

Effects of distiller's grain on fecal prevalence and in vitro growth of *E. coli* O157.

M.E. Jacob*, J.T. Fox, J.S. Drouillard, and T.G. Nagaraja, *Kansas State University, Manhattan.*

The objective was to determine effects of feeding distiller's grains (DG) on prevalence of *E. coli* O157 in feedlot cattle. Cattle ($n = 379$) were allocated to one of three treatments: steam-flaked corn (SFC) with 5% corn silage and 25% dried DG (DDG), SFC with 15% corn silage and 25% DDG, or SFC with 15% corn silage and no DDG. Cattle were fed in pens containing 14 to 16 animals, with 8 pens (replications) per treatment. From each pen, 10 pen-floor fecal samples were collected weekly for 12 wk and were cultured for *E. coli* O157. Cattle fed DDG with 5 or 15% corn silage had a higher ($P < 0.05$) prevalence of *E. coli* O157 than those fed no DDG. No differences ($P > 0.05$) in prevalence were observed between cattle fed DDG and either 5 or 15% corn silage. A second study was conducted to assess effects of DDG on growth of *E. coli* O157 in vitro (i.e., fermentations with ruminal or fecal microbial inoculum). Rumen fluid and feces were collected from two ruminally-cannulated steers fed high-grain diets containing 0 or 25% DDG. Fermentations (in duplicates) with 0, 0.5, 1, or 2 g of DDG (substrate) were repeated on 2 d. Each fermentation was inoculated with naladixic acid resistant (*NalR*) *E. coli* O157 and samples were removed at 0, 6, 12, and 24 h to determine concentrations of *NalR E. coli* O157. At 24 h, fecal fermentations with 2 g DDG had higher ($P < 0.05$) concentrations of *NalR E. coli* O157 than 0, 0.5, or 1 g DDG. In fermentations with ruminal inoculum, the 24 h incubations with 0.5 g DDG had a higher ($P < 0.05$) concentration of *NalR E. coli* O157 than 0, 1, or 2 g DDG. Fermentations with 0 g DDG had higher ($P < 0.05$) *NalR E. coli* O157 concentrations than 1 or 2 g DDG. The source of ruminal or fecal microbial inoculum (DDG or no DDG) had no effect on concentrations of *E. coli* O157. The results suggested inclusion of DDG in high-grain diets to have the potential to increase fecal shedding of *E. coli* O157.

Key Words: *E. coli* O157, Distiller's Grains, Cattle