Bioved, **28**(2) : 381–389, 2017 http://biovedjournal.org/

Statistical assessment of chickpea by using various stability analysis approaches

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Received March 5, 2017 and Accepted June 7, 2017

ABSTRACT : The objective of this study was to explore the effect of genotype and genotype x environment interaction on yield of 12 chickpea varieties in fifteen different environments. Various statistical methods are available to analyze the data in MVATs. However, the information on these methods and their relative performance on evaluation of adaptability of chickpea varieties are limited. Therefore, in these studies the statistical methods available for analysis of MVATs data of chickpea were compared. It considered of yield data on performance of 12 varieties at 5 locations over 3 years. The statistical techniques such as ANOVA, stability parameters, ranking, multivariate techniques as a traditional method were used to approach tested data. The result revealed that ANOVA method was not effective in describing pattern of G x E interaction but effective in describing main effects. Different stability methods consider different aspects of variability of varieties vary according to the parameter considered. Multivariate methods describe G x E interaction effectively with AMMI stability value that is easy to understand. The first two principle components accounted for 44.50% and 26.95 % of the variability, respectively and described the broad adaptability and specific adaptability of varieties, respectively.

Key Words : Adaptability, AMMI, G x E interaction, IPCA, variety stability.