

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

GENETIC ASSOCIATION BETWEEN GROWTH AND MATERNAL ABILITY TRAITS IN NELORE CATTLE

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Although body weight traits have been widely used in animal breeding programs due to their importance to beef cattle systems, the use of maternal ability traits, which highly affect the profitability in livestock, is still incipient. As the knowledge of genetic parameters of economic important traits may aid genetic gains, this study was carried out to estimate genetic parameters for weight at 120 and 210 days of age (W120 and W210), pre-weaning average daily gain (PreDG), real fertility (RF), accumulated productivity (AP) and weaning rate (WR). The data set was obtained from Vera Cruz Ranch, a cattle ranch that participates in the Brazilian National Association of Breeders and Researchers (ANCP). Heritabilities and correlations were estimated using univariate and bivariate linear mixed model. The model included contemporary groups (year and season of birth, sex and management group), cow age at calving (in classes and as linear and quadratic covariate) as fixed effects, and genetic and residual components as random effects. Estimates of heritability for between growth and maternal ability traits ranged from 0.22 to 0.32, indicating that they could be improved by direct selection. Estimates of genetic correlation between W120-W210, W120-PreDG, W120-RF, W120-AP, W120-WR were 0.90, 0.54, 0.16, 0.45 and 0.24, respectively. Estimates of genetic correlation between W210-PreDG, W210-RF, W210-AP, W210-WR were 0.63, 0.27, 0.53 and 0.21, respectively. Estimates of genetic correlation between PreDG-RF, PreDG-AP, PreDG-WR were 0.23, 0.16 and 0.28, respectively. Positive genetic correlations were observed between RF, CAP and RD (0.28 to 0.78). Therefore, genetic selection having one of these characteristics as the criterion of selection will lead to an indirect response in the same direction in the others. These results indicate that the use of animals with high breeding values for weights and pre-weaning gain may lead to increase maternal ability traits due to correlated responses. Such responses tend to be bigger when using weight compared to the pre-weaning gain.

Keywords: accumulated productivity, genetic parameters, real fertility, weaning weight, zebu

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