

# The Effect of Prebiotic and Probiotic Supplementation on Intestinal Maturity in Turkey Poults

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The turkey industry operates by utilizing the least feed possible to achieve the largest and highest quality product attainable. Currently, feed grade antibiotics are used to increase the feed conversion ratio, or how much feed is required per pound of gain. However, antibiotics have become less attractive to consumers and several countries have banned them in meat production completely due to the potential for creating antibiotic resistant bacteria. Two potential alternatives to enhance growth are probiotics and prebiotics. The purpose of this study was to determine the efficacy of two probiotics, *Bacillus subtilis* and *Bacillus licheniformis* and one prebiotic, a mannanoligosaccharide (MOS). Four groups of turkey poults were fed a commercial diet and three were supplemented with one of the feed additives. Turkeys were euthanized at 11 days post hatch and samples of the small intestine were collected to assess intestinal maturity. Several parameters were examined to determine if any of the treatments accelerated intestinal maturity, the most important being the density of goblet cells, the mucous producing cells within the small intestine. A higher goblet cell density will create a thicker layer of mucous which protects the body from bad bacteria and provides binding sites for good bacteria. The prebiotic treatment increased goblet cell density compared with the control but there were no consistent effects with the two commercial probiotics.