

GENOTYPE-ENVIRONMENT INTERACTION AND STABILITY ANALYSIS OF CHILLI (*Capsicum frutescens* L.)

M. S. Islam¹, A. A. Noman² and M. S. R. Bhuiyan³

ABSTRACT

An investigation was performed for assessment of genotype-environment interaction and stability of the 10 promising genotypes of Chilli on plant height, root length, individual fruit weight, fresh weight of shoot, oven dry weight of shoot and fruit yield per plant with ten promising chilli (*Capsicum frutescens* L.) genotypes. The experiment was laid out in randomized complete block design with three replications and four environments. The combined analysis of variance showed that the mean sum of square due to Genotype (G), Environment (E) and $G \times E$ interaction were significant for all the characters studied here suggesting presence of significant variation among the genotypes and environments. The additive main effects and multiplicative interaction (AMMI) biplot for yield clearly indicated that Env-3 (Urea + TSP + MOP + Boric Acid) and Env-4 (only Cow dung) were poor and Env-1 (Urea + TSP + MOP + Gypsum+ ZnO) and Env-2 (Urea + TSP + MOP + Cow dung) were found to be rich and favourable due to high inputs for chilli production. Where, Env-2 (Urea + TSP + MOP + Cow dung) was found highly favourable for chilli production. The stable genotypes found were BD-2059 and Bogura Jatt, exhibited moderate mean yield and could be adopted for general cultivation. Kalo Dhawna morich, Bogurar Lomba Morich and Bullet exhibited comparatively higher mean yield but were unstable across the environments and can be recommended to cultivate in rich environments.

Key words: genotype, environment, interaction, stability, *Capsicum frutescens*, AMMI