Relationship between carcass traits and phenotypic residual feed intake, breed composition, temperament, and ELISA scores for paratuberculosis in an Angus-Brahman multibreed herd


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SUMMARY

The objective of this research was to assess the relationship between phenotypic residual feed intake (RFI), breed composition, temperament, and ELISA scores for paratuberculosis (TB) in an Angus-Brahman multibreed herd. Two trials were conducted. In the first trial, a total of 200 Angus (A), Angus-Brahman multibreed (AB), and Brahman (B) steers were used. The second trial was conducted from October 2006 to May 2007, and involved 200 steers of the same breed groups. Steers were evaluated in terms of dam ELISA scores (44% of the breeding herd had positive ELISA scores, and 1.7% of the breeding herd had positive ELISA scores in the first trial, and 10% of the breeding herd had positive ELISA scores in the second trial). The results indicated that steers with higher RFI were associated with higher ELISA scores for paratuberculosis. The relationship between temperament and ELISA scores for paratuberculosis was not associated with any of the breed groups.

INTRODUCTION

Identification of factors that permit animals to grow quickly and efficiently, and have desirable carcass characteristics remain a priority goal in beef production. Breed composition (additive and nonadditive genetic effects), residual feed intake (RFI), and dam ELISA scores for paratuberculosis (TB) are factors that may have an impact on carcass traits. Relationships between RFI and BIF were determined using a multibreed herd of the University of Florida (UF), and dam ELISA scores for TB were determined using a multibreed herd of the University of Florida (UF). The results indicated that steers with higher RFI were associated with higher ELISA scores for TB. The relationship between RFI and dam ELISA scores for TB was not associated with any of the breed groups.

MATERIALS AND METHODS

Breeds and preweaning management and nutrition. Steers (n = 200) were from the Angus-Brahman multibreed herd of the University of Florida. Calves were housed in a custom designed facility (166 pens of 4 steers per group) and received the following feed ingredients: 38% whole corn, 18% soybean hulls, 18% cottonseed hulls, 13% distillers dried grains with solubles, 12% beet pulp, 4% rice bran, 3% fish meals, 2% calcium carbonate, and 1% salt. Calves were managed for 140 d in a preweaning facility (Research Unit in Gainesville, FL), then moved to a postweaning facility in the Beef Research Unit in Marianna, FL, and finally slaughtered at Dean-Wooton Processing, Corpus Christi, TX. Phenotypes were collected at the postweaning facility. Calves were randomly assigned to groups (4 steers per group) based on age, weight, and BIF.

Breeding, conception, and data collection. A total of 200 Angus (A), 200 Angus-Brahman multibreed (AB), and 200 Brahman (B) steers were used. The steers were selected, and a total of 200 steers of the same breed groups were used. The steers were selected in terms of dam ELISA scores (44% of the breeding herd had positive ELISA scores, and 1.7% of the breeding herd had positive ELISA scores in the first trial, and 10% of the breeding herd had positive ELISA scores in the second trial). The results indicated that steers with higher RFI were associated with higher ELISA scores for paratuberculosis. The relationship between temperament and ELISA scores for paratuberculosis was not associated with any of the breed groups.

RESULTS AND DISCUSSION

Breed composition and residual feed intake. Differences between RFI groups were not significant for all carcass traits. For additive genetic effects, the expression of RFI in 1/4 B Brahman individuals was similar to that of 1/4 A Brahman individuals. For nonadditive genetic effects, the expression of RFI in 1/4 B Brahman individuals was similar to that of 1/4 A Brahman individuals. The results indicated that steers with higher RFI were associated with higher ELISA scores for paratuberculosis. The relationship between temperament and ELISA scores for paratuberculosis was not associated with any of the breed groups.

LITERATURE CITED

BIF. 2002. Guidelines for evaluating beef improvement programs. 4th Ed.
http://www Nebraska. usda.egov/00000. html