

RESEARCHES REGARDING THE INFLUENCE OF SOME FODDER ADDITIVES ON THE PRODUCTION PERFORMANCES OF BROILER TURKEY

CERCETĂRI PRIVIND INFLUENȚA UNOR ADITIVI FURAJERI ASUPRA PERFORMANȚELOR DE PRODUCȚIE LA PUII DE CURCĂ BROILER

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The researches have been made on a number of 150 broiler turkey juveniles, the Euro FB hybrid, assigned in 3 batches of 50 juveniles/batch for a period of 42 days (the growth stage). In the feed of batch 2 (E) was added organic Selenium (Sel-Plex) 0.03% and in the feed of batch 3 (E) was added the prebiotic Bio-Mos 0.1%. The turkey broilers of the three experimental batches were weighted at the beginning (at the age of one day) and each week following: the evolution of body mass, the daily average body gain, the daily average consumption and the specific consumption. The use of Sel-Plex in the feed of batch 2 (E) and the use of Bio-Mos in the feed of batch 3 determined the growth of the body weight at delivery date (at the age of 42 days) with 31.45 % at batch L2 (E) and 16.44 % at batch L3 (E), the increase of daily average body gain with 32.35% respective 16.93% and the allowance of the specific consumption with 27.96% at batch L2 (E) and 12.91 % at batch L3 (E) comparative with batch L1 (M). The results obtained confirm the positive influence of Sel-Plex and Bio-Mos on the main production and consumption parameters of broiler turkey juveniles.

Key words: prebiotic, Bio-Mos, organic Selenium, alimentation, turkey juveniles

Introduction

Once with the interdiction of using the growth promoters with antibiotics (AGP) in the European Union, promoters which could have a significant effect on the broilers performances on just 72% of all cases (3 out of 4 cases) (Rosen, 1996), it began necessary the finding of new natural alternatives that can be used in broilers nutrition.

At turkeys, Bio-Mos proved to be a very efficient alternative to growth promoters with antibiotics. In one comparative study on the performances obtained by turkeys fed with antibiotics and Bio-Mos, Parks et. all (2000) observed an improvement of the specific consumption on the Bio-Mos batch comparative with the control batch and the batch treated with Flavomycin.

The experiments of Sims et al (1999) and Fritts and Waldroup (2000) showed the improvement of the body weight, a lower specific consumption and a lower mortality percent on the Bio-Mos batch comparative with the control batch, the obtained values being similar with the values obtained by using antibiotics and some acidifiants like the lactic acid.

Regarding the organic minerals (Sel-Plex), they have a greater bioavailability and a greater biological activity comparative with their inorganic forms.

The results obtained by Leng et al (2003) proved the favourable effects of Sel-Plex added in broiler turkeys feed. Sel-Plex is an organic form of Selenium on yeast support. The yeast has the ability to favour the formation of Selenium tissular deposits, improving the health status of turkeys and the amount of time in which turkey meat can be kept in custody.

The researches of Krikova et al (2003) and Daun and Akesson (2004) showed that Selenium can be deposited in thigh muscles of turkey juveniles of 109.5 ng/g and 67.4 ng/g in chests muscles, twice the amount of Selenite in the same dosage.

The goal of this research was the knowledge of the effects of the prebiotic Bio-Mos and of organic Selenium (Sel-Plex) administered in broiler juveniles turkeys feed on the production performances (body weight, the achieved body gain, the fodder consumption and the specific consumption).

Material and Methods

The researches have been made on a number of 150 broiler turkey juveniles, the Euro FB hybrid, assigned in 3 batches of 50 juveniles/batch for a period of 42 days (the growth stage).

The juveniles were kept in the same microclimate conditions, same density and same alimentation. The experimental period was 42 days, meaning the growth stage.

The juveniles were fed with granulated fodder with the same energetic and protean level: 2829 Kcal EM/kg and 28.45 % PB. The feed of batch 2 (E) was supplemented with Sel-Plex 0.03%. The feed of batch 3 (E) was supplemented with Bio-Mos 0.1%.

During the experiment were followed: the body weight evolution, the average daily body weight gain, the average daily consumption and the specific consumption.

The experimental data have been analysed with the "Student" test.

Results and Discussions

The data regarding the evolution of the body weight throughout the experimental period is presented in table no. 1:

Table 1

The body weight evolution throughout the experimental period

Issue	UM	L1 (M)	L2(E)	L3(E)
at population date	g	61.86	62.00	61.54
	%	100.00	100.23	99.48
7 days	g	160.21	162.00	154.83
	%	100.00	101.12	96.64
14 days	g	396.83	396.66	381.89
	%	100.00	99.96	96.23
21 days	g	642.85	788.52	748.04
	%	100.00	122.66	116.36
28 days	g	1100.15	1334.18	1249.40
	%	100.00	121.27	113.56
35 days	g	1607.33	2083.42	1907.00
	%	100.00	129.62	118.64
42 days	g	2199.60	2891.50	2561.32
	%	100.00	131.45***	116.44***

*** -(p<0.001)-highly significant differences

Analyzing the results one can see that the performances of batches L2 E (Sel-Plex) and L3 E (Bio-Mos) were better than the results of Control batch. The final body weight of the batch L2 E was 31.45% higher and 16.44% higher at batch L3 E than the final body weight of Control group.

Table 2

The average daily body gain throughout the experimental period

Issue	UM	L1 (M)	L2(E)	L3(E)
First week (1-7 days)	g	14.05	14.28	13.33
	%	100.00	101.63	94.87
Second week (8-14 days)	g	33.80	33.52	32.44
	%	100.00	99.17	95.98
Third week (15-21 days)	g	35.14	55.98	52.30
	%	100.00	159.30	148.83
Fourth week (22-28 days)	g	65.32	77.95	71.62
	%	100.00	119.33	109.64
Fifth week (29-35 days)	g	72.45	107.03	93.94
	%	100.00	147.72	129.66
Sixth week (36-42 days)	g	84.61	115.44	93.47
	%	100.00	136.43	110.47
The average value	g	50.90	67.37	59.52
	%	100.00	132.35 ***	116.93***

*** -(p<0.001)-highly significant differences

Regarding the average daily body gain, the highest value has been recorded at batch L2 E, 67.37 g, followed by batch L3 E - 59.52 g. The Control group had an average daily body gain of just 50.90 g (table 2). In relative values, the average daily body gain of batch L2 E was 32.35 % higher then the Control group and 15.42% higher then batch L3 E. The average daily body gain of batch L3 E was 16.93% higher then the Control group.

From the data presented in table 3 it can be observed that from the point of view of the average daily fodder consumption, the obtained values were relatively closed, the lower consumption being registered at batch L2 E, followed by batch L1 M (Control group) and batch L3 E.

Table 3

The evolution of the average daily fodder consumption

Issue	UM	L1 (M)	L2(E)	L3(E)
First week (1-7 days)	g	19.64	18.57	19.45
	%	100.00	94.55	99.05
Second week (8-14 days)	g	40.32	37.74	41.88
	%	100.00	93.60	103.88
Third week (15-21 days)	g	74.40	71.42	75.98
	%	100.00	96.00	102.13
Fourth week (22-28 days)	g	107.14	102.85	109.42
	%	100.00	96.00	102.13
Fifth week (29-35 days)	g	142.85	137.14	145.89
	%	100.00	96.00	102.13
Sixth week (36-42 days)	g	186.93	175.71	186.93
	%	100.00	94.00	100.00
The average value	g	94.89	90.58	96.59
	%	100.00	95.45	101.79

From the table 4 it results that once with the advancement in age of juveniles, they consumed a variable amount of fodder to gain one kilogram of body mass. The lowest fodder consumption had been registered in the second week when batch L1 M needed 1.19 kg of fodder to gain 1 kg of body mass while batch L2 E ate 1.13 kg and batch L3 E 1.29 kg of fodder. The highest fodder consumption was registered in the sixth week – 2.21 kg of fodder batch L1 M and 1.52 kg at batch L2 E.

Table 4

The evolution of the specific consumption throughout the experimental period

Issue	UM	L1 (M)	L2(E)	L3(E)
First week (1-7 days)	kg	1.39	1.30	1.48
	%	100.00	93.52	106.47
Second week (8-14 days)	kg	1.19	1.13	1.29
	%	100.00	94.96	108.40
Third week (15-21 days)	kg	2.11	1.27	1.45
	%	100.00	60.18	68.72
Fourth week (22-28 days)	kg	1.64	1.32	1.52
	%	100.00	80.48	92.68
Fifth week (29-35 days)	kg	1.97	1.28	1.55
	%	100.00	64.97	78.68
Sixth week (36-42 days)	kg	2.21	1.52	2.0
	%	100.00	68.77	90.49
The average value	kg	1.86	1.34	1.62
	%	100.00	72.04	87.09

The specific consumption throughout the experimental period was 1.86 kg/kg body weight gain for batch L1 M; 1.34 kg/kg body weight gain for batch L2 E and 1.62 kg/kg body weight gain for batch L3 E. The specific consumption was 27.96 % lower at batch L2 E and 12.91 % lower at batch L3 E then the Control group, batch L1 M.

Conclusions

1. The use of organic minerals (Sel-Plex) and prebiotics (Bio-Mos) can lead to the improvement of the main production and consumption parameters at broiler turkey juveniles.
2. At the end of this experiment, the highest body weights were measured at batch L2 E (2.891.50 g/head) and L3 E (2.561.32 g/head). The lowest average body weight had been measured at Control group, batch L1 M, 2.199.60 g/head.
3. The use of organic Selenium 0.03 % and Bio-Mos 0.1 % lead up to the improvement of daily average body mass gain with 32.35 % at batch L2 E and 16.93 % at batch L3 E comparative with batch L1 M.
4. The allowance of specific consumption with 27.96 % at L2 E and 12.91 % at L3 E and the superior body mass gain of the two experimental groups,

- L2 E and L3 E towards the Control group, batch L1 M, showed the improvement of the bioconversion rate of feed as a result of Sel-Plex and Bio-Mos addition in fodder
5. The use of organic minerals (Sel-Plex) and prebiotics (Bio-Mos) can lead to the improvement of the main economical parameters and to a better and more economical activity in the field of broiler turkey rearing
 6. Due to the improvement of the main bio-productive parameters of broiler turkey juveniles showed by the results obtained, we recommend the use of Sel-Plex and Bio-Mos in turkeys nutrition.

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