

PUBLICATIONS

1996

FIELD DAY REPORT - 1996

TEXAS A&M UNIVERSITY AGRICULTURAL RESEARCH and EXTENSION CENTER at OVERTON

**Texas Agricultural Experiment Station
Texas Agricultural Extension Service**

Overton, Texas

April 18, 1996

Research Center Technical Report 96-1

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SENSORY TRAITS OF BRAHMAN, TULI X BRAHMAN, ANGUS X BRAHMAN, AND SIMMENTAL X F-1 (BRAHMAN X HEREFORD) STEERS

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Background. Existing, as well as new, breed types must meet producer, industry, and consumer demands for carcass quality traits. Although cattle may be correctly or unjustly priced on physical carcass traits, the ultimate test to determine carcass value is an assessment of sensory characteristics. Limited live weight performance and carcass attribute "data" or "information" exist for the Tuli cattle. Data reported herein represent the first of a two-year experiment designed to evaluate the pasture, feedlot, carcass, and sensory traits of Brahman (BRM), Tuli x Brahman (TXB), Angus X Brahman (AXB), and Simmental X F-1 (Brahman X Hereford) (SIMX) steers. The four breed types were fed at a commercial feedlot in Hereford, Texas for 126 days and slaughtered at a nearby commercial packing facility. Rib steaks were collected at the slaughter facility, processed and frozen at West Texas A&M University at Canyon and transported to the Animal Science Department at Texas A&M University for taste panel, shear force, and cooking evaluations.

Research Findings. Pasture, feedlot, and physical carcass attributes are presented in accompanying papers. The original number of steers in each breed type ranged from 15 (BRM) to 22 (SIMX). Statistical analyses of sensory traits for BRM steers were dramatically reduced due to packer discrimination for size of crest (hump), and subsequent refusal to allow us to break the carcass for collection and purchase of rib samples. There were no differences among breed types for longissimus muscle fiber tenderness nor for flavor (Table 1). The SIMX and TXB steers were similar in juiciness; whereas, only the SIMX carcasses were rated higher ($P < .05$) than the AXB and BRM (4.99 vs 4.54). The BRM steaks were deemed to have less overall tenderness than the other three breed types. Although a significant interaction occurred between winter grazing locations for connective tissue, the biological significance of this occurrence is not clear from the first year's data. On a 1 to 8 scale, with 1 being abundant and 8 indicating no connective tissue, the scores for these breed types were grouped relatively closely and ranged from 5.92 to 6.93.

The Warner-Bratzler test revealed that SIMX carcasses had less ($P < .05$) shear force (more tender) than BRM steers (7.22 lbs vs 8.93 lbs). The AXB and TXB carcasses were not different from either the SIMX nor the BRM steaks. Huffman *et al.* (1996; J. Anim. Sci. 74:91) reported that consumers at home or in restaurants were 98% satisfied with steaks which had Warner-

Bratzler shear values of less than 9.02 lbs. Thus, the mean value of all steaks from the four breed types we studied fell within this range.

Implications. Data from this one-year study are too preliminary to offer definitive, producer implications. Steaks from the Tuli X Brahman steers were of primary interest and they had acceptable sensory traits, and were similar to the other breed types evaluated. The second year's data should provide more conclusive information concerning sensory characteristics. The actions of the commercial packing facility which refused the carcass breaking of some of the Brahman steers due to size of hump indicates the perceptions that exist within the industry for various phenotypes and breed types. However, with the absence of color of hide and size of hump, the taste panelists rated steaks from steers fed for 126 days and with 25% to 100% Brahman as acceptable for home or restaurant use.

Table 1. Sensory characteristics of longissimus muscle from Brahman (BRM), Tuli X Brahman (TXB), Angus X Brahman (AXB), and Simmental crossbred (SIMX) steers.

Trait	BRM	TXB	AXB	SIMX
Juiciness ^c	4.54 ^b	4.87 ^{ab}	4.54 ^b	4.99 ^a
Tenderness				
Muscle Fiber	4.71 ^a	5.49 ^a	5.42 ^a	5.75 ^a
Overall	4.78 ^b	5.53 ^a	5.59 ^a	5.85 ^a
Flavor	5.22 ^a	5.45 ^a	5.50 ^a	5.46 ^a

^{ab}Least Squares Means within rows with different superscripts differ (P<.05).

^c1 = Extremely dry, Extremely tough, or Extremely bland; 8 = Extremely juicy, Extremely tender, or Extremely intense.

Table 2. Warner-Bratzler shear force and cooking loss of longissimus muscle from Brahman (BRM), Tuli X Brahman (TXB), Angus X Brahman (AXB), and Simmental crossbred (SIMX) steers.

Trait	BRM	TXB	AXB	SIMX
Shear force, lb ^c	8.93 ^b	8.22 ^{ab}	7.85 ^{ab}	7.22 ^a
Cook loss, %	26.03	24.33	23.40	22.76

^{ab}Least Squares Means within rows with different superscripts differ (P<.05).

^cWarner-Bratzler shear force values used to estimate tenderness.