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Full Length Research Paper

GGE biplot analysis of *Dioscorea rotundata* cultivar "DENTE" in Ghana

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Abstract

Yield data of 20 genotypes of *D. rotundata* cultivar "Dente" tested across 15 rain-fed environments during the 2000 to 2004 growing season using Augmented RCBD with 3 blocks were analyzed using the GGE biplot method. The aim of the study was to (i) identify genotypes that combine high yields with stability across environments via GGE (genotype plus genotype x environment) biplot methodology, and (ii) to identify best test environments (representative, discriminating, and unique environments) of improved *D. rotundata* cvr Dente germplasm in Ghana. The environment (E) explained 36.5% of the total (G + E + GE) variation, whereas G and GEI captured 36.1 and 27.4%, respectively. The first 2 principal components (PC1 and PC2), which were used to create a 2-dimensional GGE-biplot and explained 63.8 and 12.0% of GGE sum of squares (SS), respectively. Genotypes Ge1 and Ge28 were the ideal genotypes (desirable in terms of higher yielding ability and stability). Of the 15 environments tested, biplot analysis identified single mega-environment for all environments. Wenchi (Forest-Savannah Transition) was the most representative and discriminating environment.

Key words: *Dioscorea rotun*data, GGE-biplot analysis, multi-environment trials.