

## Effect of Preshipping Management on Measures of Stress and Performance of Beef Steers During Feedlot Receiving

*Arthington et al., University of Florida*

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Over two years, a total of 96 steers (7 months of age) were allocated to one of four weaning management strategies: 1) control: weaned on the day of shipping; 2) creep-fed: allowed free-choice access to concentrate before weaning and shipping; 3) preweaned: weaned and provided supplemental concentrate on pasture before shipping; and 4) early-weaned: weaned at 70 to 90 days of age and kept on pasture.

On the day of shipping, steers were loaded together onto a commercial livestock trailer and transported 990 miles over 24 hours before being received into the feedlot. At the feedlot, steers were penned by treatment (four pens/treatment) and provided access to free-choice hay and concentrate in separate feeding spaces.

Steer performance was assessed over the receiving period, including DMI of hay and concentrate, ADG and G:F. Overall ADG was greater for

early-weaned vs. control steers (3.06 vs. 1.94 lb). In week 1, early-weaned steers consumed more concentrate and less hay compared with control steers, and preweaned steers consumed more concentrate but a similar amount of hay compared with creep-fed steers.

Average DMI was greater for preweaned compared with creep-fed steers (2.84% vs. 2.50% of BW) and tended to be greater for early-weaned compared with control steers (2.76% vs. 2.50% of BW). Feed efficiency of early-weaned steers was greater than that of control steers (G:F = 0.17 vs. 0.12) but similar for preweaned compared with creep-fed steers.

These data suggest that early-weaned steers have improved performance in the feedlot compared with steers weaned directly before transport and feedlot entry. Differences in preshipping management appear to significantly affect measures of the acute phase protein response in steers.

## Pattern of Parturition as Affected by Time of Feeding and Prediction of the Time of Day That Parturition Will Occur in Spring-Calving Beef Cows

*Jaeger et al., Kansas State University*

To determine if time of feeding affects time of day that parturition occurs and whether beef cattle display a predictable parturition pattern as individuals, calving data from two

herds of spring-calving beef cows located at the University of Idaho (U of I) and Kansas State University Agricultural Research Center - Hays (KSU-ARCH) were analyzed. Each

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year, cows at U of I were fed between 6 am and 8 am, and cows at KSU-ARCH were fed between 4 pm and 6 pm. When feed was provided in the morning, parturition occurred randomly throughout the day. However, when cows were evening fed, more cattle gave birth during daylight hours.

The KSU-ARCH data indicated that cows giving birth during daylight hours tended to display less variation in parturition time than cows giving birth during dark hours. Average time of parturition was determined for each cow, and the difference from the individual's

average for each parturition time was calculated. Mean difference from an individual's average time of calving was less than 4.25 hours for the U of I data and less than 3.00 hours for the KSU-ARCH data.

These data suggest that, for the animals examined, evening feeding will result in more daylight births, and the time of day that parturition will occur may be predicted within  $\pm 4.25$  hours based on the average time of day that an individual had previously given birth. However, alteration of feeding time or other factors may affect the predictability of parturition time.

## Evaluation of Domperidone Dosages and Delivery Methods for the Treatment of Fescue Toxicosis in Beef Heifers

Jones et al., Southern Illinois University

The objective of this study was to develop a practical method of domperidone delivery to ameliorate fescue toxicosis. Experiment 1 used heifers assigned to seven treatment groups ( $n = 6$  each): positive control (0.44 mg domperidone/kg BW daily s.c. for 9 days), negative control, and 0.22, 0.44, 0.88 and 1.76 mg domperidone/kg BW per os daily for 9 days, or a 3 g domperidone i.m. injection. Domperidone concentrations in the 0.88 and 1.76 mg/kg BW treatments and the i.m. treatment were greater than positive control on day 3. None of the oral treatments were greater than the positive control on subsequent days. Between day 6 and day 24, no oral treatments differed from the negative control except for the 1.76 mg/kg of BW treatment on day 9. The i.m. formulation increased domperidone when compared with the negative and positive controls on day 3 through day 21.

Experiment 2 evaluated the i.m. injection protocol on performance. Heifers were assigned to control ( $n = 15$ ) or i.m. domperidone ( $n = 15$ ) treatments and grazed endophyte-infected fescue paddocks. Blood was sampled weekly and analyzed for progesterone and prolactin concentrations. Controls had reduced BW gains (11 lb vs. 29 lb) and BCS and elevated rectal temperatures

compared with treated heifers. Domperidone treatment interacted with day on affecting prolactin and progesterone. Intramuscular delivery of domperidone is an effective method for relieving fescue toxicosis.

Results of this study indicate that a slow-release injection of domperidone is an effective method of domperidone delivery for relieving the symptoms of fescue toxicosis as evidenced by amelioration of elevated body temperatures, reduced BCS, reduced prolactin levels and reduced progesterone levels. At this time, domperidone has not been approved for use in food-producing animals. Veterinarians and producers should not use domperidone in an off-label manner.

Our results suggest altering the slow-release injection composition to deliver a constant dosing of domperidone for a 60-day breeding season should be investigated. This would allow producers to easily incorporate this method into their production practices. Further investigations need to be conducted to determine the economic feasibility of domperidone usage. In addition, research evaluating the digestive fate of domperidone should be assessed for continued development of oral domperidone feeding strategies.

## Timing of Artificial Insemination in Postpartum Beef Cows Following Administration of the CO-Synch + Controlled Internal Drug-Release Protocol

Busch et al., University of Missouri

This experiment was designed to compare pregnancy rates in postpartum beef cows resulting from fixed-time AI (FTAI) at 54 or 66 hours after

administration of the CO-Synch + controlled internal drug-release (CIDR) protocol. Cows ( $n = 851$ ) at two locations over two years were stratified by age, BCS

and days postpartum to 1 of 2 FTAI intervals. Cows were administered GnRH and were equipped with a CIDR insert on day 0. Controlled internal drug-release inserts were removed 7 days later at the time PGF<sub>2α</sub> was administered (day 7). Continuous estrus detection was performed at location 2 by using the HeatWatch Estrus Detection System; the transmitters were fitted at the time of PGF<sub>2α</sub> and removed at the time of AI. Artificial insemination was performed at predetermined fixed times [54 hours (FTAI 54; n = 424) or 66 hours (FTAI 66; n = 427) after PGF<sub>2α</sub>] and all cows were administered GnRH (100 µg, i.m.) at AI. Two blood samples were collected on day -10 or -8 and immediately before treatment initiation to determine the pretreatment estrous cyclicity status of

cows (FTAI 54, 68% cycling; FTAI 66, 73% cycling). Pregnancy rates were greater among cows that exhibited estrus than among those that did not (76% and 56%, respectively). Pregnancy rates were greater for FTAI 66 than FTAI 54 (67% vs. 61%, respectively). Pregnancy rates resulting from FTAI did not differ between year, farm, AI sire or technician. There was no difference between pregnancy rates resulting from FTAI based on pretreatment cyclicity status, and there was no difference between treatments in final pregnancy rates. In summary, pregnancy rates resulting from FTAI following CO-Synch + CIDR at 66 hours were greater than those resulting from FTAI at 54 hours.

## Current Efficacies of Several Cattle Anthelmintics as Determined Via Fecal Egg Count Reductions

Yazwinski, et al., University of Arkansas

Utilizing small groups of naturally-infected, pastured replacement heifers, fecal egg count reduction tests were conducted in the later months of 2007 at the University of Arkansas Savoy Research Station. The tests were 28 days in length consisting of individual fecal nematode egg counts (EPG). For the first fecal egg count reduction test (FECRT), the calves were ranked by beginning EPG, blocked and randomly assigned treatment within each block. Nine to ten animals were in each treatment group. In this first test, animal treatment with IVOMEC (Merial) or IVERMECTIN (Durvet), both delivered as an injectable at the rate of 0.2 mg of ivermectin per BW, resulted in egg count reductions of ≤ 90%. Also in the first test, Safe-Guard (Intervet), delivered as a suspension at the rate of 5.0 mg of fenbendazole per BW, resulted in egg count reductions of 100% (days 7 and 14) and 88% and 87% (days 21 and 28).

In a second test, which was of “clean-up” treatments given immediately after the first test, Safe-Guard at 5 mg fenbendazole per BW resulted in egg count reductions of 100% and 99% (days 7 and 14) and then 54% and 18% (days 21 and 28, respectively). At the rate of 10 mg of fenbendazole per BW, egg count reductions in the second test ranged from 100% to 88% (days 7 to 28, respectively). Also in the second

test, Cydectin treatment at the rate of 0.2 mg of moxidectin per BW resulted in egg count reductions of 96% to 92% (days 7 to 28).

A third fecal egg count reduction test was conducted on the same research station, but with a newly-arrived group of replacement heifers from Florida. As with the trials above, treatments were given in the fall of 2007 and all animals were on pasture prior to and during the test. In this third test, post-treatment egg counts were only conducted at 17 and 28 days. Respective (day 17 and 28) fecal egg count reduction tests percentages were 98% and 97% for albendazole at 10 mg per BW (Valbazen @Pfizer), 83% and 45% for ivermectin at 0.2 mg per BW as IVOMEC Plus (Merial), and 66% and 30% for ivermectin at 0.2 mg per BW as Noromectin Plus (Norbrook).

In summary of the above fecal egg count reduction tests (1) no preparation of ivermectin (original or generic formulation) was found to be efficacious according to current standards and (2) moxidectin and benzimidazoles were found to be efficacious (fenbendazole efficacy dependent on immediate infection history).

## Effects of Weaning Management Strategies on Performance and Health of Calves During Feedlot Receiving

Boyles, et al., The Ohio State University

A trial was conducted to explore possible advantages of pasture-weaning calves with contact to their dams. Three weaning strategies were investigated: 1) weaned at trucking, 2) weaned 30 days before trucking and confined in drylot and 3) weaned 30 days before trucking and pastured with fence-line contact with their dams. Steers from the drylot weaning strategy lost 1.32 lb/day the first week in the feedlot, whereas steers from the truck weaning and pasture-weaning treatments gained 1.10 and 0.88 lb/day, respectively. Body weight gain in the subsequent 3 weeks was similar among all treatments. However,

the differences in the first week upon arrival in the feedlot were enough to impact overall gain of truck- and pasture-weaned calves compared to drylot-weaned calves during the entire 4-week feedlot arrival period. Weaning effects on incidence of morbidity also were detected. Only 15% of the pasture-weaned calves required treatment for respiratory disease. This incidence was doubled for truck-weaned calves and was nearly 2.5 times greater for calves weaned in drylot. Pasture-weaning with calves having fence-line contact with their dams appears to be an acceptable method of weaning.



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