Association between carrageen and meat quality traits and phenotypic residual feed intake, breed composition, and temperament in Angus-Brahman multibreed cattle


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SUMMARY

The objective of this experiment was to quantify the association between carrageen and 4 meat quality traits and phenotypic residual feed intake (RFI), within breed composition and by sire group (1 = Angus, 2 = Angus-Brahman, 3 = Brangus, 4 = Brahman) using 170 steers of 100% Angus (A), 100% Brahman (B), calves were born in Spring and raised at Pamlico-Kane Beef Processors, Corriveau, TX. Phenotypic RFI was estimated as the difference between actual and expected feed intake. Traits were analyzed using singular mixed linear models. Two effects were contemporary group (sire), RFI group, age of calf, and heterozygosity of calf within RFI group. Heterozygosity of calf and exit velocity (EV) were higher in steers from the high RFI (RFI > 0.85 kg; SD = 1.7 kg), and low RFI (RFI < -0.85 kg; SD = 1.7 kg), and exit velocity had higher EV than low RFI calves. EV and EV had no effect on either carcass or meat quality traits. The coefficient of regression of LMA on heterozygosity was positive (7.9 ± 3.7 cm²; P < 0.035) indicating that steers with higher B fractions had light HCW, smaller LMA, thinner FT, lower MS, lower TS, and higher SF than steers with higher A fractions. Exit velocity did not affect carcass or meat quality traits.

RESULTS AND DISCUSSION

Residual Feed Intake and temperament. Residual feed intake was estimated as actual minus expected feed intake (Koch et al., 1963; Arthur et al., 2001; Archer et al., 2007). Expected feed intake was a linear function of average daily gain and metabolic mid-weight. Average daily gain was computed as regression of weight between the 12th and 13th rib (KPH, cm), kidney, pelvic, and heart fat (FT, %; 100*(Thawed wt – Cooked wt)/Cooked wt), and dressing percent (DP, %; 100*(Frozen wt – Thawed wt)/Thawed wt), and dressing percent (DP, %; 100*(Frozen wt – Thawed wt)/Thawed wt), and dressing percent (DP, %; 100*(Frozen wt – Thawed wt)/Thawed wt). Random effects were sire and residual (zero mean, common variance). Analysis of variance was performed with the GLM procedure of SAS (SAS Inst. Inc., Cary, NC). For RFI, statistical significance was based on the F test and the 0.05 level was used as the critical value. Means were separated using the PDIFF option of SAS. All analyses were performed by sire and residual (zero mean, common variance) and mean EV. Random effects were used and residual (zero mean, common variance). Significant differences were indicated to the 0.05 level. Random effects were used and residual (zero mean, common variance). Significant differences were indicated to the 0.05 level. Residual feed intake was higher in steers from the high RFI (RFI > 0.85 kg; SD = 1.7 kg), and low RFI (RFI < -0.85 kg; SD = 1.7 kg), and exit velocity had higher EV than low RFI calves. EV and EV had no effect on either carcass or meat quality traits.

MATERIALS AND METHODS

Animals, management, nutrition, and data collection. The 100% Angus and 100% Brahman cattle were born in Spring and raised at Pamlico-Kane Beef Processors, Corriveau, TX. Phenotypic RFI was estimated as the difference between actual and expected feed intake. Traits were analyzed using singular mixed linear models. Two effects were contemporary group (sire), RFI group, age of calf, and heterozygosity of calf within RFI group. Heterozygosity of calf and exit velocity (EV) were higher in steers from the high RFI (RFI > 0.85 kg; SD = 1.7 kg), and low RFI (RFI < -0.85 kg; SD = 1.7 kg), and exit velocity had higher EV than low RFI calves. EV and EV had no effect on either carcass or meat quality traits. The coefficient of regression of LMA on heterozygosity was positive (7.9 ± 3.7 cm²; P < 0.035) indicating that steers with higher B fractions had light HCW, smaller LMA, thinner FT, lower MS, lower TS, and higher SF than steers with higher A fractions. Exit velocity did not affect carcass or meat quality traits.

LITERATURE CITED
