

Study of combining ability in tomato (*Solanum lycopersicum* L.) under polyhouse environment

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ABSTRACT : The experimental material comprised of eleven genetically diverse lines viz. Pant Sel 2014, S-108, Shirozi, Sweet 72, PT 41, PT 2009-8, PT 8, CLN 2070, CLN 2237, H 86, EC919261 as female parent, obtained from VRC Pantnagar and three bacterial wilt resistant testers Arka Alok, Arka Abha, Utkal Pallavi from IIVR Varanasi were crossed in line x tester mating design excluding reciprocals in November 2014 to March 2015. Data of different morphological characters under study viz. plant height, day to 50 per cent flowering, number of flower per cluster, number of fruits per cluster, days to first harvest, days to last harvest, total number of fruits per plant, fruit yield per plant, fruit yield per hectare were recorded. The mean sum of squares due to lines were significant for Plant height, days to 50% flowering, number of flower per cluster, whereas, the mean sum of squares due to testers were significant for number of flowers per cluster, number of fruits per plant and days to first harvest. For fruit yield per hectare under polyhouse, the highest positive gca effect was observed for Pant Sel 2014 (380.136), followed by H-86 (283.003) and Arka Alok (200.254), respectively and the highest negative gca effect of lines was observed for EC919261 (-334.304) followed by PT2009-8 (-180.23) and among different testers Arka Abha (-132.889), followed by Utkal Pallavi (-67.365). Among the cross combination under study the cross with highest significant positive sca effects were observed in cross combination Pant Sel 2014 × Utkal Pallavi (1107.809) followed by H-86 × Arka Abha (696.033).

Key Words : Combining ability, gca, sca, tomato, polyhouse