RESEARCH ON THE USE OF BROILERS FEEDING OF COMBINED FODDERS WITHOUT FEED ADDITIVES

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Abstract

As a result of the researches carried out by us we can affirm that the chickens in the experimental lot L_{exp} registered superior values compared to those in the control lot L_c for the live weight and the food consume index. From the economic point of view, in the experimental lot L^{exp}, we determined the highest value of the European efficiency factor (EEF) to be in a percentage of 6.28% higher compared to the reference lot Lc.

Therefore, the administration regarding the broiler chickens from the experimental lot L_{exp} of some recipes of combined fodders without fodder additives proved to be successful, in the context of out attempts to ensure an ecological food to this category of birds.

Key words: broiler, nutrition, ecological food.

INTRODUCTION

The production of ecological combined fodders has been the desideratum of nutritionists lately. These specialists are trying to obtain animal products without the involvement of some fodders or substances that can influence negatively the quality of these products.

For the time being, the specialists from aviculture do not consider that the creation of very good products can be achieved without the combined fodders containing additives.

Researches regarding the production of ecological combined fodders in the alimentation of broiler chickens in view of containing good productions of meat and with special organoleptic qualities tend to become a current practice in the whole world lately.

Our researches belong to this context, having as objective to establish the productive effect of the combined fodders without fodder additives in the broiler chickens.

MATERIAL AND METHOD

The experiment was organized within S.C AVITOP S.A Iaşi, on a number of 15850 broiler chickens, one day age, belonging to the commercial hybrid "Ross-308", distributed in two lots, of which : a control Lot (Lc), with a number of 7900 chickens, and a different lot L_{exp}, with 7950 chickens.

Since some targeted indicators, as the dynamics of gain weight, could not be determined on such a big number of birds, we formed some control groups , each group for each experiment lot (control group no. 1 and control group no. 2), summing up 200 chickens/lot. AII the chickens from the control groups were individualized. The chickens marked that were eliminated during the experiment were replaced with other chickens, having a body weight similar to the group average.

The breeding of chickens took place on permanent bedding until the age of 42 days, when they were killed. (table 1)

Table 1

The schema of experiment organization

The experiment lot	*Lc*	*Lexp*
No of meat chickens of one day old	7900 cap.	7950 cap.
Control group	No. l	No. 2
The number of chickens on a control group	200 cap.	200 cap.
The period of chicken breeding	0- 42 days	
The characteristics of combined fodders	Combined fodders with fodder additives	Combined fodder without fodders additives
Expected indicators:		
- the dynamics of gain weight of the studied chickens;		
- food consume;		
- the losses of numbers and their causes;		
- the European Efficiency Factor.		

The combined fodders administered were formulated and produced by the combined fodders factory AviTop S.A Iasi; these combined fodders were granulated; the nutritive characteristics of these fodders were in conformity with the Ross 308 broiler requirements (table 2).

OBTAINED RESULTS

a). **Bodyweights**

At the end of the experimental period, when the chickens reached the age of 42 days, the differences of gain weight were of 5.73% in favor of lot L_{exp}, compared to the comparative lot (L_c) (1854.45 +/- 15.55 from the Le lot and 1960.85 +/- 15.89 at the L_{exp} lot) (table 3).

The variation coefficient was under 20%, which indicates for this parameter a middle homogeneity (V%= 11.46-11.85).

By calculating the Fisher test, the fact that there were very significant differences between the two experiment lots was emphasized.

Table 2

The administered combined fodders

Raw materials	*Starter (1-10 days)*		*Grower (11-25 days)*		*Finisher (26-42 days)*	
	Lc	Lexp	Lc	Lexp	Lc	Lexp
Corn	44.34	44.60	44.52	44.76	40.16	40.26
Soya groats	23.95	23.95	19.17	19.17	12.97	12.97
Full fat soya	15.58	15.58	25.02	25.02	26.67	26.67
Corn gluten	7.00	7.00	4.50	4.50	4.00	4.00
Barley	-	-	-	-	10.00	10.00
Fish flour	2.00	2.00	-	-	-	-
Molasses	2.00	2.00	2.00	2.00	2.00	2.00
Monocalcium phosphate	1.62	1.62	1.61	1.61	1.46	1.46
Calcium carbonate	1.37	1.37	1.29	1.29	1.26	1.26
Premix PT	0.60	0.60	0.60	0.60	0.60	0.60
Rhodiment	0.56	0.56	0.51	0.51	0.39	0.39
L-Lizină HCl ADM	0.34	0.34	0.16	0.16	0.03	0.03
Salt	0.14	0.14	0.20	0.20	0.18	0.18
Colina	0.12	0.12	0.10	0.10	0.08	0.08
Bioplus 2B	0.10	-	-	-	-	-
Baking soda	0.08	0.08	0.08	0.08	0.10	0.10
BIOSAF	-	-	0.08	-	-	-
AVATEC (lasalocid)	0.06	-	0.06	-	-	-
KEMZYME MS dry	0.05	-	0.05	-	0.05	-
MYCOSORB	0.05	-	0.05	-	0.05	-
L-Treonină ADM	0.04	0.04	-	-	-	-
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00
Nutritive characteristics						
EM kcal/kg	3050	3055	3175	3178	3225	3228
PB %	24.00	24.00	22.00	22.00	20.00	20.00
GB %	5.82	5.82	7.66	7.66	7.89	7.89
CB %	3.62	3.63	3.74	3.75	3.90	3.90
Ca %	1.00	1.00	0.90	0.90	0.85	0.85
P available %	0.50	0.50	0.45	0.45	0.42	0.42
Na %	0.16	0.16	0.16	0.16	0.16	0.16
Cl %	0.22	0.22	0.22	0.22	0.22	0.22

Lysine %	1.44	1.44	1.25	1.25	1.05	1.05
Lysine - available poultry %	1.32	1.32	1.13	1.13	0.94	0.94
Metionine %	0.96	0.96	0.85	0.85	0.71	0.71
Metionine available poultry %	0.93	0.93	0.82	0.83	0.69	0.69
Met.+Cis. %	1.36	1.36	1.21	1.22	1.04	1.04
Met.+Cis. available poultry %	1.27	1.27	1.13	1.13	0.96	0.96
Treonine %	0.93	0.93	0.82	0.82	0.75	0.75
Triptophan %	0.26	0.26	0.22	0.25	0.23	0.23

Table 3

The Have weight of chickens at the age of 42 days

The experiment lot	*n*	$\overline{x} \pm s_{\overline{x}}$ *(g)*	*V%*
L_C	200	1854.45 ± 15.55	11.85
L_{exp}	200	1960.85 ± 15.89	11.46
Fisher test	L_C vs. L_{exp}: $\hat{F} = 22.90 > F_{0,001}$ (1.398) 10.83. *The statistic differences are very significante (***).*		

b) Food consume

The degree of food consume was in accordance with the obtained body weight. As we know, there is a correlation between the speed of growth and the specific food consume, in the meaning that the animals with better growth performance register smaller specific consumes and vice-versa.

At the end of the 42 days of breeding regarding the studied chickens, the specific consume of food was calculated, being of 1.862 kg c.f (combined fodders)/kg increase at the Lc lot, and 11.853 kg c.f. (combined fodders) /kg increase in the L_{exp} lot, this one being 0.48 % smaller than the control lot Lc (table 4).

Table 4.

The specific food consume

Experiment lots	*Total increase (kg/ chicken)*	*Average consume (kg/ chicken)*	*IC (kg n.c./kg spor)*	*±% compared to Lc*
L_C	1.815	3.380	1.862	-
L_{exp}	1.921	3.560	1.853	-0.48

c) The loss in number and its causes

The losses in number, during the whole period of the experiment was of 6.15% in the L_c lot and 6.10% in the L_{exp} lot; these values are slightly higher than the normal limits provided by the norms of hybrid growth taken into account (table 5).

Table 5

The loss in number

Experiment lots	*Number at the beginning of the experiment (chickens)*	*Number at the end of the experiment (chickens)*	*Losses (chickens)*	*%*
L_C	7900	7414	486	6.15
L_{exp}	7950	7465	485	6.10

Most of the losses were mostly registered in the first week of life of the chickens, being of accidental nature. These causes that determined these losses were the enteritis and the coccidioses. During the period that determined these losses no specific diseases were registered.

d) The European efficiency factor

At the end of the experimental period, when the chickens were 42 days old, the European efficiency factor was calculated with the help of which the efficiency of the breeding of studied broiler chickens from the experimental lots was evaluated.

As a calculation basis for determining EEF we used: the age, in days, of chickens' killing; the average live weight registered at the age of killing/lot (kg); the viability discovered/lot (%) and the conversion index of the food (IC c.f./kg increase). In table 6 we present the calculation elements and the values obtained for EEF, established based on the formula below:

$$EEF=\frac{\text{viability (\%)}\times\text{weight (kg)}}{\text{Age (days)}\times\text{IC (kg cf/kg increase)}}\times 100.$$

Table 6

European efficiency factor

Experiment lots	*Age (days)*	*Live weight average (kg)*	*Mortality (%)*	*IC (kg cf./kg increase)*	*EEF*
L_C	42	1.855	6.15	1.862	222.61
L_{exp}	42	1.961	6.10	1.853	236.60

Analyzing the values calculated for EEF, we can observe that, in the control lot, we registered a lower value in a percentage of 6.28% compared to the one obtained for the L_{exp} lot, this fact being especially due to the increased weight of the killed chickens from the L_{exp} lot, higher in a percentage of 5.71% compared to those in the control lot (Lc).

CONCLUSIONS

1. Appreciating the weight of the studied chickens, we discovered that, at the age of 42 days old chickens, the standard value (2400 g/chicken) was in a percentage of 22.73% bigger compared to the average body weight of the chickens from the control lot Le and in a percentage of 18.9% bigger compared to the average of the chickens from the experimental lot L_{exp}.
2. The accumulated consume of food (g/chicken) was bigger with 5.32% in the experimental lot (L_{exp}) compared to the control lot (Lc) tightly correlated with the evolution of the body weight; in exchange, the specific consume of food (kg c.f/kg increase) in this lot was reduced with 0,48% compared to the control lot (L_c)
3. The total losses of numbers represented 6.15% from the control lot L_c and 6.10% at the experimental lot L_{exp}. Most of the losses were registered, especially, in the first week of life of chickens, being of accidental nature. Other causes that determined these losses were enteritis and the coccidioses. Along the period of observation we did not register specific diseases.
4. The established values for EEF, in both lots, were situated over the level of 200 (222.61 in the control lot L_c and 236.60 in the experimental lot L_{exp}) In the experimental lot L_{exp}, we registered a higher value with 6.28% compared to the calculated value for the control lot L_c
5. In conclusion, we can appreciate the fact that, the administration in the broiler chickens studied from the experimental lot L_{exp} of some recipes of combined fodders without fodder additives proved to be successful, in the context of our attempt to ensure an ecological food for this category of birds.

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