

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

THE USE OF PRINCIPAL COMPONENT ANALYSIS FOR TYPE TRAITS IN MURRAH BUFFALOES

Willian Bruno Fernandes de ANDRADE*¹, Jéssica Lorena GONZALES¹, Daniel Jordan de Abreu SANTOS¹, Fernanda TANAMATI¹, Humberto TONHATI¹

*corresponding author: galenawillb@gmail.com

¹Universidade Estadual Paulista “Júlio Mesquita Filho”, Faculdade de Ciências Agrária e Veterinárias, Jaboticabal, São Paulo, Brasil

The type traits are phenotypically related to milk yield traits, so the selection for type traits may indirectly result in a genetic gain in milk yield. In addition, the principal components analysis (PCA) is one of the most used techniques in the data analysis when the variables are correlated, allowing to represent all of them reducing the time and expense of computational resource without losing representativeness of the data. The aim of this study was reduce a multicollinearity problem. For this, a total of 332 Murrah buffaloes were used, from Tapuio farm, located in the Rio Grande do Norte state, Brazil, which were raised in a green pasture and of good quality supplemented during the dry period (from April to September). The following traits were analyzed: withers height, body length, croup length and croup height. All analyzes were performed using computational routines implemented considering the *prcomp* function of the stats package in the software R 3.0.1 (R Development Core Team, 2018). The results showed that the PCA was effective, allowing the use of one component to represent the data variation by Kaiser (1960) criterion, with the first, second and third principal component explaining, x 79%, y 11% and z 0.05% respectively. This result can be explained by the high correlation between the types traits (Pearson correlation ranging from 0.7 to 0.9). Thus, the use of one component could reduce the time and resources spent for future analyzes using this same database, without losing the significance of this information. It is important for the composition of a selection index and simultaneous analyzes for traits that present a multicollinearity problem. In conclusion, the PCA was effective and it could be used to reduce the number of variables in future analyzes, as genetic evaluation. Besides, PCA reduce a multicollinearity problem, in which the first principal component (CP1) could be enough to explain most of the data variability.

Keywords: animal breeding, dairy buffalo, pca, type traits

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