EFFECTS OF PHYSIOLOGICAL TRAITS AND YIELD COMPONENTS OF MAIZE HYBRIDS DYNAMICS UNDER DROUGHT STRESS FOR FOOD SECURITY OF BANGLADESH

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Executive Summary

An experiment was performed to determine the effects of drought stress among ten genotypes of hybrid maize. The investigations were conducted at net house of the Academic building of Agricultural faculty upon the Department of Genetics and Plant Breeding of Sher-e-Bangla Agricultural University, Dhaka, during the period of November, 2019 to May, 2020. The experiments were based on randomized complete block design with three replications under pot conditions. Mean performance, genetic parameters, correlation coefficient analysis were calculated. The tallest plant (162.0 cm) was recorded in hybrid maize genotype PAC-999, while the shortest plant (135 cm) was found in Prince. The highest grain yield (8.7t/ha) was recorded in Elite, while the lowest grain yield (7.2 t/ha) was observed in the hybrid maize HP701.The results showed that the genotypes differed regarding all the characters studied. The phenotypic variance and coefficients of variation were higher than the genotypic variance and coefficients of variation in all the characters studied. Moderate to high heritability was observed for all characters except cob per pot. High heritability coupled with high genetic advance in percent mean were observed for days to tasseling, days to silking, plant height, ear height, cob length, cob breadth, thousands seed weight and seed yield. The characters days to silking, plant height, ear height, field weight and thousand seed weight showed positive direct effect on yield. Among the characters studied days to tasseling, days to silking, plant height, number of leaves, cob per pot, cob length, cob breadth, thousands seed weight were the important component characters having higher contribution to the genetic influences. The high grain yields under drought stressed conditions are favorable adaptive traits useful for breeding. In consideration of yield and contributing characters Elite performed better under drought condition followed by PAC-559, Prince, PAC-999, BHM-5, BHM-6, BHM-7, Sunshine, Pioneer, and HP-701.

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