

Genotype-environment interaction in some rice mutants (*Oryza sativa* L.)

ABSTRACT

Stability performance and genotype-environment (G×E) interactions were investigated for yield and yield components of seven rice genotypes at eight cultural soil environments and were measured through linear regression and deviation from regression. It was observed that high mean values were not restricted to any of the genotypes. Three genotypes showed comparatively higher means for grain yield while other genotypes for different characters. Environmental means indicated that all genotypes performed better in rich soil and their average response was higher under NPK fertilization. Analysis of variance suggested that genotypes were significantly different from each other. Soil environments have significant effects on the genotypes and all genotypes interacted significantly with the changed environments. Stability analysis showed that all linear response (bi) values were significant but the magnitude varied among the genotypes for all characters. Stability (Sdi) values of all genotypes were found nearer to zero for all characters. However, selections were made on the basis of these three parameters. Binadhan-4, Binadhan-6 and RC-26-91-2-2, due to having high means, average response and low stability values, were found to be suitable for all environments for different characters. Iratom-24, Binadhan-4 Binadhan-5, Binadhan-6 and RC-26-91-2-2 with high means, high response and low stability values for different characters were found to be suitable for favourable environments. While Iratom-24, Binadhan-7 and RM-250-112, due to having high mean but low response and stability values, were found suitable for unfavourable environments for three other different characters. Binadhan-7, RM-250-112 and RC-26-91-2-2 were found suitable for producing higher grain yield under unfavourable conditions. Thus, RM-250-112 and RC-26-91-2-2 can be released as varieties for unfavourable environments.

Keyword: Environments; Response; Rice mutant; Stability