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Genetic study of skin thickness and its association with postweaning growth in Nellore cattle: estimation of the genetic parameters

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ABSTRACT. The objective of the present study was to estimate genetic parameters for skin thickness (ST) and postweaning weight gain (PWG550) in Nellore cattle. Records were obtained from 152,392 Nellore animals born between 2001 and 2011. ST was measured in the posterior region of the animal's scapula with a millimeter caliper. The animals were assigned to different contemporary groups, formed on the basis of farm, year, sex, feeding regimen at weaning, date of weaning, feeding regimen at 450 days of age, and date of weighing at 450 days of age. The genetic parameters were estimated by Bayesian analysis using the GIBBS1F90 program. The mean ST and PWG550 observed were 7.71 ± 2.04 mm and 115.95

± 36.17 kg, respectively. The posterior mean estimates of heritability (h^2) were 0.12 ± 0.02 and 0.29 ± 0.02 for ST and PWG550, respectively. The posterior mean estimates of the phenotypic, genetic, and environmental correlations between the traits were 0.16 ± 0.0, 0.17 ± 0.02, and 0.17 ± 0.09, respectively. The traits ST and PWG550 showed sufficient additive genetic variance to be used as selection criteria in breeding programs. The low genetic correlation obtained indicates that genes favoring the expression of one trait may not influence the other. Consequently, a selection favoring ST would be less efficient in increasing PWG550.

Key words: Skin thickness; Postweaning weight gain; Beef cattle; Bayesian analysis; Heritability; Genetic correlation

