

Public Abstract

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Title:PHENOTYPIC AND GENETIC EFFECTS OF DISPOSITION ON BEEF TENDERNESS AND QUALITY ATTRIBUTES

Cattle temperament (exit velocity; EV) and steak tenderness (Warner-Bratzler shear force) have been shown to be associated in *Bos indicus* cattle (Behrends et al., 2009). Both traits potentially provide opportunities for improvement among beef herds and are profitable to producers. The American Simmental Association (ASA) provided records which included pedigree information, multiple WBSF core values, reported as average peak shear force (APSF), and a maximum of two EV measurements taken 42 days apart. Bayesian Information Criteria (Gilmour et al., 2006) values were utilized to evaluate the fit of alternative statistical models to the data. A near zero genetic correlation was estimated between APSF and EV. Moderate heritability estimates were found for both APSF and EV. DNA was extracted from tissue samples and genotyped using the Illumina BovineSNP50 BeadArray (San Diego, CA, USA; Matikumalli et al., 2009). Genome-wide association studies were conducted to identify genomic regions harboring loci associated with either of the traits. Only 70 (0.167%) of the 42,351 tested SNP markers were associated with variation in APSF ($n = 957$), and 2 (0.006%) of the SNP markers were associated with variation in EV ($n = 599$). The difference between pairs of EV measurements ($n = 587$) was also analyzed as a measure of habituation to human handling, and 2 (0.006%) of the SNP markers were found to be associated.