

**Impact of vaccination on the incidence of liver abscesses in natural-fed finishing cattle.**

J.T. Fox<sup>1</sup>, D.U. Thomson<sup>1\*</sup>, N.N. Lindberg<sup>2</sup>, K. Barling<sup>3</sup>

<sup>1</sup>Kansas State University College of Veterinary Medicine, Manhattan, KS

<sup>2</sup>Progressive Beef Consulting Service, Great Bend, KS

<sup>3</sup>Novartis Animal Health US, Inc., College Station, TX

**\*Corresponding author: 1800 Denison Ave., Manhattan, KS 66506; [dthomson@vet.ksu.edu](mailto:dthomson@vet.ksu.edu)**

## Abstract

A blinded clinical trial was conducted with the objective of determining the ability of vaccines to reduce liver abscess incidence in natural-fed cattle as well as evaluating the impact of liver abscesses on performance and carcass characteristics. Feedlot cattle (N = 1,307; initial BW =  $279 \pm 32$  kg) were randomly assigned to one of three treatments. Treatments were control (no vaccine), vaccination with a *Fusobacterium necrophorum* bacterin or vaccination with an *Arcanobacterium pyogenes-Fusobacterium necrophorum* toxoid. Vaccines were administered to animals in accordance with label directions. Cattle were fed a series of 4 step-up diets and a finishing diet consisting of 73% steam-flaked corn and 13% roughage (AF basis). Cattle were selected for harvest on a weekly basis based upon phenotypic evaluation of finish. At harvest, livers were scored following the Elanco system: 0, no abscesses evident; A-, one or two small abscesses or scars; A, two to four well-organized abscesses less than one inch (2.5 cm) in diameter; or A+, one or more large active abscesses greater than one inch (2.5 cm) in diameter. Incidence of liver abscesses (56%) and severe (A and A+ scores) liver abscesses (39%) was relatively high in this study. Data were analyzed with either general linear or general linear mixed models. Incidence and severity of liver abscesses differed among feedyard lots of cattle. No differences were observed ( $P > 0.60$ ) between treatments with regard to the incidence of liver abscesses, incidence of severe liver abscesses, or liver abscess score. Initial BW, 60-d BW, 60-d ADG, total DOF, HCW, YG and QG were not different ( $P > 0.10$ ) among treatments. Cattle with liver abscesses at harvest tended ( $P < 0.10$ ) to have lower 60-d ADG. Liver abscess present at harvest increased ( $P = 0.02$ ) total DOF, but this difference (2 days) was somewhat minor. Severe liver abscesses reduced ( $P < 0.01$ ) HCW and increased the number grading USDA Select instead of USDA Choice ( $P = 0.01$ ). In conclusion, we did not observe any treatment difference

in liver abscess incidence or severity. We did identify some important differences in performance and carcass parameters between cattle with and without liver abscesses at harvest.