Abstract 1T81

Genetic parameters and genetic trends for preweaning growth in an Angus-Brahman cattle population in the Colombian tropics

O. D. Vergara1, M. A. Elzo2, R. M. Patiño3, A. Calderón3, R. Almanza4

University of Cordoba, Monteria, Colombia1, University of Florida, Gainesville, FL, USA2, University of Sucre, Sincelejo, Colombia3, Gencaribe, Hacienda Abastecedora de Carnes SA, Planeta Rica, Colombia4

SUMMARY

The objective of this research was to estimate genetic parameters and trends for birth weight (BW) and weaning weight adjusted to 720 d of age (WW270) in a beef cattle population composed of Angus and Brahman weightings and crossbred animals located in a Colombian premontane humid forest. Data were from 551 calves born from 1999 to 2010. A 2-trait mixed model included the fixed effects of contemporary group (year-season-year), age of dam, breed direct genetic effects, breed maternal genetic effects, individual heterosis, and maternal heterosis. Random effects were calf direct genetic, dam maternal genetic, permanent environmental maternal, and residual. Variance components and genetic parameters were estimated by Restricted Maximum Likelihood (REML). In addition, animals reached the age of 36.3 kg and 3.0 kg for BW and WW270, respectively. The estimates of direct and maternal heterosis were zero for BW and WW270. The estimate of direct heterosis for WW270, respect to value of maternal heterosis, indicate that direct weaning was substantially more influenced by non-additive interrelated genetic effects than the production of milk of dams. Although non-significant, the estimate of direct heterosis for WW270 suggested that it would be economically advantageous to consider expected heterozygosis of the progeny when planning matings in this population. The opposite occurred with BW.

RESULTS AND DISCUSSION

Breed effects. Angus had the best performance for direct breed effects for BW and WW270 and had the worst performance for maternal breed effects for WW270 under the tropical environmental conditions of this population (Table 1). Although non-significant, this indicated that Angus and Brahman calves with a high Angus fraction had higher ability for WW270 and dam Angus and crossbred dams with a high Angus fraction tended to wean calves with lower weights.

Animals and Data. Data were collected by a private cattle company (Gencaribe, Medellin, Colombia) from 1999 to 2010. Data consisted of 551 birth weights (BW) and weaning weights (WW270). Weaning weights were adjusted to 270 d old age.

Genetic Trends. Trends for yearly means of calf EBV were positive for BW and WW270 direct genetic effects (Table 3; Figures 1, 2). The genetic trends for BW and WW270 maternal genetic effects were negative (Table 3; Figures 1, 2). All genetic trends were not significant. Thus, no selection for BW and WW270 appeared to have occurred during these years. To improve genetic progress in this population, a genetic evaluation and selection system based on animal EBV would need to be implemented to choose sire and dam replacements.

Figure 1. Genetic trends for direct and maternal EBV for BW

Figure 2. Genetic trends for direct and maternal EBV for WW270

LITERATURE CITED