



GENETIC EVALUATION OF TEMPERAMENT TRAIT BY VISUAL SCORE IN NELORE CATTLE

AVALIAÇÃO GENÉTICA DA CARACTERÍSTICA TEMPERAMENTO POR ESCORE VISUAL EM BOVINOS NELORE

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The national herd is predominantly composed by Nelore breed (*Bos indicus*), being extremely important for beef cattle, even though, it have limitations as aggressive temperament compared to populations of *Bos taurus* origin. The temperament (TEMP) can be defined as the perception and reaction of the animals when they feel fear or are managed by man. More reactive cattle have lower weight gain, produce beef of lower quality, are more susceptible to diseases and have low reproductive performance. The objective of this research was to obtain the components of (co) variances and genetic parameters of TEMP in order to provide subsidies to farmers and technicians on its use in animal breeding programs. For the TEMP trait, the database used was from the Nelore breeding program – Nelore Qualitas. Data was recorded from 2000 to 2009, on 20 farms across six Brazilian states, on 48,879 males and females ranging in age from 450 to 599 days. TEMP trait was performed by visual scores, in 1-5 scale, where higher scores means less reactive animals. The genetic parameters were estimated with univariate animal model and Bayesian inference, using the program GIBBS2F90. The statistical model included fixed effects of contemporary group, age at measurement as a linear covariate, and random effects of additive genetic and residual. The data set included 455 sires, 28,111 dams and 3,153 contemporary groups defined as animals born in same herd-year, sex, and weaning and post-weaning management groups. Pedigree data included all animals in an observation where their relatives up to nine generations back were added, which included 190,127 animals. One independent chain was run 500,000, with the first 20,000 rounds discarded as the burn-in period and 20 rounds as the time interval, thus resulting in 24,000 rounds. The burn-in period was based on subjective evaluation of plots of values from the Gibbs chain. Flat prior distributions were used for variance components. The posterior estimate of genetic parameters showed convergence using Raftery and Lewis tests. The mean posterior heritability estimated was 0.16 ± 0.01 for TEMP trait. The means estimated were not different from the median and mode estimate, suggesting symmetry in the measure of central tendency. These moderate heritability estimates of TEMP suggest that response to selection and genetic gain can be achieved by selection.

Key words: animal models, Bayesian inference, heritability.