**RESEARCH PAPER**

# Path co-efficient analysis of yield component in tomato

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**Abstract :** Thirty four genotypes of tomato were evaluated during *Rabi* season of 2006 - 2007 to estimate the nature and magnitude of genetic variability based on days to first harvest, number of pickings, plant height, number of fruits per plant, fruit weight plant, fruit size, single fruit weight, number of locules, pericarp thickness and TSS. A wide range of variation was observed among the characters studied which have a great interest for tomato breeders. Single fruit weight gave the highest heritability during 2006; however, it was at maximum for days to first harvest during 2007. Fruit weight plant showed high and positive genotypic and phenotypic correlation with number of picking and with number of fruits per plant, thus indicating that these traits were the most important yield components. On the basis of performance and keeping in view the selection criteria observed in the present study, 14 genotypes were identified through path analysis for future testing under wide range of environments.

**Key Words :** Tomato, Correlation, Path-co-efficient, Fruit yield

## INTRODUCTION

Tomato, *Lycopersicon esculentum* Mill. which belongs to the nightshade family, Solanaceae, the world's largest vegetable crop after potato and sweet potato and it tops the list of canned vegetables. Low productivity of tomato in India is mainly due to cultivation of unimproved types or/and un adapted types, cultivation in low priority area, poor crop management, inadequate plant protection measures, and non-availability of well-adapted and high yielding varieties for various agro-climatic regions. The non-availability of superior genotypes and low efficiency in utilizing the existing variability in plant breeding programmes has resulted in low space of crop improvement. Therefore, an alternative would be to go for indirect selection considering correlated traits with high heritability. In the present investigation, germplasm lines have been obtained from different agro-climatic regions of India.

## MATERIALS AND METHODS

The field experiment was conducted during the *Rabi* season on farmers field, under the supervision of Institute of Agriculture, Palli Siksha Bhavan, Visva Bharati University. The field is situated under sub-humid, sub-tropical belt of West Bengal. Thirty-four tomato genotypes were sown in seedbed during *Rabi* season on 2006 and 2007. The experiment was laid out according to Randomized Block Design (RBD) with three replications. Each genotype was planted in three rows of 5m length with a spacing of 75 x 60cm. All recommended package of practices were followed during the crop season for raising a healthy crop. Five randomly selected plants from each plot per replication were scored for recording the observations. The data have been recorded in 50 per cent flowering, plant height (cm), number of primary branch per plant, number of secondary branches per plant, number of flowers per cluster, number of fruits per plant, average fruit weight (g), fruit yield per plant (g), fruit yield per picking per plant (g), fruit length (mm), fruit diameter (mm), fruit firmness, locules per fruit, pericarp thickness (mm), total soluble solids (TSS, °Brix), total acid content (%).

## RESULTS AND DISCUSSION

Path co-efficient analysis splits the correlation co-

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