

Evaluating the Effects of Vaccine-Induced Stress on Productivity

Elanco Study No. TR-13

Study overview

Although vaccine-related stress can be difficult to measure in cattle, appetite is one of the more useful indicators researchers can monitor to determine whether an animal is stressed. It has been shown that vaccination can have a significant negative effect on feed intake.^{1,2}

This field trial was conducted to compare post-vaccination feed intake for cattle administered Titanium[®] 5 with that of cattle receiving a sterile saline solution.

Background Information

- Upon arrival, 46 Angus steers of similar size were fed for 39 days to acclimate them to the pens and feeders
 - Seven days before the study began, they were switched from a receiving ration to a finishing ration
- Cattle ate from a single feeder activated by a computer chip unique to each animal, enabling measurement of individual-animal feed consumption
- Fresh water was available ad libitum
- Cattle were assigned randomly to two treatment groups and treated on Day 0:
 - 1) Titanium 5 administered intramuscularly³ (IM) according to label directions
 - 2) Sterile saline solution administered IM
- Researchers measured individual daily feed intake:
 - Day -10 through Day -1 to establish baseline feed intake
 - Day 1 through Day 29 to compare results between treatment groups
- Daily feed consumption was calculated by subtracting the amount of ration removed from the total ration delivered during the day
- Titanium 5 is a modified-live virus vaccine that protects against bovine viral diarrhea (BVD) virus, types 1 and 2, infectious bovine rhinotracheitis (IBR), parainfluenza₃ (PI₃) and bovine respiratory syncytial virus (BRSV)

Study results

Table 1. Mean dry matter intake (lbs)

Days post-vaccination	Titanium 5	Control (saline solution)
Days 1-4	26.8 ^a	26.1 ^a
Days 1-5	26.9 ^a	26.3 ^a
Days 1-10	26.6 ^a	26.4 ^a
Days 1-29	27.0 ^a	26.9 ^a

^aDifferent superscripts within each row indicate statistical significance ($P < 0.05$)

Key findings

Vaccination with Titanium 5 did not have a negative effect on feed intake.

¹Chirase, N. K., L. W. Greene, G. D. Graham, and J. M. Avampato. 2001. Influence of clostridial vaccines and injection sites on performance, feeding behavior and lesion size scores of beef steers. *J. Anim. Sci.* 79(6):1409-1415.

²Stokka, G. L., A. J. Edwards, M. F. Spire, R. T. Brandt, Jr., and J. E. Smith. 1994. Inflammatory response to clostridial vaccines in feedlot cattle. *J. Am. Vet. Med. Assoc.* 204(3):415-419.

³At the time this research was conducted, label directions for Titanium 5 allowed IM administration. Current label directions say to inject the vaccine subcutaneously.

The label contains complete use information, including cautions and warnings. Always read, understand and follow the label and use directions.

Do not vaccinate within 21 days of slaughter.

