



Effect of prebiotic (Bio-MOS) on broiler breeder performance and immunity system

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Objectives: Prebiotics, non-digestible feed ingredients, have selective effects on the intestinal microflora of birds. Mannan-oligosaccharide (MOS) is derived from the cell wall of *Saccharomyces cerevisiae*, is neither hydrolyzed by endogenous digestive enzymes nor absorbed by host. It has been claimed that the benefits of MOS based on its specific properties such as modification of the intestinal flora, reduction in turnover rate of the intestinal mucosa and modulation of the immune system. The purpose of this experiment was to examine the effects of prebiotic (Bio-MOS) on broiler breeder performance and immunity.

Materials & Methods: The breeder trial was conducted in an experimental house, split into 10 pens, with 450 females and 45 males in each pen. All birds were the same crossbreed (Cobb 500). The experiment lasted from 26 to 32 weeks of age. The experimental design was CRD with 2 treatments and 5 replicates. Treatments contained 2 levels of Bio-MOS (Bio-MOS[®], Altech Inc. USA), 0 and 1 kg/ton of feed. In order to evaluate blood antibody titer against influenza and Newcastle virus, blood samples were collected from wing veins of hens at 32 weeks. Data from this experiment were analyzed by analysis of variance using GLM procedure (SAS institute, 2001).

Results & Conclusion: Bio-MOS increased breeder's weight so it reduced their nutrient requirements, however it was not significantly. Egg production percent was similar between two treatments ($P>0.05$). There was no any significant difference between bird's egg yolk weight and albumen weight. The percent of double yolked egg was reduced in birds fed with prebiotic ($P<0.05$). Antibody titer against influenza was better in birds fed with prebiotic. This is related to the capacity of MOS to bind pathogenic organisms such as Salmonella and Escherichia coli or to stimulate the immune system. Cell receptors and the antigenic determinants of several pathogenic bacteria contain mannans. Some mannan-oligosaccharides are added to vaccines as adjuvants for their immune stimulation enhancing effect and prolonging of the immune response. There were not any differences between bird's blood antibody titer against Newcastle virus. The results of this study showed that prebiotic Bio-MOS improved breeder's immunity without any adverse effect on their performance, so using prebiotic Bio-MOS may have economical benefits in breeder's production.

Keywords: Prebiotic, Broiler Breeder, Performance, Immunity