

Title: Multivariate analyses of live-animal ultrasound carcass traits of composite cattle

Mayara Salvian*¹, Johanna Ramírez-Díaz¹, Diego C. Cucco², Miguel H. Santana², Marina N. Bonin², Rodrigo D.C. Gomes², Jose B.S. Ferraz², Gerson B. Mourão¹

* Scientific Researcher, ¹Department of Animal Sciences, University of São Paulo; 11 Av. Padua Dias.; Piracicaba, São Paulo Brazil; ²Collegue of Animal Science and Food Engineering (FZEA), University of São Paulo, Brazil.

* mayara.salvian@usp.br

The importance of measurement of carcass traits using ultrasound scan relies on the ability to predict the volume and quality of meat in carcass beyond to propitiate an early animal selection, influencing on the related profit. Traits such as rib eye area (REA), the subcutaneous fat thickness (BF) and fat thickness in rump (RF) are important economic traits in breeding programs. In composite beef cattle is important to check the differences in production between the different genetic groups, due to combining genes from different breeds may perform differently. Exploratory data analysis techniques allow the classification of objects into groups called clusters. The aim of this study was to identify the genetic groups with similar performance for carcass traits using hierarchical cluster (n=1800 animals). Cluster analysis and dendrogram were performed using SAS. All the variables were standardized to remove the effect of the measurement scale, thus, is possible apply the analysis on variables that have similar values and standard deviations. The centroid method in clustering was used for this research and it is described by the distance between two clusters, like was defined as Euclidean distance square. REA, BF and RF were evaluated in nine genetic groups composed by N, A, B and C biological types (4480, 4840, 4444, XX12X, X12XX, 41200, 0088, 00160, 01600) that composed the beef cattle Montana tropical. Multitrait analysis allowed identified five groups. The first group was formed by pure animals (00160 and 01600), the second included X12XX, 41200 and X12XX, the third included XX12X and 4444 and the last two groups were formed by 4840 and 4480, respectively. The results suggested that the traits related with carcass production are similar between the genotypes and they can orient the evaluation and use of them by the meat farmers.

Keywords: Agglomerative method, clustering, composite breed, quality carcass, animal breeding, beef cattle

Acknowledgments: To CAPES (Coordenação de Aperfeiçoamento de Pessoal de Nível Superior) for partially funding this research.