

Phenotypic Stability Analysis in Foxtail Millet for Quality Characters

G Usha kiran, C Panduranga Rao, J S V Samba Murthy, V Srinivasa Rao
and M Lal Ahamad

Department of Genetics and Plant Breeding, Agricultural College, Bapatla 522 101

ABSTRACT

Twenty Italian millet genotypes were evaluated for three quality characters over 16 environments (8 sowing dates with 2 fertility levels). The analysis of variance of Eberhart and Russell indicated that $G \times E$ interaction was significant for all 3 characters under study and that genotypes differed significantly. Among the AMMI component first four IPCA axes were explained most of the portion of $G \times E$ interaction than other IPCA axes for the three characters under study. The ANOVA indicated non-significant $G \times E$ interaction for carotene content and ANOVA of (Eberhart and Russell, 1966) indicated non-significant $G \times E$ (linear) interaction for calcium content, when tested against pooled deviation. As per AMMI analysis the IPCA₁ significantly contributed to protein content, calcium content and carotene content while IPCA₂ contributed significantly to $G \times E$ interaction for protein content, calcium content and carotene content. This brings out clearly the advantage of AMMI ANOVA in bringing out $G \times E$ interaction through IPCA₁, which gets combined with error in the other two ANOVA and points out the utility of AMMI models in studying the significant $G \times E$ interaction and identifying stable genotypes for characters which so undetected in the earlier analysis. According to AMMI analyses the genotypes like GS 444 and GS 480 (for protein content); most of the genotypes (for calcium content); GS 445, GS 450 and PRD (for carotene content) are more stable because they are having IPCA score near zero that is they show less interaction with environments. According to Eberhart and Russell the genotypes like GS 488 and KDR (for protein content); GS 489, GS 463 and GS 479 (for calcium content) and GS 462 and GS 479 (carotene content) showed desirable performance.

Key words : AMMI, Foxtail millet, Stability.