Effects of Bio-Mos supplementation on the performance of broiler chicks: a Serbian study

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Abstract
Arbor Acres x Ross 308 (mixed sex) chicks assigned in two groups were housed in deep litter pens housing 70 chicks per replicate (4 replicates per treatment) at16 chicks/m2. Feed was corn/soybean meal based, provided as starter (week 1-3), finisher I (week 4-5) and finisher II (week 6). Birds from the experimental group received dietary supplementation of Bio-Mos at 1, 0.75 and 0.5 kg/T for the starter, finisher I and finisher II periods, respectively. The general performance of the broilers in this trial was very high according to the average local performance data. Nevertheless, body weight at 42d was numerically higher for the Bio-Mos treatment (2344 versus 2326 g). Feed conversion ratio was decreased by 6 points from 1.89 to 1.83. Mortality was on the average low, being 1.1 % for the control and 0.7 % for the treatment. EPEF (European Poultry Efficiency Factor) increased from 289.9 to 302.8.

Introduction
The positive effect of Bio-Mos on broiler performance can be expressed through gut health modulation and influencing gut structure (Loddi et al., 2002) or by adsorpyion of pathogenic bacteria containing Type 1 fimbrae, sometimes referred to as the "receptor analog" mechanism (Oyofo et al., 1989; Spring et al., 2000). That has been proven substantially during the past 10 years (Hooge, 2004). However, confirmation of these positive effects under different conditions like broiler genetic, disease pressure, management,… needs to be an ongoing process in order to continuously evaluate the efficacy of Bio-Mos in the field.

The objective of this study was to examine the effects of dietary supplementation of Bio-Mos (Alltech Inc., USA) on the broiler chicks performance and evaluate its efficiency as a stimulator of the technical performance. Based on the obtained results and in the framework of similar studies conducted worldwide, a conclusion can be drawn with regards to the efficiency, i.e. the justification for the usage of Bio-Mos product under conditions occuring in Serbia & Montenegro.

Material and Methods
The trial was conducted at the Novi Sad university farm. The trial involved Arbor Acres x Ross 308 (mixed sex) chicks: assigned in two groups with 4 replicates per treatment. The birds were housed in deep littered battery pens housing 70 chicks per replicate, with population density of 16 chicks/m2. All chicks were fed the same feed (corn/soybean meal based; Table 1), formulated to meet nutrient requirements. Chickens were given starter (week 1-3), finisher I (week 4-5) and finisher II (week 6) until 42 days of age. Birds from the experimental group received dietary supplementation of Bio-Mos at 1, 0.75 and 0.5 kg/T for the starter, finisher I and finisher II periods, respectively.

Table 1: Composition of the feeds

	Starter	Finisher I	Finisher II
Corn	52	58,2	61,5
Soyameal (44% CP)	27	28	29
Sunflower meal (42% CP)	6	0	0
Fishmeal	4,5	2,5	0
Yeast	2	2	0
Oil	5,2	5,5	5,5
Limestone	1	1	1
Dicalciumphosphate	1	1,4	1,8
Salt	0,2	0,2	0,2
Methionine	0,1	0,1	0
Premix	1	1	1
Total	100	100	100
Crude protein (%)	22,85	20,17	18,23
Crude fiber (%)	4,28	3,73	3,81
ME MJ/kg	13	13,4	13,4
Lysine (%)	1,22	1,14	0,98
Methionine (%)	0,55	0,44	0,29
Calcium (%)	0,97	0,95	0,93
Total P (%)	0,7	0,67	0,65

Results and discussion

The general performance of the broilers in this trial was very high according to the average performance measured in this location. Nevertheless, body weight at 42d was numerically higher for the Bio-Mos treatment (2344 versus 2326 g). As feed consumption was lower for the Bio-Mos treatment group, feed conversion ratio was decreased by 6 points (from 1.89 to 1.83). Mortality was on the average low, being 1.1 % for the control and 0.7 % for the treatment. EPEF (European Poultry Efficiency Factor) increased from 289.9 (control) to 302.8 (Bio-Mos). Although none of these differences were significant, they are in line with the results of the meta-analysis of the effect of Bio-Mos on broiler performance as performed by Hooge (2004).

Conclusion

At 42 days the technical performance data indicate a 0.8 % improvement in growth, 3.2 % improvement in FCR and 4.5 % in EPEF. These values were in line with the observation made in the meta-analysis and holo-analysis conducted in recent years.

These results point out that Bio-Mos plays an important role in processes of digestion and absorption, leading to improved performance. Bio-Mos has in this study shown its consistent contribution to increase broiler production.

Table 2: Technical performance

	Body weight (g)	FCR	Mortality (%)	EPEF*
Control	2326	1,89	1,1	290
Bio Mos	2344	1,83	0,7	303
Difference	17,5	-0,06	-0,37%	13
Difference,%	0,8%	3,2%	34,6%	4,5%

* EPEF = European Poultry efficiency factor = BW (kg) x (100-mortality as %) x 100 / FCR x trial duration (d)

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