



Single nucleotide polymorphisms in Brahman steers and their association with carcass and tenderness traits

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ABSTRACT. Data from purebred Brahman steers (N = 467) were used to study the association of single nucleotide polymorphisms (SNP) with carcass traits and measures of tenderness. Fall weaned calves were grazed and fed in a subtropical environment and then harvested for processing in a commercial facility. Carcass data were recorded 24 h postmortem. Muscle samples and primal ribs were obtained to measure calpastatin activity and shear force. DNA was used to determine genotypes of thyroglobulin (TG5), calpastatin (CAST) and μ -calpain (CAPN 316 and CAPN 4751) SNP. Minor allele frequencies for CAST, CAPN 316 and CAPN 4751 were 0.342, 0.031, and 0.051, respectively. CAST genotypes were associated with calpastatin enzyme activity ($P < 0.01$) and shear force of steaks aged for 14-day postmortem ($P < 0.05$). CAPN 316 genotypes were also associated with variation in shear force of steaks aged for 14 days ($P < 0.05$). CAPN 4751 genotypes approached significance for association with

shear force of steaks after 7 and 14 days ($P < 0.08$). Genotypes for TG5 were non-polymorphic (i.e., minor allele frequency = 0.004) and omitted from further analyses. Neither CAST nor CAPN SNP was associated with variation in other carcass traits.

Key words: Beef cattle; Single nucleotide polymorphisms; *Bos indicus*; Tenderness; Carcass traits