



# Research Update

► Summaries of current beef cattle research

## Studies consider effects on reproduction

The following research highlights are presented by Harlan Ritchie, Steven Rust and Daniel Buskirk, beef cattle specialists at Michigan State University, East Lansing. The reviews summarize studies and trends reported at scientific meetings or in scientific and industry publications, which are cited at the end of each item.

### Temperament affects growth, reproduction of beef heifers

The objective of this Louisiana State University study was to assess temperament and production traits for 40 Angus-sired (½ Angus, ¼ Brahman, ¼ Hereford) and 50 F<sub>1</sub> Brahman-Hereford heifers. Temperament was evaluated by chute score (1 = calm to 5 = berserk) and chute exit velocity (measured in meters per second). Heifers were evaluated four times — at weaning, at the beginning and at the end of the breeding season, and in the fall. Heifers were classified as slow, medium or fast based on exit velocity.

The researchers found:

- The two breed types did not differ in either chute score or exit velocity.
- Slow heifers were significantly heavier (P<0.05) at weaning and tended to have higher postweaning gains than fast heifers.
- Slow heifers were significantly heavier (P<0.05) at the beginning of the breeding season and in the fall, and they tended to have higher body condition scores at the beginning of the breeding season than fast heifers.
- Pregnancy rates did not differ among slow, medium and fast heifers.
- Pregnant Brahman-Hereford F<sub>1</sub> heifers tended to have lower exit velocity values than open Brahman-Hereford F<sub>1</sub> heifers at both weaning and end of breeding.
- Pregnant Brahman-Hereford F<sub>1</sub> heifers tended to have lower chute scores than open Brahman-Hereford F<sub>1</sub> heifers.

The authors concluded that the results indicate some important associations of temperament traits with growth and reproduction of beef replacement heifers.

(DeRouen and Reger. 2007. Southern Section ASAS. Abstract 4).

### Effect of body condition on reproductive performance

In an excellent review paper, University of Nebraska scientist Rick Funston recently discussed nutritional factors that affect reproduction in beef females. Table 1 shows

the relationship of body condition score (BCS) to beef cow performance and income. BCS is evaluated on a scale of 1 to 9, where 1 = emaciated and 9 = obese.

As shown in Table 1, peak performance and income were achieved at a BCS 6. In addition to increasing costs, getting cows fatter would reduce reproductive performance, especially when BCS reaches 8 or 9.

(Funston, R. 2006. Proceedings, Applied Reproductive Strategies in Beef Cattle, Aug. 30-31, 2006, Saint Joseph, Mo.)

### Effects of supplementation with Fermenten® on heifer development

In this University of Florida trial, 60 Brahman × British heifers on Bahia grass pastures were allotted to one of two grain-based supplements fortified with different sources of crude protein (CP):

1. urea (Control), or
2. Fermenten® a commercial byproduct of lysine production.

Each supplement was formulated to contain 16% CP. The objective was to determine the effects of Fermenten supplementation on growth, forage dry-matter (DM) intake and reproductive performance. Duration of the study was 112 days.

There were no significant differences between treatments for growth rate or DM intake. A greater percentage of heifers in the control group reached puberty by Day 112 (75.8% vs. 53.3%). Control heifers also had a significantly greater (P<0.01) pregnancy rate than heifers supplemented with Fermenten (93.1 vs. 60.0%).

The authors concluded that in this experiment, supplementation of yearling heifers with Fermenten did not influence growth and development, but it decreased reproductive performance.

(Cooke et al. 2007. Southern Section ASAS. Abstract 76)

### Effect of hay feeding methods on cow performance, wintering cost

North Dakota State University scientists conducted a three-year study to evaluate the effect of three hay-feeding methods on cow wintering costs. The three methods were:

1. conventional method of rolling large round bales out on the ground;
2. shredding large round bales on the ground with a bale processor; and
3. feeding large round bales in a tapered-cone feeder.

A total of 360 crossbred cows in their third trimester of pregnancy were used during the three-year period of the study. They were fed for an average of 59 days during the test period. Data were used to prepare an economic analysis model with budgets for 100- and 300-cow reference herds.

Compared with methods 1 and 2, feeding bales in a tapered-cone round bale feeder significantly increased cow weight gain, resulted in greater positive rib fat depth change, reduced hay consumption an average of 10.2%, and reduced hay waste in the two years of the study when alfalfa-grass hay was fed, but not in the year when oat hay was fed.

During the three-year period, using a tapered-cone round bale feeder reduced wintering cost by 21% for the 100-cow reference herd and 17.6% for the 300-cow reference herd compared to feeding with a bale processor. The round bale roll-out method was intermediate in cost.

(Landblom et al. 2006. NDSU Beef Cattle and Range Research Report)



**Table 1: Relationship of BCS to beef cow performance and income**

BCS	Pregnancy rate, %	Calving interval, days	Calf avg. daily gain, lb.	Calf weaning wt., lb.	Calf price, \$/cwt.	Income, \$/cow exposed <sup>a</sup>
3	43	414	1.60	374	96	154
4	61	381	1.75	460	86	241
5	86	364	1.85	514	81	358
6	93	364	1.85	514	81	387

<sup>a</sup>Income per calf × pregnancy rate.