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## COMPARISON OF REPRODUCTIVE DEVELOPMENT OF RECENTLY INTRODUCED BREEDS TO ANGUS AND BRAHMAN BULLS

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**Background:** The Brahman (*Bos indicus*) has been the primary breed used in the southern United States to enhance production by providing a genetic source for tropical adaptation. However, despite the benefits the Brahman provides, Brahman and Brahman influenced cattle are later maturing, have lower quality, less palatable carcasses, and therefore are discounted at market. The Angus (*Bos taurus*) on the other hand, is an early maturing breed with highly acceptable carcass characteristics, but is not tropically adapted. Recent importations of tropically adapted cattle into the United States which do not have *Bos indicus* influence have occurred. These newly introduced breeds may provide a source of tropically adapted cattle which are more acceptable in carcass merit. However, research regarding these breeds is lacking, particularly in relation to breeds common to U.S. production systems. This trial investigated the growth and reproductive development of some of these recently introduced breeds and compared them to two breeds common to U.S. production systems (Angus and Brahman). Angus (n=7), Brahman (n=10), Bonsmara (n=8), Romosinuano (n=10), Tuli (n=10), and Wagyu (n=10) bulls were maintained together and fed a corn/soybean meal (3:1) ration supplemented with 200 mg lasalocid/hd/day fed at 1.5% of body weight. Bulls had free access to water, Coastal bermudagrass hay, and a salt/mineral supplement. Measurements regarding growth (body weight, body condition score, and hip height) and reproduction (scrotal circumference, paired testis volume, and sperm concentration) were taken at two week intervals. Measurements began prior to attainment of a 21 cm scrotal circumference. Upon attaining a 21 cm scrotal circumference, bulls were electroejaculated for semen analysis. Measurements continued through puberty which was classified as an ejaculate containing  $\geq 50 \times 10^6$  sperm with  $\geq 10\%$  motility.

**Research Findings:** Days of age at puberty differed with the Bonsmara (298 d), Tuli (319 d) and Wagyu (321 d) being the youngest group at puberty, followed by the Angus (365 d) and Romosinuano (366 d) bulls, with Brahman bulls being the oldest at puberty (427 d). As expected due their increased age, Brahman bulls were the heaviest (867 lb) at puberty. Wagyu bulls were the lightest (570 lb), with Bonsmara (665 lb), Angus (627 lb), Romosinuano (627 lb), and Tuli (601 lb) bulls falling intermediate. Angus bulls were the shortest at puberty while Brahman bulls were the heaviest. Past studies have shown that many bulls reach puberty near attainment of approximately 28 cm of scrotal circumference. This was true for Brahman (28 cm), Bonsmara (28 cm), and Angus (27.5 cm) bulls. However, the Tuli (26.2 cm),

Romosinuano (25.6 cm), and Wagyu (24.5 cm) bulls attained puberty at smaller scrotal circumferences and paired testicular volumes.

	Angus	Bonsmara	Brahman	Romosinuano	Tuli	Wagyu
Age (days)	365±13 <sup>b</sup>	298±13 <sup>c</sup>	427±11 <sup>a</sup>	366±13 <sup>b</sup>	319±11 <sup>c</sup>	321±13 <sup>c</sup>
BW (lb)	627±33 <sup>bc</sup>	665±33 <sup>b</sup>	867±26 <sup>a</sup>	627±31 <sup>bc</sup>	601±29 <sup>b</sup>	570±31 <sup>c</sup>
Wt/DOA	1.7±.07 <sup>d</sup>	2.2±.07 <sup>a</sup>	2.0±.07 <sup>b</sup>	1.7±.07 <sup>d</sup>	1.9±.07 <sup>bc</sup>	1.8±.07 <sup>cd</sup>
BCS	5.6±.1 <sup>ab</sup>	5.5±.1 <sup>ab</sup>	5.7±.1 <sup>ab</sup>	5.4±.1 <sup>b</sup>	5.7±.1 <sup>ab</sup>	5.8±.8 <sup>a</sup>
HH (in)	44±.4 <sup>d</sup>	48±.4 <sup>b</sup>	54±.4 <sup>a</sup>	48±.4 <sup>b</sup>	48±.4 <sup>b</sup>	46±.4 <sup>c</sup>
SC (cm)	27.5±.9 <sup>acd</sup>	28.0±.7 <sup>acd</sup>	28.0±.8 <sup>ac</sup>	25.6±.8 <sup>bd</sup>	26.2±.8 <sup>bc</sup>	24.5±.8 <sup>b</sup>
PTV (cc)	353±28 <sup>a</sup>	335±28 <sup>ac</sup>	320±24 <sup>ad</sup>	257±26 <sup>bde</sup>	297±25 <sup>ace</sup>	240±26 <sup>be</sup>

Superscripts differing within rows differ ( $P < 0.05$ )

**Application:** The newly introduced breeds performed competitively with, or better than, the Angus within a subtropical environment for all traits measured. The newly introduced breeds also developed faster reproductively than did the Brahman. Therefore, use of these newly introduced breeds should not increase the time required for sexual development. These breeds appear to provide producers with the opportunity to establish heat tolerance within their herds without use of Brahman genetics.