

## SELECTION CRITERIA OF HIGH YIELDING AND SHORT DURATION GENOTYPES OF TOMATO

Md. Harun-Ur-Rashid<sup>1</sup>

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### Extended Summary

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The twenty one genotypes were used to show variation, heritability, genetic advance and genetic advance in percentage of mean, genetic diversity, character associations and direct and indirect effect of different traits on yield. All the genotypes varied significantly with each other for all the studied characters indicated the presence of considerably variations among the genotypes studied. The PCV values were slightly higher than the respective GCV values for all the characters under study indicating that the characters were less influenced by the environment. Yield/plant had significant positive association with secondary branches/plant, average fruit weight but significant negative association with plant height, number of flower/cluster, days to 50% flowering and days to maturity. Plant height and number of fruits per plant showed high heritability along with high genetic advance were normally more helpful in predicting the genetic gain under selection. Moderate heritability for primary branches per plant indicated favorable influence of environment rather than genotypes. Path analysis revealed that secondary branches per plant, flower per clusters, days to first flowering, days to maturity, fruits per plant, average fruit weight and fruit diameters showed positive direct effects on yield per plant. Significant difference among the clusters was observed through multivariate analysis, clusters analysis and canonical variate analysis. As PCA, D<sup>2</sup> and clusters analysis the genotypes were grouped into five different clusters. Clusters I had the maximum seven and cluster V had the minimum one genotype. The highest inter-cluster distance was observed between III and V and the lowest inter-cluster distance was observed between II and IV. The highest and lowest intra-cluster distance was observed in II and V, respectively. Genotypes included in cluster II were important for secondary braches per plant, days to first flowering, fruit yield per plant whereas number of flowers per cluster, number of fruits per cluster and number of fruits per plant were remarkable feature for cluster V. Considering this idea and other agronomic performances, the genotypes BD-7748, Local Jessore – 3 and Local Kustia – 1, BD-7762, BD-7285 and BARI hybrid-4, BD-7290, BD-9011 and BARI Tomato-3 might be considered better parents for efficient hybridization programme.

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<sup>1</sup>Assistant Professor, Department of Genetics and Plant Breeding, Sher-e-Bangla Agricultural University, Bangladesh.