GENETIC PARAMETERS FOR SCROTAL CIRCUMFERENCE AND GROWTH TRAITS OF CANCHIM CATTLE

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Scrotal circumference and growth traits are used as selection criteria in beef cattle in Brazil. The relationship between traits should be known if selection is expected to be effective. The objective of this study was to estimate the genetic correlations of male scrotal circumference at 12 months of age (SC12) with male and female body weights at birth (BW), weaning (WW), twelve (W12) and eighteen (W18) months of age, body weight gains from birth to weaning (DGBW) and from birth to eighteen (DGB18) months of age, and days to gain 175 kg from birth to weaning (D175 = 175/DGBW) and to gain 450 kg (D450 = 450/DGB18) from birth to slaughter in a Canchim beef cattle herd. The restricted maximum likelihood method, with models that included the fixed effects of year and month of birth, sex of calf, and age of dam and age of calf as covariables, and the additive direct and maternal, permanent environmental, and residual random effects, depending on the trait, was used. The genetic correlations of the growth traits with SC12 were equal to 0.14 (BW), 0.23 (WW), 0.46 (W12), 0..42 (W18), 0.26 (DGBW), 0.46 (DGB18), -0.23 (D175) and -0.39 (D450), suggesting that selection for SC12 should result in favorable correlated responses in the growth traits, or vice versa, mainly to those traits measured after weaning.

GENETIC CORRELATION FOR MALE AND FEMALE GROWTH TRAITS AND FEMALE AGE AT FIRST CALVING AND ADULT BODY WEIGHT IN A CANCHIM BEEF CATTLE HERD

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The relationship between the selection criteria and other production traits should be favorable if selection is expected to change production in the right direction. In this study, the genetic correlations of female age (AFC) and weight (WFC) at first calving and adult body weight (ABW) with male and female body weights at birth (BW), weaning (WW), twelve (W12) and eighteen (W18) months of age, body weight gains from birth to weaning (DGBW) and from birth to eighteen (DGB18) months of age, and days to gain 175 kg from birth to weaning (D175=175/DGBW) and to gain 450 kg (D450=450/DGB18) from birth to slaughter in a Canchim herd, were estimated. The restricted maximum likelihood method, with models that included the fixed effects of year and month of birth (or of calving), sex of calf, and age of dam as a covariable (or age of cow as class), and the additive direct and maternal, permanent environmental, and residual random effects, depending on the trait, was used. The genetic correlations of BW, WW, W12, W18, DGBW, DGB18, D175 and D450 with AFC were 0.49, -0.28, -0.25, -0.24, -0.36, -0.38, 0.35 and 0.44, respectively, while with WFC they were 0.88, 0.55, 0.77, 0.66, 0.42, 0.52, -0.47 and -0.43, and with ABW they were 0.78, 0.55, 0.76, 0.62, 0.43, 0.53, -0.44 and -0.39, respectively. These results indicate that selection for these growth traits should result in younger females at first calving; however, they are expected to be heavier at adult age.(Financial support: Embrapa and FAPESP).

CARCASS GAIN YIELD OF PUREBRED AND CROSSBRED NELLORE BULLS[1]

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Nellore (NE) and crossbred Canchim x Nellore (CN), Angus x Nellore (AN) and Simental x Nellore (SN) young bulls (68 animals), out of Nellore or high grade Nellore cows, with initial empty body weight of 294.8 ± 42.8 kg were fed for 92-161 days to the same degree of finishing (at least 225kg carcass and 6mm backfat thickness by ultrasound). Diet had 60% corn silage: 40% concentrate, 13.8% CP and 71.5% TDN on a DM basis. Initial carcass weight was estimated from a similar group of 14 animals slaughtered before the start of the trial. Empty body gains (kg/day) were 1.34a (AN), 1.12b (CN), 1.39a (SN) and 1.03b (NE). Final carcass weights (kg) were 305.7b (AN), 293.4b (CN), 324.8a (SN) and 245.1c (NE). Crossbreeding improved carcass daily weight gain (kg/day) for AN (0.96a) and SN (0.94a) as compared to NE (0.66c) and CN (0.84b). There were no differences among yield of carcass as related to shrunk weight gain (67,8 ± 3,4 %BWG). Carcass yield as related to empty body weight gain (%BWG) was highest for Canchin (75.8a) and lowest for Nellore (65.1b) while Angus and Simental were intermediary (71.4ab and 67.8b). Carcass gain and yield at similar end point is an excellent 'output' parameter to evaluate feedlot. Crossbreeding improves carcass production from Nellore cows, however changes in feed intake (inputs) have to be taken in account.

PREDICTING RETAIL YIELD OF CROSSBRED BULLS

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Value-based marketing is becoming a reality. Accurate prediction methods are needed for determining amounts of a saleable beef carcass product. To develop a contemporary prediction equation for estimating boneless closely trimmed retail yield (RY, %), carcasses from 450 crossbred bulls and heifers were evaluated. Initial and final live weight averaged 228.4 and 431.1 kg, respectively. Hot carcass weight (HCW, kg), rib eye area (REA, cm^2), fat thickness (FT, cm), kidney, pelvic, and heart fat (KPH,%), and marbling score (MAR) were the variables considered in the model. Kidney, pelvic, and heart fat were weighed and expressed as a percentage HCW. Purchase weight (PW) was closely associated with days on feed (DOF; DOF = 306.7 - 0.71 PW; R2 = .83). Retail yield averaged 70.5% (± 1..0 SD), ranging from 65.8 to 72.6 % of HCW. Retail yield was negatively associated with HCW (r = -.02), KPH (r = -.69), FT (r = -.70), and MAR(r = -.17), but was positively associated (r = .48) with REA. Stepwise regression procedures, including the same variables, were also performed to develop a prediction model for RY. The best model was as follows: RY = Y2=75.4343+. 04167 REA - .002HCW - .9254 KPH –21.116 FT (R2 = .99). Predicted retail yield percentage explains 90% of variation in observed boneless retail yields percentage.