VARIANCE COMPONENT ANALYSIS BASED ON NESTED MULTIVARIATE MODELS AS A TOOL FOR VARIETAL RECOMMENDATIONS

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In the past recommendation of crop varieties was based only on yield. However, some methodological developments are there on recommending varieties based on all important characters (multivariate approach). The principle in some of these multivariate approaches is that, a multivariate index is developed using all important characters and then apply established univariate techniques such as variance component analysis (VCA). However, genotype × environment interaction is often ignored in developing such indices. This study proposes construction of the multivariate index based on nested model approach in order to overcome the identified problem. In addition, methodology is developed for VCA to be performed based on the suggested multivariate index. The suggested approach is illustrated using the data on rice grain yield along with other important quality and agronomic aspects from varieties of three month maturity duration, cultivated across diverse environments during the 2002 / 03 wet–season in Sri Lanka. The analysis clearly demonstrated the suggested approach to be efficient and thus the suggested can be used as an effective method for recommending crop varieties based on all important characters.