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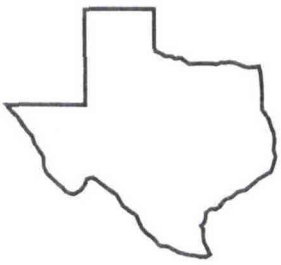

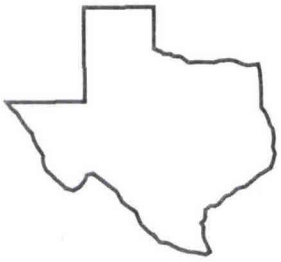

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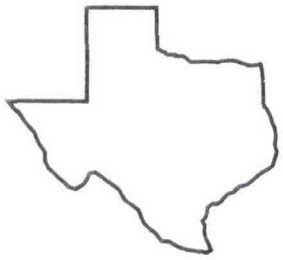

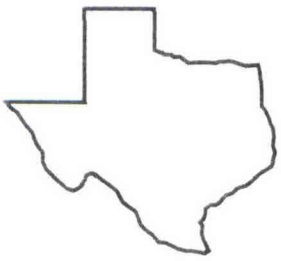

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PREWEANING EVALUATION OF CALVES BORN TO ANGUS (*Bos taurus*), BRAHMAN (*Bos indicus*), AND TULI (SANGA) BULLS AND BRAHMAN COWS

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Background. In cow-calf operations, sire breed selection for crossbreeding programs is often directed towards choosing breeds that will maximize preweaning calf growth. New beef breeds are introduced into the U.S. to identify breeds that may enhance cattle performance and efficiency compared to breeds currently used. One such breed is the Tuli from Africa. The Tuli represents a group of tropically-adapted breeds classified as Sanga cattle. Sanga cattle are intermediate to European (*Bos taurus*) and Zebu (*Bos indicus*) cattle in body characteristics. Tuli possess a hump located farther up the neck compared to Brahman. They are medium in size and range from light cream to dark red in color. The Tuli breed is noted for satisfactory cow productivity, reproductive performance, and carcass traits under harsh environmental conditions. Besides being used in purebred operations, Brahman females are often included in crossbreeding programs to take advantage of their maternal merits and hybrid vigor generated when mated to European bulls such as Angus. This project assessed the preweaning performance of Tuli-sired calves compared to Angus-sired and Brahman-sired calves born to Brahman cows.

Research Findings. Birth and weaning weights were recorded on calves from Brahman cows and sired by one of 12 Angus (AB; 68 F_1 calves), 11 Brahman (BB; 82 purebred calves), or 9 Tuli (TB; 75 F_1 calves) bulls. Calves were born in 1992 and 1993 from mid-February to mid-May and weaned from late-August to early-November. Cows grazed ryegrass and bermudagrass pastures. Calves were not creep-fed and bull calves were not castrated. Calves born in 1993, 38 calves from each sire breed, were also measured at birth and weaning for hip height, heart girth, and body (shoulder to pin) length, along with weakness and mortality through 1 week of age. Weak calves were unable to stand or nurse unassisted.

Over both years, calf sex interacted ($P < .01$) with breed of sire to affect birth weight. Birth weights were similar between sexes for AB (bull and heifer average = 66 ± 2 lb) and TB calves (bull average = 63 ± 1.5 lb; heifer average = 66 ± 1.5 lb). For BB calves, bulls had heavier ($P < .001$) birth weights than heifer calves (72 vs 64.5 ± 1.5 lb). A similar interaction existed in the analysis of birth weights for 1993 alone. Frame size and survival traits were not affected by calf sex. Sire breed affected ($P < .05$) each frame size trait. Weakness and mortality rates were higher ($P < .05$) in BB calves (26.3%, 13.2%) than in AB (2.6%, 0%) and TB calves (5.3%, 2.6%).

Table 1. Birth and weaning traits of calves from 3 sire breeds and Brahman cows in 1993.

Traits	Sire Breed			SE (±)
	Angus	Brahman	Tuli	
Birth Weight, lb	70.5	73.2	66.8	1.7
Birth Hip Height[a], in	29.7[y]	30.7[z]	29.7[y]	.1
Birth Body Length[a], in	25.2[y]	24.2[z]	24.2[z]	.3
Birth Heart Girth[a], in	28.1[y]	27.5[z]	27.8[yz]	.15
Weaning Weight, lb	461.5[y]	400.0[z]	419.5[z]	9.5
Weaning Hip Height, in	44.2	44.2	43.8	.4
Weaning Body Length, in	44.0[y]	41.9[z]	43.1[yz]	.4
Weaning Heart Girth, in	54.2[y]	50.4[z]	51.6[yz]	.9

[a]Averages adjusted to a constant birth weight (70.3 lb).
[y,z]Averages in same row with different letters differ ($P < .01$).

Over both years, sire breed interacted ($P < .05$) with calf sex to affect 205-d weaning weight. Weights were similar between sexes for AB (bull average = 481 ± 11 lb, heifer average = 490 ± 11 lb) and TB calves (bull average = 448 ± 9 lb, heifer average = 434 ± 9 lb). For BB calves, bulls had heavier ($P < .01$) 205-d weaning weights than heifers (455 vs 410 ± 9 lb). A similar interaction existed in the weaning weight analysis for 1993 alone. In 1993, 31 BB, 37 AB, and 37 TB calves were weaned. Calf sex did not influence weaning frame size traits. Although differing in weaning weight, progeny weaning heights were similar between sire breeds (Table 1). Average weaning weight:height ratios differed ($P < .05$) between all calf breedtypes (1.62, 1.48, and 1.40 ± .03 lb/in for AB, TB, and BB calves, respectively).

Application. Expectedly, AB and BB calves differed for most birth and weaning traits. Results show that TB calves tended to be smaller in weight and frame size at birth. Crossbred calves had an advantage over purebred calves in neonatal survival traits. Newborn TB F_1 calves were as viable as AB F_1 calves, but did not display the preweaning growth of AB calves. Notable is the finding that TB and BB weaning weights were similar. The crossbreeding advantage gained for preweaning growth through Tuli x Brahman matings appears minimal when compared to Angus x Brahman matings. Results suggest that Angus bulls may be preferable to Tuli bulls if intentions are to enhance preweaning performance by crossbreeding Brahman cows. Work is ongoing to evaluate postweaning performance of these 3 breedtypes in a comparative manner.