

Title of Proposal: Evaluation and Comparison of Growth and Reproductive Performance in Beefmaster and Angus Cattle

Introduction:

Today's cattle producers have a much more difficult decision when selecting breed and type of replacement females and bulls. The cattle industry is flooded with information from breed associations promoting the advantages a producer will have by using their breed. The Angus association has successfully marketed their product to consumers and cattlemen. Ask an average consumer about a unique trait that the Angus breed has to offer and they automatically respond marbling or tenderness. Look at local cattle producers and notice the increasing number of black hided calves. There are questions that cattlemen need to ask themselves. Are Angus cattle the right choice for my breeding program? Will the calves meet the demand of the consumer? American consumers are demanding healthy foods that are flavorful. Beefmaster cattle have the characteristics to meet the demand of today's consumer. Beefmaster's are suited to provide beef producers with efficient production from the cow all the way through the feedyard and also produce a superior product to place on the consumer's plate.

Beefmaster producers know that their cattle will fit the consumer's demand and can out perform other breeds. However, Beefmaster producers have kept the breed hidden. Even the advantages of using Beefmaster sires on commercial females are not well documented. One study conducted at the Texas A&M Agri-Life Research Center in McGregor (1998-2001) compared fifteen Beefmaster sires that were mated to commercial Angus females. The Beefmaster-sired calves performed well in growth and carcass characteristics. Over seventy percent of the calves graded choice or higher. Dr. Jim Sanders of Texas A&M University stated that the results of this progeny test appear to be very favorable for the Beefmaster breed and the cattle performed well from birth to harvest, and the carcasses were outstanding. Additional research similar to this study is needed. This research would aid in promoting and marketing the breed to cattlemen. The results from the proposed study will aid in validating what Beefmaster breeders already know about their cattle.

Overall Objectives: Evaluate differences in growth and reproductive performance between Beefmaster and Angus cattle.

Objectives:

1. Evaluate differences in growth and carcass performance between Beefmaster, Angus, and crossbred calves.
2. Evaluate reproductive performance and longevity between Beefmaster and Angus females.
3. Examine the relationship between reproductive performance and longevity and maternal and reproductive traits from DNA genotyping.

4. Examine the relationship between carcass traits and carcass DNA genotype.
5. Examine the relationship between temperament scores, exit velocity and serum cortisol concentrations and performance traits in Beefmaster, Angus, and crossbred cattle.
6. Examine the relationship between temperament scores, exit velocity and serum cortisol concentrations and DNA genotype results.

Methodology:

Beefmaster, Angus, and commercial females (n = 20 per group) will be housed at the Stephen F. Austin State University Beef Center. The project is contingent upon receiving 20 Beefmaster heifers. Females will be bred to calve in the spring. They will be rebred beginning in May by artificial insemination to the top bulls in the Beefmaster and Angus breed (Table 1). Beefmaster bulls will be used to breed any females that did not settle by artificial insemination. Calving ease scores will be collected on the cows.

Table 1. Number of females of each breed bred to Beefmaster and Angus Bulls.

	Beefmaster Bull	Angus Bull
Beefmaster females	n = 20	n = 0
Angus females	n = 10	n = 10
Commercial females	n = 10	n = 10

Birth and weaning weight will be collected on all calves. Calves will be scanned for ultrasound measures of 12th rib and rump fat, ribeye area and percent intramuscular fat. Calves will be backgrounded at the SFA beef farm. The steers and cull heifer calves will be fed at a feedyard. At harvest, carcass data will be collected and reported to SFA.

Temperament in the cows and calves will be assessed by measuring exit velocity and pen score. Blood samples will be collected at weaning to measure serum cortisol concentrations. Additional blood samples will be collected and submitted for DNA profiles with parent verification that will include carcass composition, maternal traits, docility, average daily gain, and feed efficiency. Whole herd reporting will be implemented.

The project is planned to be conducted for a minimum of three years. An additional two years is expected if there is available funding. The SFA lead scientist will provide a completed research summary, abstract, and/or full paper to BBU at the end of each year to be reported to the Board.