

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

## STUDY OF HETEROGENEITY OF VARIANCES ON GENETIC EVALUATION OF NELLORE BEEF CATTLE BY BAYESIAN INFERENCE

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The aim was to evaluate the presence of variance heterogeneity, its influence on the estimation of variance components for weight gain from 210 to 450 days of age, and also, to evaluate its impact on the genetic evaluation of Nelore breeders. Were used 29,583 records of animals that born from 1990 to 2014 in herds of the National Association of Breeders and Researchers (ANCP) located in the states of Mato Grosso, Mato Grosso do Sul and Goiás. The standard deviation (SD) classes were formed by the standardization of herd-year averages, with positive values composing the high SD class and values equal to and less than zero composing the low SD class. At multiple trait analyses, where the same trait was considered a distinct characteristic regarding each class of standard deviation. The animal model included the fixed effect of contemporary group, age of cow to calving as covariate, random additive genetic direct effects, maternal permanent environment and residual random effect. The components of covariance were estimated by Bayesian inference using the Gibbs sampler. Genetic correlations between the same weight, in high and low phenotypic standard deviation classes were 0.71, 0.80 and 0.84 for weights at 365, 450 and 550 days, respectively. Spearman correlations between breeding values obtained from multiple trait analyses and general analysis (without classes), and between classes of standard deviations, lowered as the intensity of selection on sires increased. The presence of heterogeneity of variances has greater impact on the genetic evaluation of breeding under high intensity of selection, it is interesting your consideration in the process of genetic evaluation. The heritability estimate for weight gain in the high an low standard deviation classes were equal to  $0.17 \pm 0.02$  and  $0.16 \pm 0.02$ , respectively. Genetic correlations between the same trait, in high and low phenotypic standard deviation classes were 0.59. Spearman correlations between breeding values obtained from multiple trait analyses and general analysis (without classes), and between classes of standard deviations, lowered as the intensity of selection on sires increased. The presence of heterogeneity of variances has greater impact on the genetic evaluation of breeding under high intensity of selection, it is interesting your consideration in the process of genetic evaluation.

**Keywords:** beef cattle; genetic evaluation; genotype x environment interaction.

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