

Phenotypic Stability Analysis in Finger Millet [*Eleusine coracana* (L.) Gaertn] utilizing Regression and AMMI model

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ABSTRACT

Eighteen finger millet genotypes were evaluated for several characters over 14 environments (7 sowing dates with 2 fertility levels). The analysis of variance of Eberhart and Russell indicated that GXE interaction was significant for all 12 characters under study and the genotypes differed significantly. AMMI is a useful tool for interpreting genotypeXenvironment interaction in multi environment trials. Among the AMMI component first four IPCA axis were explained most of the portion of GXE interaction than other IPCA axis for the five characters under study. The ANOVA indicated non-significant GXE interaction for 1000 seed weight and ANOVA of (Eberhart and Russell, 1966) indicated non-significant GX E (linear) interaction for productive tillers per plant, length of finger, 1000 seed weight, when tested against pooled deviation. As per AMMI analysis the IPCA₁ significantly contributed to all five characters productive tillers per plant, length of finger, 1000 seed weight and yield per plant while IPCA₂ contributed significantly to GXE interaction for length of finger, ear weight per plant. This brings out clearly the advantage of AMMI ANOVA in bringing out GXE 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 GXE interaction and identifying stable genotypes for characters which so undetected in the earlier analysis. According to AMMI analyses the genotypes like GE532, GE1240 and GE1287 (for productive tillers per plant); GE1683, GE1035, GE3363 and GE3678 (for length of finger); GE1035, VMEC219, GE2999 and VMEC226 (for ear weight per plant); most of the genotypes (for 1000 seed weight); GE1035 and GE1240 (for yield per plant) 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 GE3986 and GE1077 (for productive tillers per plant); VMEC226 (for length of finger); GE3986 (for ear weight per plant); GE2999 (1000 seed weight); GE532 and GE2999 (for yield per plant) showed desirable performance.

Key words : AMMI, Finger millet, Stability