Grass-finished beef pilot project: Cattle performance and welfare

Abstract: The study compared growth results for Angus cattle raised under feedlot conditions and under a grass-finishing regimen. Outcomes used to answer this question included growth and carcass characteristics, behavior and animal welfare parameters for weaned cattle that were raised using grain feeding or pasture management systems.

What was done and why?

Consumer interest in grass-finished beef is high, but adoption by Iowa farmers has been limited. Consistently producing a high-value carcass from forage-fed cattle is challenging for a producer. Intramuscular fat or marbling is a major factor in the quality grading of beef and marbling is heavily influenced by cattle genetics and energy concentration within the diet. Finishing cattle on grain is a proven approach to consistently produce high-value beef carcasses. But, forage quality can be manipulated through management, ultimately influencing cattle growth and performance.

The purpose of this project was to examine the feasibility of producing USDA Quality Grade Choice beef—without grain-based finishing—through genetic selection and pasture management. Specific objectives were to:

1. Compare growth and carcass characteristics of high-marbling potential beef cattle, finished either on high-quality pastures or grain-based feedlot rations.
2. Assess the behavior and welfare of feedlot- and pasture-raised beef cattle in terms of morbidity, heat stress, social behavior and hide cleanliness.
3. Disseminate information from the study through Extension publications and public events.

What did we learn?

Cattle finished on feedlot did grow faster than grass-finished cattle. More cattle on feedlot rations graded Choice than cattle finished on grass. Sixty percent of grass-finished cattle graded Choice and all grass-finished cattle were marketed within 20 months of birth. As expected the grain-based feedlot diets supported more rapid growth and uniform finish. However, the grass-finished cattle also grew at rates generally considered acceptable and all cattle finished on pasture increased intramuscular fat content. The use of digital ultrasound to scan feeder cattle as a sorting mechanism prior to finishing may have more benefits for grass-finished cattle than feedlot-raised beef.

Although this was a limited pilot study, results suggest that digital ultrasound is a powerful tool that could be used to sort groups of cattle based on their likelihood to grade Choice under different dietary regimes.