Phenotypic Stability Analysis in Italian Millet Utilizing Regression and AMMI Models for Root Characters

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ABSTRACT

Twenty italian millet genotypes were evaluated for root characters over 16 environments (8 sowing dates with 2 fertility levels).The analysis of variance of Eberhart and Russell indicated that G´E interaction was significant for 2 characters under study and that genotypes differed significantly. Among the AMMI components first four IPCA axis were explained most of the portion of G X E interaction than other IPCA axis. The ANOVA (Eberhart and Russell,1966) indicated non-significant G X E (linear) interaction for VRM, when tested against pooled deviation. As per AMMI analys, is the IPCA significantly contributed to WRM and VRM while $IPCA_2$ contributed significantly to G X E interaction for WRM and VRM. This brings out clearly the advantage of AMMI ANOVA in bringing out G ´ E interaction through $IPCA_1$ which gets combined with error in the other two ANOVA and points out the utility of AMMI models in studying the significant G X E interaction and identifying stable genotypes for characters which so undetected in the earlier analysis. According to AMMI analyses, the genotypes GS 467, GS 486 and GS 489 (for weight of the root at main field); GS 445, GS 450 and GS 465 (for volume of the root at main field) are more stable as IPCA score was near zero *i.e,* interaction with environments was less. According to Eberhart and Russell the genotypes, GS 444, GS 479 and GS 487 (for weight of the root at main field); GS 486 and GS 487 (for volume of the root at main field); showed desirable performance.

Key words : AMMI, Italian millet, Stability