



BEEF CATTLE RESEARCH UPDATE

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Feeding Behavior as a Predictor of Bovine Respiratory Disease in Feedlots

Bovine respiratory disease (BRD) is the most important health concern in the feedlot industry. Diagnosis of BRD in feedlots typically relies on visual appraisal. Canadian researchers evaluated the associations between timing of visual detection of BRD and daily feeding behavior.¹ In this study, 213 auction-derived, spring-born, mixed-breed beef steers initially weighing 648 lb were placed on feed in early November at a southern Alberta commercial feedlot equipped with an automated feed bunk monitoring system. Detailed health and feeding data were collected on the steers for 35 days after arrival. An electronic monitoring system recorded presence of the steers at the feed bunk by scanning a radio frequency ear-tag at 1 second intervals, enabling measurement of individual bunk attendance frequency, feeding time (seconds), and intake during each feed bunk visit. Meals were defined as feeding events that were interrupted by less than 5 minutes.

The cattle were visually monitored every morning and noon for the following visual signs of BRD: reluctance to move, crusted nose, nasal or ocular discharge, drooped ears or head, and gaunt appearance. Pulled steers were run through a chute for physical examination, measuring and recording rectal temperature, and treatment. Steers were treated with Baytril® (Bayer Animal Health) if their rectal temperature was $\geq 104^{\circ}\text{F}$ or if temperature was $< 104^{\circ}\text{F}$ but severe signs of sickness (i.e., labored breathing, severe depression) were present. If clinical signs reappeared (or were still apparent) after 4 days, the cattle were treated with Nuflo® (Merck Animal Health). Steers were returned to their home pen without treatment if temperature was $< 104^{\circ}\text{F}$ and no severe sickness was noticed in the treatment chute.

It was reported that within 35 days after arrival, 76% of the steers had one or more clinical signs of BRD. Cattle which consumed more feed at each meal, visited the bunk more frequently, and had more times between meals were less likely to develop BRD 7 days before visual identification of BRD symptoms ($P < 0.001$). The risk of BRD decreased by at least 22%, with a 0.22 lb increase of intake per meal throughout the week before pulling. In addition, steers that spent more time feeding per meal were less likely to exhibit BRD visual symptoms during the following week. These authors reported that steers which were healthy over the entire 35-day period ate an average of 9.7 minutes per meal with a frequency of approximately 12 meals per day and an average meal size of 2.2 lb. Whereas, BRD steers ate an average between 7.6 and 8.9 minutes per meal with a frequency of 9.7 to 12.5 meals per day, and an average meal size of 0.88 to 1.10 lb during the 7 day before pulling. These researchers concluded that “mean intake per meal as well as mean meal time and frequency of meals had merit to predict the hazard of BRD in feedlot cattle 7 days before visual detection and could be used to develop predictive algorithms for commercial application in feedlot settings.”

Effect of Implant Timing on Health and Performance of Newly Received Stocker Cattle

Many stressors influence post-arrival health of cattle at a stocker or feedlot facility including weaning, marketing, transportation, commingling, handling, genetics, previous nutrition, and health history. Researchers with West Texas A&M University and the University of Arkansas hypothesized that these stressors might reduce the efficacy of growth implants administered on arrival at the facility.² Thus, an experiment was conducted to determine the effects of growth implant timing on the health, performance and immunity in newly received beef calves utilized in a 120 day receiving/grazing stocker system. In this study, male beef cattle (447 lb initial weight) were received at the University of Arkansas Livestock and Forestry Research Station near Batesville, AR, and assigned to the following four treatments: 1) negative control, no growth implant, 2) Synovex-S growth implant administered on-arrival (day 0), 3) Synovex-S administered on day 14, and 4)

Synovex-S administered on day 28. The receiving phase of the study was 42 days followed by a 78 day grazing phase.

In this study, no differences in average daily gain (ADG) between the treatments were observed during the receiving period. However, during the grazing phase and overall study, ADG was greater ($P < 0.01$) for implanted treatments compared to non-implanted cattle. It was also reported that during the first 21 days of the grazing period that cattle implanted later in the receiving period (days 14 and 28) gained weight faster ($P < 0.01$) than controls. Over the last 29 days of the grazing phase, cattle implanted on day 28 gained more rapidly ($P < 0.01$) than cattle that were not implanted or were implanted on day 0 or 14 ($P > 0.12$), indicating that the growth response from implants administered early in the receiving period had decreased at this time, whereas implants administered later (day 28) in the receiving period remained active. Overall ADG did not differ between implanted treatments. Morbidity and respiratory vaccine response were not impacted by implant timing in this study.

These researchers concluded that under the conditions of this study, that the timing of growth implant administration did not affect overall implant efficacy, health, or vaccine response in beef stocker cattle. However, delaying implanting until later in the receiving period may result in improved gains later in the ownership period.

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- ¹ Wolfger, B., K. S. Schwartzkopf-Genswein, H. W. Barkema, E. A. Pajor, M. Levy, and K. Orsel. 2015. Feeding behavior as an early predictor of bovine respiratory disease in North American feedlot systems. *J. Anim. Sci.* 93: 377-385.
- ² Hughes, H. D., P. A. Beck, D. S. Hubbell, M. S. Gadberry, E. B. Kegley, J. G. Powell, F. L. Prouty, and J. T. Richeson. 2015. Effect of growth implant regimen on health, performance, and immunity of high risk, newly received stocker cattle. In: 2015 Plains Nutrition Council Spring Conference, San Antonio, TX. p. 115-116 (Abstr.).