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Parámetros genéticos para circunferencia escrotal, edad a la pubertad en vaquillas y tasa de destete en varias razas de bovinos productores de carne

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### Abstract

Records for yearling scrotal circumference (SC,  $n=7,580$ ), age at puberty in heifers (AP  $n=5,292$ ), and weaning rate for cows at first calving (WR1,  $n=7,003$ ) from 12 *Bos taurus* breeds collected in Clay Center, Nebraska, U.S.A., between 1978 and 1991, were used to estimate heritabilities and genetic correlations. Five data subsets were generated from the main data set. Three subsets corresponded to groups of similar breeds and two subsets grouped parental and composite breeds. Groups were: (Group 1) Charolais (C), Limousin (L), and MARC I composite; (Group 2) Simmental (S), Gelbvieh (G), Braunvieh (B), and MARC II composite; (Group 3) Hereford (H), Angus (A), Pinzgauer (P), Red Poll (R), and MARC III composite; (Group 4) C, L, S, G, B, H, A, P, R, and (Group 5) MARC I, MARC II, and MARC III composites. A multiple trait animal model was used which included as random effects direct genetic, maternal genetic, maternal permanent environmental, and residual. Variance components were estimated by the restricted maximum likelihood procedure. Heritabilities for SC, AP and WR1 were between  $0.35\pm0.06$  and  $0.50\pm0.07$ ;  $0.08\pm0.05$  and  $0.26\pm0.09$ , and  $0.09\pm0.04$  and  $0.12\pm0.04$ . Genetic correlations between SC and AP and between SC and WR1 were  $-0.41\pm0.22$  and  $0.22\pm0.13$  (Group 1),  $-0.09\pm0.05$  and  $-0.03\pm0.03$  (Group 2),  $0.19\pm0.14$  and  $0.04\pm0.03$  (Group 3),  $0.03\pm0.07$  and  $-0.02\pm0.01$  (Group 4), and  $-0.28\pm0.14$  and  $0.20\pm0.11$  (Group 5). Direct genetic correlations between AP and WR1 were  $-0.08\pm0.07$ ,  $0.02\pm0.02$ ,  $0.42\pm0.24$ ,  $0.30\pm0.13$ , and  $-0.22\pm0.14$  for Groups 1, 2, 3, 4, and 5, respectively. Estimates of genetic correlations indicate low genetic links among traits.

### Keywords

Beef cattle, Fertility, Heritability, Genetic correlations.