

**Effect of corn distiller's dried grains with solubles (DDGS) and/or antimicrobial regimen on the ability of growing pigs to resist a *Lawsonia intracellularis* challenge.**

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Two experiments were conducted to determine if including DDGS in the diet reduces the incidence and/or severity of infection in growing pigs after a *L. intracellularis* challenge. In Experiment 1, eighty 17-d old weaned pigs were blocked by sex and weight and randomly allotted to one of four treatment groups: negative control (NC) - unchallenged, corn-soy diet; positive control (PC) - challenged, corn-soy diet; 10% DDGS diet (10D) - challenged; and 20% DDGS diet (20D) - challenged. Challenged pigs were orally inoculated with  $1.5 \times 10^9$  *L. intracellularis* after a 4-wk pre-challenge period. On d 21 post-challenge, pigs were euthanized, lesions of intestinal mucosa was evaluated, and ileal tissue samples were analyzed by immunohistochemistry to determine presence and proliferation of *L. intracellularis*. Feeding DDGS did not beneficially affect lesion length, prevalence, proliferation of *L. intracellularis*, or severity of lesions ( $P > .10$ ). In Experiment 2, 100 pigs were managed similarly to pigs in Experiment 1, except that the dosage of *L. intracellularis* was reduced to  $8.0 \times 10^8$ . Treatments consisted of NC and 4 challenge groups: PC, 10D, PC + AR (antimicrobial regimen), and 10D + AR. For AR treatments, diets contained 30 g/ton BMD<sup>®</sup> continuously, with Aureomycin<sup>®</sup> pulsed at 500 g/ton from d 3 pre-challenge to d 11 post-challenge. Feeding DDGS reduced ileum and colon lesion length and prevalence ( $P < .05$ ), and reduced severity of lesions in the ileum ( $P < .05$ ) and colon ( $P < .10$ ) compared to other challenged pigs. Pigs fed AR had a lower prevalence and severity of lesions in the jejunum ( $P < .05$ ), and tended to have reduced total tract lesion length ( $P = .11$ ). No differences in length, severity, or prevalence of lesions were observed in 10D + AR pigs ( $P > .15$ ), but fecal shedding of *L. intracellularis* was reduced on d 14 post-challenge ( $P < .05$ ). No dietary effects on fecal shedding were observed by d 20 post-challenge ( $P < .10$ ). Proportion of cells infected with *L. intracellularis* was reduced when DDGS ( $P = .05$ ) or antimicrobials ( $P = .10$ ) were fed. Dietary inclusion of DDGS may provide some benefit to growing pigs subjected to a moderate ileitis challenge, similar to a currently approved antimicrobial regimen, but not under conditions of a severe *L. intracellularis* challenge.

Key Words: Pig, Ileitis, Distiller's Dried Grains with Solubles