
4	$145.57^{c} \pm 3.63$	$705.47^{abc} \pm 3.88$	$121.35^{bc} \pm 2.95$
5	$140.34^{d} \pm 3.76$	$695.26^{cde} \pm 5.15$	$161.39^{c} \pm 4.49$
6	$139.44^{d} \pm 3.94$	$700.78^{abcd} \pm 3.60$	$123.38^{bc} \pm 6.37$
7	$149.43^{b} \pm 4.23$	$698.16^{bcd} \pm 5.96$	$127.99^{b} \pm 2.19$
8	$145.26^{c} \pm 3.68$	$700.84^{abcd} \pm 6.22$	$122.71^{bc} \pm 2.08$
9	$145.56^{c} \pm 3.51$	$700.98^{abcd} \pm 4.03$	$122.37^{bc} \pm 2.28$
10	$148.69^{b} \pm 4.24$	$707.51^{ab} \pm 4.52$	$126.41^{bc} \pm 1.80$
11	$148.57^{b} \pm 4.10$	$705.61^{abc} \pm 5.10$	$127.83^{b} \pm 3.75$
12	$145.24^{c} \pm 3.44$	$693.21^{de} \pm 5.68$	$125.84^{bc} \pm 3.96$
13	$145.33^{c} \pm 3.44$	$100.97^{abcd} \pm 2.79$	$126.46^{bc} \pm 2.88$
14	$148.53^{b} \pm 4.02$	$709.71^{a} \pm 3.50$	$121.27^{bc} \pm 2.21$
15	$149.31^{b} \pm 4.21$	$707.40^{ab} \pm 4.90$	$121.18^{bc} \pm 1.72$
SEM	0.98	1.51	1.16
CV (%)	7.35	2.36	10.13

In each column, means with the same letter, have not significant different (P<0.05).

Table 3: Score for each of the test treatments were studied based on the sub-ordinate function method

Treatment	Glucose (mg/dl)	Triglycerides (mg/dl)	Cholesterol (mg/dl)	Total Scores
1 (Control)	0.00000	0.04173	0.38995	0.43168
2	0.32607	0.01666	0.89654	1.23927
3	0.58271	0.01684	0.93236	1.53191
4	0.58271	0.00697	0.99577	1.58545
5	0.93873	0.82374	1.00000	2.76247
6	1.00000	0.01452	0.94529	1.95981
7	0.31995	0.01897	0.83064	1.16956
8	0.60381	0.01457	0.96195	1.58033
9	0.58339	0.01434	0.97041	1.56814
10	0.37032	0.00361	0.86993	1.24386
11	0.37849	0.00674	0.83462	1.21985
12	0.60517	0.02711	0.88411	1.51639
13	0.59905	1.00000	0.86869	2.46774
14	0.38121	0.00000	0.99776	1.37897
15	0.32811	0.00379	1.00000	1.33190

Table 4: Scores for each of the studied treatments based on the evaluation index method

Treatment	Glucose (mg/dl)	Triglycerides (mg/dl)	Cholesterol (mg/dl)	Total Scores
1 (Control)	146.57859	207.18646	200.61388	554.37890
2	97.89973	308.44725	25.31268	431.65970
3	59.58672	307.71732	12.92025	380.22430
4	-301.89702	347.59788	-9.02467	36.67619
5	53.79404	279.84738	335.55364	669.19510
6	-2.71003	317.07366	8.44521	322.80880
7	98.81436	299.09091	48.11819	446.02350
8	56.43631	316.87459	2.67929	375.99020
9	59.48509	317.80358	-0.24670	377.04200
10	91.29404	361.13470	34.52094	486.94970
11	90.07453	348.52687	46.74125	485.34270
12	56.23306	266.24419	29.61561	352.09290
13	57.14770	-3663.68281	34.95123	-3571.58000
14	89.66802	375.73324	-9.71314	455.68810
15	97.59485	360.40478	-10.48766	447.51200

DISCUSSION

The results of this experiment, the effect of increasing the number of hours in a 24 hour feeding on plasma biochemical parameters of broiler breeder hens during production peaks at age 31 and 36 weeks showed that of experimental treatments, the feeding of the day more than once the control group received 36 weeks of age there are

no significant differences in blood parameters. In this study, Feed for this increased frequency and decreased biochemical parameters (metabolic reserves), such as blood glucose and plasma cholesterol. Meal increased glucose levels in people with diabetes and decreased serum cholesterol and triglyceride reduction in patients with obesity. Cholesterol and glucose in this study is consistent with results in humans. Restricted application of more than 1 day at the age of 31 and 36 weeks causes changes in hematological parameters, but changing the meal did not affect on cholesterol concentration at the beginning and end of the period (31 and 36 weeks of age) [1].

Researchers reported an increase in plasma glucose, lipid synthesis in the liver and increases the toxicity variations endocrine and hatchability of fat free meal a day to eat [2]. The treatments that had more than once a day diet, glucose levels decreased in both age 31 and 36 weeks.

The result of the research findings other researchers in nutrition of breeder pullets at 22 week of age, showed feeding every day, 5 days per week, and 6 days per week had contrasts. But the processes of feeding on cholesterol results are consistent [3].

Approximately two percent of the lipid composition of blood plasma cholesterol poultry. Plasma lipid composition of poultry is more or less similar to mammals. Sudden changes in plasma lipid levels in laying birds there. This factor increases hepatic lipid production in the laying period. With these changes Free fatty acids increased plasma pre-laying. The plasma levels of lipids, including cholesterol reduced egg laying. During peak production of cholesterol levels (31 to 36 weeks) is transferred to the yolk lipids, including cholesterol [4]. There are other reports about effect of diet on poultry blood parameters [5].

Food intake, age and physiological condition of the animals are carbohydrate supply. Glucose is the main sugar that the body and rotate in the extracellular fluid. Concentration of glucose in the blood is higher than any other sugar. Mono-gastric animals found in dietary sugars, primarily glucose monomers become so absorbed is distributed in various tissues. But Rumen fermentable carbohydrates into volatile fatty acids that are more than eighty percent of the animal's energy requirements are met [6].

The main methods of ruminants liver gluconeogenesis glucose in the body is supplied in this way. Metabolic disorders can cause abnormally low blood glucose levels in ruminants [7].

Core glucose for the nervous system, especially for energy metabolism, oxidative stress and is essential and should always be continued. In the absence of glucose supplied in single gastric animals such as rabbits, dogs, rats or humans can cause coma or brain damage. Concentration of free fatty acids and glucose in laying hens, which is very high, it is necessary to adapt the laying process. Excessive secretion of these birds probably glucagon safeguard the plasma concentration of free fatty acids [8].

CONCLUSION

Based on the results of this experiment, it can often result in increased feed twice a day can lead to improved blood parameters of broiler chickens during the peak production ($P<0.05$).

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