COMPARISON OF MODELS FOR GROWTH TRAITS IN ANGUS X CANCHIM CATTLE

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The aim of this work was to identify the best model to estimate the heritability coefficients for weight from birth to 420 days of age for 379 offspring from 53 sires and 224 dams crossbred Angus x Canchim beef cattle. Data from four genetic groups: Canchim, Angus and F1 crossbreds: Canchim x Angus and Angus x Canchim, born between 1981 and 2014, belong to the Experimental Station of the IAPAR were analyzed. The heritabilities were estimated by an animal model using BLUPF90 (Misztal et al; 2014) by 2 models: Model 1: \( Y = X\beta + Za + e \) and Model 2: \( Y = X\beta + Za + Wp + e \) where: \( Y \) is the vector of dependent variables; \( \beta \) fixed effects vector; \( a \) The vector of direct additive genetic effects; \( p \) vector of maternal permanent environment effects; \( X, Z \) and \( W \) are incidence matrices associated with each effect, respectively; and \( e \) is the vector of residual effects. The LRT (Likelihood Ratio Test) was used to choose the most appropriate model. For birth weight the heritability estimates were 0.47 ± 0.14 and 0.44 ± 0.15 for models 1 and 2, respectively. For Weaning Weight the heritability coefficients were 0.27 ± 0.13 and 0.20 ± 0.15 for models 1 and 2, respectively. For YW the heritabilities were 0.18 ± 0.13 and 0.13 ± 0.13. For the 420dW were 0.39 ± 0.15 and 0.27 ± 0.16. The LRT indicated model 1 as the most appropriate for all the traits, which can be explained by the number of animals in the database. The inclusion of the maternal permanent environment effect is not necessary to estimate the coefficient of heritability

Keywords: crossbreeding, genetic parameters, likelihood ratio test, maternal permanent environment effect

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