Effect of breed composition on phenotypic residual feed intake and growth in Angus, Brahman, and Angus x Brahman crossbred cattle

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Abstarc :

The influence of additive and nonadditive genetic effects and temperament on 4 postweaning feed intake and growth traits wasevaluated in a group of 581 bull, heifer, and steer calves bornin 3 Florida herds in 2006 and 2007. Calves had breed compositionsranging from 100% Angus (A) to 100% Brahman (B). They were randomlyallocated to 24 pens each year by herd (Brooksville, Gainesville, Marianna, FL), sire group (A, 3/4 A 1/4 B, Brangus, 1/2 A 1/2B, 1/4 A 3/4 B, and B), and sex (bull, heifer, and steer) ina GrowSafe automated feeding facility at Marianna. Calves werefed a concentrate diet during the 21-d adjustment and the 70-dtrial periods. Individual feed intakes were recorded daily, and BW, chute scores, and exit velocities were recorded every2 wk. Traits were phenotypic daily residual feed intake (RFI), mean daily feed intake (DFI), mean daily feed conversion ratio(FCR), and postweaning BW gain. Phenotypic RFI was computed as the difference between actual and expected feed intakes.Calves were assigned to 3 RFI groups: high (RFI greater than0.9 kg of DM/d), low (RFI less than -0.9 kg of DM/d),and medium (RFI between mean ± 0.9 kg of DM/d; SD = 1.8kg of DM/d). The mixed model included the fixed effects of contemporarygroup (herd-year-pen), RFI group (except when trait was RFI), age of dam, sex of calf, age of calf, B fraction of calf, heterozygosityof calf, mean chute score, and mean exit velocity. Brahman fractionand heterozygosity of calf were nested within sex of calf forRFI and within RFI group for DFI, FCR, and postweaning BW gain.Random effects were sire and residual. Feed efficiency tendedto improve (decreased RFI) as the B fraction increased. However, calves required larger amounts of feed per kilogram of BW gain(larger FCR) as the B fraction increased. Postweaning BW gaintended to decrease as the B fraction increased. Temperamenttraits were unimportant for all traits except exit velocityfor DFI, suggesting perhaps a lack of variation for temperamenttraits in this herd, or that calves became accustomed to thelevel of handling pre- and postweaning, thus decreasing behavioraldifferences among them.

Key Word :

calf, feed intake, multibreed, temperament

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