Evaluation of post-weaning phenotypic residual feed intake in an Angus-Brahman multibreed herd of beef cattle

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Phenotypic residual feed intake (RFI) was evaluated in a group of 200 multibreed beef cattle from January 2006 to March 2006. Animals were produced by a diallel mating of 21 sires and 200 dams of all six breed groups. Calves were born from December 2005 to March 2006, and were kept at the UF Beef Research Unit, Gainesville, FL. Calves were randomly allocated to 10 pens of 20 calves each by sire group (1 = Angus, 2 = ¾ A ¼ B, 3 = Brangus, 4 = ½ A ½ B, 5 = Brahman, 6 = ¾ B ¼ A, 7 = ¼ A ¾ B, 8 = ½ B ½ A, 9 = ½ B ½ A, 10 = Brahman). Calves were equipped with 2 GrowSafe feed nodes. Calves were randomly allocated to 10 periods. Individual daily feed intake and weekly weights were obtained. Phenotypic RFI was compared as the difference between the actual and the expected feed intakes (function of average animal weights). The RFI class effect was included in the mixed linear model for daily feed intake and feed conversion ratio, and lower (P < 0.0001) for average daily gain and final weight than those of the low RFI group.

Introductions

Considerable attention has been given to feed efficiency in beef cattle in recent years, particularly with the development of automatic feeding systems that permit the collection of individual feed intake data. The RFI concept was developed to assess the efficiency of feed utilization in animals from a breed or sire test environment. The objective of this research was to evaluate post-weaning phenotypic RFI and post-weaning growth in bulls, heifers, and steers in an Angus-Brahman multibreed herd of beef cattle.

Materials and Methods

Animals and preweaning management and nutrition. Animals were from the Angus-Brahman multibreed herd at the University of Florida ( UF ) animal science department, Gainesville. All 21 breed-reporting sires were used in the diallel mating, with a minimum of one third of the group represented on any given sire. Calves were pre-conditioned to the GrowSafe ( GrowSafe, Inc., Carthage, MO ) feeding device for 14 days before weaning, and then moved to a multibreed herd of the University of Florida, Animal Science Department, Gainesville. Calves were weaned on May 1, 2006, and moved to the GrowSafe for individual feed intake recording. Calves were fed a finisher-type diet ( 20% concentrate, 80% dry matter), and were given a finishing diet ( 10% concentrate, 90% dry matter) for the final feeding trial weight ( 70 d; 420 kg). Pasture, and free choice mineral ( UF University Special Hi-Cu Mineral, University of Florida, Animal Science Department, Gainesville).

Results and Discussion

Phenotypic RFI analysis. Important effects (Table 2) were sex ( P < 0.022), heifer ( P < 0.022), and sex by sire interaction ( P < 0.022). The largest fraction of calves belonging to the low RFI group (most efficient). The largest fraction of calves belonging to the low RFI group (most efficient) were heifers ( P < 0.02). The largest fraction of calves belonging to the high RFI group (least efficient) were heifers ( P < 0.02). The largest fraction of calves belonging to the medium RFI group (most efficient) were heifers ( P < 0.02). The largest fraction of calves belonging to the high RFI group (least efficient) were heifers ( P < 0.02). The largest fraction of calves belonging to the medium RFI group (most efficient) were heifers ( P < 0.02). The largest fraction of calves belonging to the high RFI group (least efficient) were heifers ( P < 0.02). The largest fraction of calves belonging to the medium RFI group (most efficient) were heifers ( P < 0.02). The largest fraction of calves belonging to the high RFI group (least efficient) were heifers ( P < 0.02).

Literature Cited


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