Effects of NeutraPath, a newly developed formulated feed additive, on the performance of broiler chickens with experimental necrotic enteritis.

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Two studies were performed to evaluate the effects of a formulated feed additive, NeutraPath, compared with a commercial antibiotic, BMD, on the growth performance of broiler chickens challenged with experimental necrotic enteritis (NE). In the 28-d experiments, 224 (Study 1) and 240 (Study 2) 1-d-old male Cobb 500 broilers were randomly blocked and assigned to one of 4 treatments: 1) non-challenged control (CON); 2) challenged control (CH); 3) CH birds fed BMD (55 ppm bacitracin); and 4) CH birds fed NeutraPath, a proprietary blend of ingredients that has antimicrobial, disruptive quorum-sensing and enterosorbent properties. There were 4 blocks and 7 (Study 1) or 8 (Study 2) pens with 8 birds/pen. Each bird received 5,000 Eimeria maxima oocysts on d 13 (Study 1) or d 14 (Study 2). Challenged birds received ~10^8 cfu of Clostridium perfringens on d 18, 19 and 20 (Study 1) or d 19, 20 and 21 (Study 2). Intestines from 3 birds/pen were examined for NE lesions on d 21. Differences among groups were tested using one-way ANOVA. Compared with CH control, NeutraPath significantly reduced mortality (54% vs. 27% and 26.6% vs. 4.7% for Studies 1 and 2, respectively; $P < 0.05$). Mortality among NeutraPath-treated birds did not differ from BMD-treated in either study, and was not statistically different from CON birds in Study 2. Necrotic enteritis-related lesion score of the NeutraPath group was significantly lower than the CH control (0.6 vs. 1.2, $P < 0.05$) and was not different from the BMD treatment in Study 1. However, in Study 2, no statistical difference in lesion scores was observed among CH control, BMD and NeutraPath groups. During the post-challenge period and the overall 28-d period of both studies, challenged birds fed NeutraPath had greater weight gain compared with the CH control ($P < 0.05$) and did not significantly differ from BMD-treated birds in either study. Feed intake was not significantly different between NeutraPath and BMD groups for either study. In both studies, birds receiving NeutraPath had significantly improved FCR compared with the CH control ($P < 0.05$) but did not differ from birds treated with BMD during either the post-challenge phase or overall. The results of these 2 studies demonstrate that NeutraPath confers therapeutic benefits that are comparable to BMD in improving performance of broiler chickens challenged with experimental necrotic enteritis. As such, NeutraPath can be an effective, natural alternative to in-feed antibiotics.

Key Words: necrotic enteritis, alternative to in-feed antibiotics, mortality, weight gain, feed conversion ratio