

Stability analysis in high altitude single cross maize hybrids under temperate niches

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ABSTRACT : Eleven maize hybrids along with one check were evaluated across three locations spreading over different agro-climatic zones of Jammu and Kashmir that differ in soil type, altitude and mean annual rainfall during *Kharif* 2016. The experiment was laid out in a randomized complete block design with three replications. Stability parameters and contrasting role played by genotype, environment and G x E interaction in multi-locational variety trials were considered and analyzed. Stability parameters such as mean (\bar{X}), regression coefficient (b_i) and deviation from regression (S^2d_i), as suggested by Eberhart and Russell (1966) was evaluated in order to assess the stability of these hybrids for various characters under consideration. Analysis of variance revealed that the hybrids possessed highly significant variability for all the traits under study. The mean squares due to environments were also significant for all the traits except Cob height (cm), Cob length (cm) and Cob diameter (cm), indicating that the environments selected were random and were different in agro-climatic conditions. Interaction of genotypes with the environment (G x E) was observed to be significant for all the traits, which revealed linear response of the genotypes to environmental changes. Thus the genotypes differed considerably for stability for the traits under investigation over the locations. Based on the stability parameters of Eberhart and Russell (1966) model, hybrids H1, H2, H5 and H10 were identified as most stable, H2 and H5 were average adapted to poor and high input environments respectively in terms of grain yield stability. Highest mean performance for Grain Yield (q/ha) was observed to be in H2 (81.55 q/ha) which was surpassing the check SMH-1 (76.22) by 7%.

Key Words : Maize (*Zea mays mexicana*), hybrids, evaluation, genotype x environment interaction (GEI), stability analysis across locations, stability of grain yield.