

## MICROSATELLITES AND RFLP HETEROZYGOSITIES AS CORRELATES OF GROWTH FEATURE IN F<sub>1</sub> BOVINE CROSSES.

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Several studies have been made to investigate the relationship between heterozygosity and production traits in both natural and farm animal populations. Many of these have shown positive correlations between heterozygosity at a small number of marker loci and fitness related traits, although negative results have also been reported. The objective of the present study was to evaluate the influence of heterozygosity at ten polymorphic loci and growth related features in F<sub>1</sub> bovine progenies. The experimental group comprised approximately 250 animals originated from crosses between Nellore females and either Nellore, Aberdeen Angus, Canchim or Simmental bulls, totalizing four genetic groups. The polymorphic systems used were the RFLPs  $\kappa$ -casein-*Hinf*I (CSN3),  $\gamma$ -lactoglobulin-*Hae*III (LGB), growth hormone-*Alu*I (GH) and the microsatellites *BM1224*, *BM8246*, *BM1329*, *BM7160*, *BM6026*, *CSFM50* and *TEXAN15*. Individual heterozygosities (H) were estimated by the proportion of heterozygote loci. Its effect on the animal weight at different ages (birth, weaning, twelve subsequent times up to approximately 580 days and at the first oestrus) was investigated by variance analysis by the least squares method, using the GLM procedure – SAS. This measure of H allowed for the investigation of the effect of each individual's heterozygosity value with its weight measures. The statistical model comprised the nutritional treatment, sex, birth year, genetic group and animal's age at each weight as source of variation. Significant effect ( $P < 0,05$ ) was observed only for the W9, W10 and W11 traits, which was obtained from 480 to 570 days approximately. Model fitness for this traits was high ( $R^2 > 0.85$ ). The amplitude of variation of H observed in the present work was from 0.2 to 0.9, so the results did not include extreme values for this parameter. Body weight traits can be considered as essentially additive traits, however, growth at different ages may result from the action of different genes that could differ in average gene action, which could account for the significance observed only in part of the weight measures. The present results suggest that heterozygosity may affect live weight in at least one period of growth. Individual heterozygosity parameter has shown to be a powerful tool for regression analysis but studies of relation between genetic distances, heterozygosity and production traits considered as population parameters could contribute to complement this data.

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