

RESEARCH ROUNDUP

Highlights of recent published research

Compiled by Shauna Hermel, editor

►►► Weaning method, nutrition affect backgrounding performance

Auburn University researchers assessed the effects of weaning and postweaning management practices on potential calf health and performance through the backgrounding phase.

Calves weaned by either fenceline, nose-flap or abrupt weaning were weighed at weaning, then 14 days later as they began a 60-day preconditioning period. The calves were randomized into one of three nutrition strategies in which they were fed dried distillers' grains (DDGs) at 1% of bodyweight with either cool-season baleage (oats, ryegrass and crimson clover), Bermuda grass hay or grazing mixed warm-season annuals. The calves were weighed on backgrounding days 0, 30 and 60.

Comparing weaning strategies, calves in the fenceline group had the greatest average daily gain (ADG). Comparing nutrition groups, steers fed the cool-season

baleage had the greatest gain during the 60-day period.

There was a weaning x nutrition interaction for the first 30 days. The calves that were fenceline-weaned and fed the cool-season baleage diet had the highest gains [2.25 pounds (lb.) per day] for the first 30 days. Abruptly weaned calves on the grazing diet gained only 0.64 lb. per day in the first 30 days.

The researchers conclude that “backgrounding diet, coupled with weaning management strategies, may influence calf performance during the transition period for calves into the postweaning phase.”

Maggie M. Justice, M. Kim Mullenix, Alex A. Tigue, Russell C. Carrell, Micayla H. West, Soren P. Rodning, Manuel Chamorro, 34 Extended Effects of Sequential Weaning and Backgrounding Management in Beef Calves, *Journal of Animal Science*, Volume 100, Issue Supplement_1, April 2022, Page 20.

►►► Interaction of urea with frequency, amount of DDGS on high-forage diet

University of Nebraska–Lincoln researchers evaluated the inclusion of urea to a DDGS (dried distillers' grains plus solubles) [29.4% crude protein (CP); 5.48% ether extract] supplement to steers with free access to smooth bromegrass hay containing 6.8% crude protein.

In the first study, steers averaging 545 lb. were fed individually for 84 days. Treatments were arranged in a 2 x 2 x 2 design in which steers were supplemented every day (D) or three times per week (Alt), fed supplement at 14.02 lb. (LO) or 28.06 lb. (HI) per week, and the supplement contained no urea (-U) or 1.3% urea (+U).

The researchers report ADG was significantly greater (by 0.66 lb. per day) and hay dry-matter intake (DMI) was significantly reduced (by 0.86 lb. per day) for HI vs. LO. Hay DMI was also significantly reduced by 1.19 lb. per day for ALT vs. D.

A second study analyzed performance of eight ruminally cannulated steers weighing an average of 683 lb. Treatment design was the same except supplement was fed daily (D) or every other day (ALT) and at a rate of 0.4% (LO) or 0.8% (HI) of body weight.

Hay DMI was also significantly reduced for HI vs. LO in the second study.

“Rumen pH was decreased on the day of feeding for steers on ALT (P < 0.01) and was reduced for steers fed HI vs. LO,” the researchers report. “A reduction in *in situ*

NDF disappearance was observed on the day ALT received supplement between HI and LO ($P < 0.01$). However, there was no difference between NDF (neutral detergent fiber) digestibility between D and ALT ($P > 0.05$). Urea had no effect on digestion or ADG, suggesting RDP (rumen degradable protein) was not deficient. Dried distillers' grains can be supplemented infrequently without reducing animal performance.”

Haley Linder, Josh Sebade, Mary E. Drewnoski, Jim C. MacDonald, 195 Interaction of Urea with Frequency and Amount of Distillers' Grains Supplementation for Growing Steers on a High Forage Diet, *Journal of Animal Science*, Volume 100, Issue Supplement_2, May 2022, Page 93.

▶▶▶ **A one- vs. two-diet approach for backgrounding, finishing steers**

South Dakota State University research indicates feeders can feed a single grow-finish diet (vs. a two-diet approach) to preconditioned beef steers with minimal effects on overall growth performance or carcass traits.

The research compared growth, feed efficiency and carcass traits of steers fed equal cumulative roughage in either a single-diet or two-diet approach for a 210-day grow-finish period.

In the study, 46 preconditioned beef steers weighing 619 ± 89 lb. were fed once daily with a slick-bunk management system. Calves were fed either a single diet targeted for 1.30 Mcal/kg NE_g for 210 days; or a two-diet program targeted a 1.21 Mcal/kg NE_g diet fed for 98 days, a 1.30 Mcal/kg NE_g diet fed for 14 days, and a 1.39 Mcal/kg NE_g diet fed for 98 days.

All steers were implanted on Day 1 with 100 milligrams (mg) trenbolone acetate (TBA) and 14 mg estradiol benzoate (EB) and reimplanted with 200 mg TBA and 28 mg EB on Day 112.

The researchers report that ADG during the backgrounding portion of the study tended to be 9.5% greater for the single-diet group vs. the two-diet approach. During the finishing segment, ADG was significantly increased (11.3%) with the two-diet treatment. However, the cumulative ADG did not differ between treatments.

NE_m and NE_g did not differ significantly between treatments, and no significant differences were detected between treatments for hot carcass weight; dressing percentage; ribeye area; rump fat; marbling score; kidney, pelvic and heart fat; yield grade; retail yield; empty body fat (EBF); or body weight at 28% estimated EBF. **■**

Thomas G. Hamilton, Warren C. Rusche, Zachary K. Smith, 194 Evaluation of Dietary Roughage Inclusion in a Single or Two-Diet System for Backgrounding and Finishing Steers, *Journal of Animal Science*, Volume 100, Issue Supplement_2, May 2022, Pages 93-94.