

## **Implications of heterosis and screening for resistance to leaf curl virus in tomato (*Solanum lycopersicum* L.) under North Indian conditions**

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**ABSTRACT** : Eight genetically diverse genotypes of tomato were used to produce 28 F<sub>1</sub> crosses in a diallel pattern excluding reciprocals during 2011-12 and these F<sub>1</sub> and parents were evaluated during two consecutive years (2012-13 & 2013-14) to identify heterotic hybrids of tomato with resistant to leaf curl virus disease. In this study promising hybrid Pant T-3×Punjab Chuhara and Pant T-3×H-24 produced highest heterosis for number of fruits per plant and total yield/plant, respectively. Five hybrids viz. Arka Meghali×Azad T-5, Pant T-3×H-88-78-1, Pant T-3×H-24, H-88-78-1×H-24 and H-24×Sel-7 were field resistant from TLCV, these resistant hybrids could be used in breeding programs for development of disease resistance.

**Key Words** : Tomato (*Solanum lycopersicum* L.), tomato leaf curl virus (TLCV), hybrids, screening, diallel, heterosis, heterobeltiosis, begomovirus, whitefly (*Bemisia tabaci* Genn.).