Effects of Weaning Age and Source of Energy on Beef Calf Performance, Carcass Characteristics and Economics

(Meteor, W.T., et al., University of Illinois)

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Angus and Angus × Simmental calves (steers, n = 131; heifers, n = 69) were randomly allotted to one of five dietary treatments at two locations: early-wean starch; early-wean fiber; creep-fed starch; creep-fed fiber; or normal-wean, no-creep control. Early-weaned calves (133 days of age) were placed in the feedlot, whereas normal-weaned calves remained with their dams on pasture. Creep feed was offered for ad libitum dry matter intake to calves fed creep-fed starch and creep-fed fiber.

- In the growing phase, early-wean-starch calves had 15% lower dry matter intake and were 13% more efficient than early-wean-fiber calves.

- In the finishing phase, creep-fed calves gained 9% more, had 7% lower dry matter intake and were 16% more efficient than early-weaned calves.

- Control calves were 5% more efficient but spent 19 more days on feed than did calves on the other treatments.

- Marbling score was greater for early-weaned calves when compared with creep-fed calves.

- Retained-ownership profit was $38.28 greater for the early-wean-fiber treatment than for the early-wean-starch treatment, $61.47 greater for creep-fed calves than for early-weaned calves and $37.89 greater for control compared with other treatments.

Early weaning and creep feeding increased carcass quality and growing-phase body weight gains but reduced profits. Calves fed coproduct feeds during the growing phase achieved similar body weight gains and carcass traits as calves fed corn-based diets and were more profitable.

Effects of Temperament on Growth and Reproductive Performance in Heifers

(Wyatt, W.E., et al., Louisiana State University Agricultural Center)

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Temperament was assessed on heifers at weaning and when they were yearlings by chute score, exit velocity and a combination of chute score and exit velocity. Chute scores were categorized into low, moderate...
and high. Based upon the mean and standard deviation of each, exit velocity was categorized into three levels of slow, moderate and fast, and combination of chute score and exit velocity score was categorized into three levels of low, moderate and high.

- At weaning, the assessment of exit velocity (slow, moderate and fast) affected initial (525, 516 and 501 lb) and final body weight (886, 869 and 842 lb) and postweaning gain (362, 355 and 342 lb).
- At weaning, assessment of combination of chute score and exit velocity (low, moderate and high) affected initial body weight (525, 509 and 503 lb), final body weight (886, 858 and 847 lb), and postweaning gain (364, 348 and 342 lb).

### Case Study: Method of Feeding a Liquid-Protein Supplement With Low- to Medium-Quality Hay Affects Hay Waste and Cow Performance

(Walker, R. S., et al., Louisiana State University and Quality Liquid Feeds, Dodgeville, Wisconsin)

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Nonlactating Angus cross beef cows were used in two beef studies to evaluate method of supplementing a liquid protein with low- to medium-quality bermudagrass hay on waste and cow performance. In study 1, 191 cows were stratified by body weight, body condition scores and age and assigned to one of six pastures with three treatments for 77 days. Treatments included a liquid protein provided free choice, poured into bales at 10% of bale weight or 2.7 lb per cow of dried distillers grains fed daily. In study 2, 180 cows were stratified by adjusted body weight, age and calving date and assigned to three body weight blocks with three treatments per block for 52 days. Treatments included a liquid protein provided free choice or poured into bales at 10% or 15% of bale weight. Hay dry matter intake, waste and cow performance (study 2 only) were measured.

- Daily dry matter intake was not affected by treatment in studies 1 or 2.
- At yearling, the assessments of temperament, i.e., all methods, were generally effective in elucidating differences in body weight, but these assessments occurred at an older age in heifers.
- Measures were generally not effective in identifying differences in pregnancy status.

Based upon broad effectiveness to elucidate body weight and postweaning gain differences, exit velocity and combination of chute score and exit velocity were the preferred measures at weaning. These measures and their relationships to body weight were consistent across Angus-sired and Brahman-derivative heifers.

### Evaluation of High Moisture and Dry Feed With and Without Hay Fed to Feeder Calves Subjected to Transportation Shrink

(Starnes, J. R., et al., Auburn University)

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Two backgrounding trials evaluated effects of high-moisture diet or dry feed with or without a hay offering 48 hours before shipment on shrink and subsequent weight recovery postshipment. In trial 1, 48 steers (body weight 774 lb) were assigned randomly to one of two diets: 1) 82% corn silage and 18% pelleted corn gluten feed or 2) 20% pelleted corn gluten feed, 40% pelleted peanut hulls and 40% soybean hull pellets. Bermudagrass hay was offered to half of the calves on each diet.
48 hours before a 21-hour transport period. Half of the steers from each pen were shipped (24 shipped, 24 unshipped). In trial 2, 118 calves (54 heifers; 64 steers; initial body weight 655 lb; 706 lb) were assigned randomly to one of two diets used in trial 1. A total of 59 calves were shipped, and the other 59 remained in their pen of origin.

- For trial 1, shipped calves shrank 7.1%, and body weight remained different throughout the recovery period.

- In trial 2, shipped calves shrank 8.4%, and body weight remained different for calves throughout the recovery weight period.

- Neither diet nor hay offering significantly affected shrink in either trial.

- Likewise, diet had no effect on postshipment body weight recovery; however, offering hay 48 hours before transport did affect subsequent weight recovery in trial 2.

### Late Gestation Supplementation of Beef Cows Differing in Body Condition Score: Effects on Cow and Calf Performance

(Bohnert, D.W., et al., Oregon State University, University of Nebraska and USDA-ARS, Burns, OR 97720)


A two-year study utilizing 120 mature, crossbred (Angus × Herford) cows/year, evaluated the influence of cow body condition score and dried distillers grains with solubles supplementation during late gestation on cow performance and productivity of subsequent offspring. Cows were nutritionally managed to enter the last trimester of gestation with a body condition score of approximately low body condition score cows (4) or high body condition score cows (6) and were thereafter managed in a single herd (initial body condition scores were 4.4 and 5.7 for low and high body condition score cows, respectively). During the last trimester, 28.0 lb/cow of low-quality meadow hay (6.4% crude protein; dry matter basis) was provided each day. Supplemented cows were gathered and sorted into pens (12 pens; 5 cows/pen; 6 pens/body condition score) every Monday, Wednesday and Friday and received the equivalent of 1.98 lb/cow daily of dried distillers grains with solubles (31% crude protein; dry matter basis; supplement was consumed within 30 minutes on each supplementation day).

- Calf birth weight was greater for high body condition score cows compared to low body condition score cows and for supplemented compared to nonsupplemented cows.

- Cow weight at weaning was greater for high body condition score cows compared with low body condition score cows; however, no differences were noted because of supplementation.

- Weaning weight was greater for the offspring of supplemented compared to nonsupplemented cows.

- There were no differences in postweaning calf performance (growing lot and feedlot) or carcass characteristics due to treatments.

- Nevertheless, high body condition score cows had approximately 10% more live calves at birth and at weaning compared to low body condition score cows.

- Consequently, the total weaned calf weight per cow was 57 lb greater for high body condition score cows compared with low body condition score cows.

- Pregnancy rate was greater for high body condition score cows than low body condition score cows (92% vs. 79%, respectively) but was not affected by supplementation.

This research demonstrates the potential consequences of not maintaining cows in adequate body condition score at calving. Also, though it appears that supplementation of beef cows with dried distillers grains with solubles during late gestation has a positive effect on weaning weight, there was no apparent developmental programming effect on feedlot performance and carcass characteristics of calves.

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