STUDIES ON IMPROVING THE PERFORMANCE IN REARING THE ROSS-308 BROILER BY USING NATURAL BIOSTIMULATORS

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Abstract

In recent decades, more and more research has been done worldwide on the use of biostimulating products as dietary factors to increase weight gain and improve feed conversion to broiler chickens, as well as to preserve their condition. health and obtaining high quality carcasses.

In this paper we aim to analyze the productive performance of the Ross-308 hybrid. The biological material was represented by 100 commercial hybrids of ROSS-308 hens. The birds were divided into 2 batches of 50 individuals each (LM-control batch and LA-batch where the "Esstence" biostimulator was administered) and reared according to the specific technology. species, from the age of one day and up to 42 days. During the research, one of the morphological indicators followed was body weight, and at the end of the week, the daily feed gain was calculated. Other indicators followed were the average daily consumption and the food conversion ratio. Finally, the data were statistically processed using the Anova (Analysis of variance) program.

At the middle of the experiment (end of the 3rd week) the first batch (LM) had an average weight of 975.2g and the 2nd batch analyzed (LA), at this point in life exceeded the threshold of 1 kg, having an average body weight of 1119.3 g.

After the first week of life, the chicks in the control batch (LM) achieved an average daily gain of 21.73 g / head / day. The birds in this series had a total increase (42 days), an increase of 54.91 g / head / day. For the second batch (LA), the results were slightly better. Thus, the weight gain started from a value of 23.87 g / head / day (after the first 7 days), the average for this parameter being 63.60 g / head / day. At the end of the experiment, the average of the first batch was higher compared to that obtained in the second batch (LM> LA) 1.66 kg c.f./kg increase> 1.22 kg c.f./kg increase.

The final conclusion of our study is that the use of a good quality biological material, ensuring optimal microclimate conditions and good quality food, but also the administration of biostimulators helps to achieve good performance in growing Ross-308 hybrids for the production of meat.

Key words: biostimulator, broiler, ross, index

INTRODUCTION

In the context of a constantly growing human population, the current challenge is to ensure food security by obtaining and guaranteeing an increase in the production of food of animal origin of the highest quality.

In this social context, animal husbandry is taking on a new dimension, given the importance of animal products in the daily diet, some of which are even indispensable for certain categories of consumers; Naturally, poultry farming will also gain new perspectives focused, obviously, on sustainable development.

From a nutritional point of view, poultry perfectly fits the current consumer demand for a meat with low lipid content, but with a high degree of unsaturation of fatty acids and as low levels of sodium and cholesterol as possible.

Poultry can also be seen as a "functional food", which can provide bioactive substances with beneficial effects on human health, such as conjugated linoleic acid, vitamins and antioxidants [2], [3].

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Today, chickens and turkeys are slaughtered about half the time and almost double their body weight compared to what happened 50 years ago [1].

Studies show that fast-growing genetic variants are noted for a high incidence of spontaneous or idiopathic myopathies (such as deep pectoral muscle disease), but also an increased sensitivity to stress-induced myopathies, which can negatively affect the quality. meat [4], [5].

MATERIAL AND METHODS

The biological material was represented by 100 commercial hybrids of ROSS-308 chicken, purchased from a producer in our country. The birds were divided into 2 batches of 50 individuals each (LM-control batch and LA-batch in which the "Esstence" biostimulator was administered) and raised according to the species-specific technology, from the age of one day and up to 42 days.

During the research, one of the morphological indicators followed was body weight, so the entire herd was weighed individually, on the first day of each week using the electronic scale.

At the end of the week, the weight gain was calculated with the formula (Gf-Gi) / n where Gf represents the final weight and Gi the initial weight and n-number of days.

Other indicators followed were the consumption of combined feeder (average daily consumption and feed conversion index).

Finally, the data were statistically processed using the Anova (Analysis of variance) program.

RESULTS AND DISSCUSIONS

Live weight. On day 1, the average weight of the studied birds was 43.8 g with a minimum of 41.5 g and a maximum of 44.0 g within the LM batch and an average of 43.3 g with values in the range of 42.4-45.1 g for the LM batch.

At the middle of the experiment (end of the 3rd week) the first batch (LM) had an average weight of 975.2 g with values ranging between a minimum of 967.2 g and a maximum of 986.3 g. The second batch analyzed (LA), at this point in life exceeded the threshold of 1 kg, with an average body weight of 1119.3 g (minimum - 1104.5 g; maximum - 1131.2 g).

At the end of our experiment, the birds belonging to the LM batch recorded an average weight of 2351.1 g against the background of variation limits of 2289.4 g (minimum) and 2410.5 g (maximum). The second batch analyzed was highlighted by a slightly better average body weight, ie 2858.8 g (minimum - 2801.9 g; maximum - 2912.7 g) (tab. 1).

The values of the coefficient of variation (V% = 4.17-9.30) indicate a good homogeneity of the studied character (table 1).

Table 1 Live body weight of the studied birds

Age (weeks)	Statistical estimators							
	$\overline{X} \pm s_{\overline{x}}$ (g)		V%		Min (g)		Max (g)	
	LM	LA	LM	LA	LM	LA	LM	LA
0	43.8	43.3	9.11	6.89	41.5	42.4	44.0	45.1
1	195.9	210.4	7.85	4.65	180.4	197.6	207.4	218.9
2	448.3	501.1	9.30	4.17	439.5	489.8	459.2	515.4
3	975.2	1119.3	6.99	4.51	967.2	1104.5	986.3	1131.2
4	1441.1	1548.8	6.69	6.15	1430.1	1537.7	1457.8	1561.7
5	1891.1	2098.8	8.19	4.48	1878.2	2074.3	1911.3	2123.6
6	2351.1	2858.8	8.13	9.78	2289.4	2801.9	2410.5	2912.7

*LM-Control batch
*LA- batch in which the biostimulator was administered

Daily adn weekly feed gain.

At the end of each week the weight gain was calculated.

The analysis of the obtained data showed that after the first week of life, the chicks in the control batch (LM) achieved an average daily gain of 21.73 g / head / day. The value gradually increased reaching the end of the experiment at 65.71 g / head / day. The birds in this series had a total gain (42 days), an increase of 54.91 g / head / day.

Naturally, the weekly growth increase followed the same upward trend from 152.1 g / head / week after the first 7 days to 460.0 g / head / week at the end of the experience; the average for the total period being 384.55 g / head / week (table 2).

Table 2 Daily and weekly feed gain of the birds from batch LM

Age (days)	n	Body weight (g)		Weight gain		
		Start of the week	End of the week	Daily (g/head/day)	Weekly (g/head/week)	Cumulated (g/head/period)
1-7	50	43.8	195.9	21.73	152.1	152.1
8-14	50	195.9	448.3	36.06	252.4	404.5
15-21	50	448.3	975.2	75.27	526.9	931.4
22-28	50	975.2	1441.1	66.56	465.9	1397.3
29-35	50	1441.1	1891.1	64.29	450.0	1847.3
36-42	50	1891.1	2351.1	65.71	460.0	2307.3
Average				54.94	384.55	

For the second batch (LA), the results were slightly better. Thus, the weight gain started from a value of 23.87 g / head / day (after the first 7 days) and reached the end of the experience (after 42 days) at an increase of 108.57 g / head / day, the average for this parameter being 63.60 g / head / day, higher than the one registered in the control group. (LM). The weekly growth increase had at the end of the first week the value of 167.1 g / head / week, and at the end of the experience 760.0 g / head / week, registering the final average of 445.23 g / head / week (table 3).

Table 3 Daily and weekly feed gain of the birds from batch LA

Age (days)	n	Body weight (g)		Weight gain		
		Start of the week	End of the week	Daily (g/head/day)	Weekly (g/head/week)	Cumulated (g/head/period)
1-7	50	43.3	210.4	23.87	167.1	167.1
8-14	50	210.4	501.1	41.53	290.7	457.8
15-21	50	501.1	975.2	67.73	474.1	931.9
22-28	50	1119.3	1548.8	61.3	429.5	1361.4
29-35	50	1548.8	2098.8	78.57	550.0	1911.4
36-42	50	2098.8	2858.8	108.57	760.0	2671.4
Average				63.60	445.23	

Average daily consumption. For the first batch (LM) this parameter had values after the first week of 35.87 g / batch / day. The values gradually increased, reaching at the end of week 4 a result of 125.30 g / batch / day. Then the results oscillated around this value, reaching 133.14 g / batch / day in the 6th week.

In the case of the second batch (LA), the result after the first week was 33.64 g / batch / day, maintaining the same upward trend, so that at the end of the 4th week the value was 125.30 g / batch / day, and at the end of the experience a slightly better result than the first batch, more precisely 133.14 g / batch / day (fig. 1).

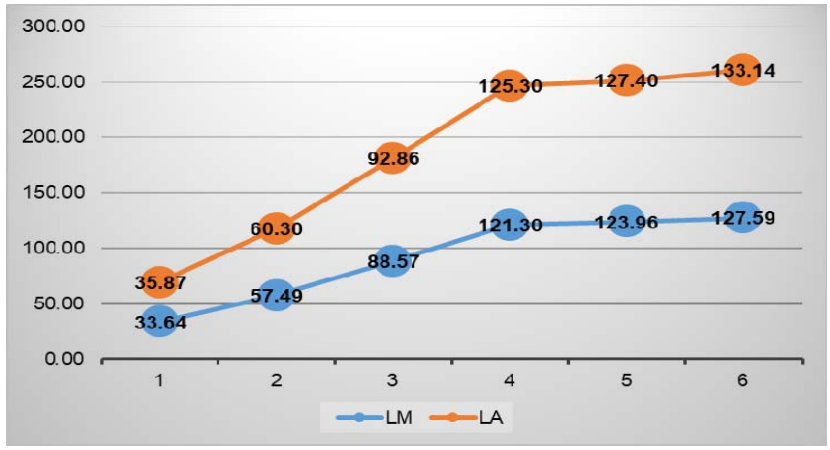

Fig. 1 Daily consumption

Food conversion index. In the first week of life of the birds, the index reached the value of 1.54 kg c.f./kg increase in the first batch and 1.50 kg c.f./kg increase in the second batch. The highest values were recorded at the end of the 6th week, 1.94 kg c.f. / kg increase in the case of the control batch (LM), and at the end of the 4th week, 2.04 kg nc / kg increase in the case of the second batch (LA).

At the end of the experiment, the average of the first batch was higher compared to that obtained in the second batch (LM> LA) 1.66 kg c.f./kg increase> 1.22 kg c.f./kg increase.

Table 4 Feed conversion ratio

Age (weeks)	Nr (heads)	Weight gain (g)		Individual consumption of combined feeder (g/head/week)		Feed conversion ratio (kg c.f./kg gain)	
		LM	LA	LM	LA	LM	LA
1	50	152.1	167.1	235.5	251.1	1.54	1.50
2	50	252.4	290.7	402.4	422.1	1.59	1.45
3	50	526.9	474.1	620.0	650.0	1.11	1.37
4	50	465.9	429.5	849.1	877.1	1.82	2.04
5	50	450.0	550.0	867.7	891.8	1.92	1.62
6	50	460.0	760.0	893.1	932.0	1.94	1.22
Average						1.66	1.22

*LM-Control batch
*LA- batch in which the biostimulator was administered

CONCLUSIONS

The final conclusion of our study is that the use of a good quality biological material, ensuring optimal microclimate conditions and good quality food, but also the administration of biostimulators helps to achieve good performance in growing Ross-308 hybrids for the production of meat.

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