

PRINCIPAL COMPONENTS IN THE ESTIMATION OF THE OPTIMUM EXPERIMENTAL UNIT SIZE INVOLVING BANANA GENOTYPES

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- **ABSTRACT:** Usually, the optimum experimental unit size is calculated individually for all the features of interest. In the presence of a large number of features, this procedure often leads to different sizes of plots making it difficult to indicate a common optimal size. Since the purpose of the principal component multivariate technique is of condensing a large number of variables in a few components which explains much of the variation of them, that can be used to simplify determination of the optimal plot size considering a lot of characteristics. Thus, this report aimed to apply this technique to a data set containing five different characteristics evaluated in two cycles of genotypes of banana trees, and use the components in regression models segmented response with plateau (MLRP - linear, MQRP - quadratic and MERP - exponential) to estimate the optimal size. The first principal component explained 89.68% of the variability of the characteristics. These estimates were for the respective models MLRP, and MQRP MERP, 9, 28 and 54 ub (basic units) for the first cycle, and 9, 14 and 25 ub for the second cycle. It is indicated the optimum size of 28 ub for first cycle and 14 for the second cycle, obtained from MQRP.
- **KEYWORDS:** Coefficient of variation; segmented models; multivariate analysis.

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