



Integrated Beef Production Systems for the Coteau

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All phases of the beef production chain in North Dakota have unique challenges:

1. Cow-calf producers are faced with the challenge of maintaining cow body condition and reproduction in a high-cost feed environment. They also are faced with the challenge of finding sires that minimize calving difficulty in first-calf heifers while still producing profitable calves.
2. As the early maturing cool-season grass species smooth brome and Kentucky bluegrass have invaded the native rangelands, cow-calf and stocker operators are challenged by a seasonal forage imbalance of having too much forage available in the spring and too little available in the late summer.
3. The feedlot sector faces a seasonal imbalance of feeder cattle supplies. Supplies are abundant during the fall and winter, but short during the spring and summer, the one time of year when North Dakota cattle feeders have a climate advantage over feeders in the central and southern Plains.

Often the best way to deal with multiple challenges is to use an integrated or systems-based approach:

1. The emerging niche market for pasture-finished beef may provide a way to profitably finish smaller-framed cattle, such as the offspring of low birthweight heifer bulls (bulls which enable easy calving).

2. Utilizing the early flush of cool-season pasture grasses to put weight on cattle before placing them in the feedlot in mid- to late June may be possible with an intensive early stocking regimen. This would utilize the excess grass and place cattle in the feedlot at a time when feeder cattle in North Dakota are in short supply. Research in Kansas indicates that all frame sizes of cattle can be managed successfully in a winter backgrounding, spring grazing and summer feedlot-finishing regimen. A large compensatory gain often occurs when cattle in this regimen enter the feedlot.

The integrated beef systems research just initiated at the CGREC has three facets:

1. Evaluate the role of frame size and milking ability on fleshing ability and rebreeding in range beef cows.
2. Study the interaction of heifer frame size and sire frame size on birthweight, calving ease and the subsequent growth rates of the calves.
3. Compare steers of differing frame size under two different integrated stocker-finishing regimens. In one regimen, the steers are finished on pasture, and in the other, the steers graze from late April to mid-June before being finished in a feedlot.

The research progress in 2008 at the CGREC was as follows:

1. This past spring, 109 heifers were stratified by frame size and weight, then randomly assigned to medium- and small-frame sires. Birthweight, calving ease and calf growth rates will be measured in 2009.
2. Forty-four steer calves from the 2008 calf crop are being backgrounded through the winter for the 2009 integrated stocker-finishing study.
3. A pilot experiment that pasture finished small-frame yearling steers and heifers with and without a pasture supplement was conducted this summer and fall.
 - No difference in daily gain was noted between steers and heifers.
 - No difference in daily gain was noted between supplemented and nonsupplemented yearlings.
 - No difference in intramuscular fat (marbling) between supplemented and non-supplemented yearlings was noted in an ultrasound scan Nov. 11.
 - However, heifers had higher intramuscular fat than steers and thus would have produced carcasses with higher quality grades.
 - If the animals had been harvested Nov. 11, ultrasound results suggest that five animals would have graded low choice, 15 would have graded high select, seven would have graded low select and only three animals would have graded standard. Thus pasture finishing cattle on Coteau rangelands is quite feasible.

For more information, visit the CGREC Web site at www.ag.ndsu.edu/streeter.