

## Magnitude of heterosis in interspecific $F_1$ 's for ToLCV, earliness, yield and quality traits in tomato (*Solanum lycopersicum* L.)

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**ABSTRACT:** An experiment was carried out to evaluate the heterosis in tomato for ToLCV, yield and quality traits, using the line x tester mating design between ToLCV resistance line *S. pimpinellifolium* EC-520074, EC-520077 and *Solanum lycopersicum* L. line H-88-78-1. Heterotic hybrids were exhibited significant and positive heterosis ranging from -85.13% (PBC x EC-520077) to -37.69 (Sel.7 x EC-519730) for ToLCV resistance. However, in earliness significant and negative heterosis was recorded for days to 50% flowering ranging from -45.25% (Sel.7 x H-88-78-1) to -6.11 (DVRT-2 x EC-520077), for days to 50% fruit set ranging from -30.09% (Sel.7 x H-88-78-1) to -11.42 (DVRT-2 x H-88-78-1). In yield components, maximum to minimum heterosis was observed for plant height from 85.78% (PBC x EC-520077) to 3.82% (Sel.7 x EC-519730), for number of primary branches from 79.94% (Co-3 x H-88-78-1) to 0.17% (CO-3 X EC-520077), for per cent fruit set from 10.28 % (Sel.7 X EC-520077), for number of fruit per plant ranging from Co-3 x H-88-78-1 (129.90 %) to -5.93% (H-24 x EC-519730), for fruit weight found in 22.17% (Co-3 x H-88-78-1), for fruit length -49.98 % (Sel-7 X EC-520074) to -0.29 % (DVRT-2 X EC-519730), 157.36 % (PBC x EC-520074) to 8.40 (Sel-7 X EC-520074), for yield per plant (kg). The quality traits, significant and negative heterosis ranged from -63.26% (DVRT-2 x EC-520077) to -16.49 (H-24 x H-88-78-1) in number of locules per fruit, -43.25 % (Co-3 x EC-519730) for number of seed per fruit, 43.57 % (Co-3 x EC-520074) in phenol, 42.34 % (PBC x EC-519730) in lycopene and -27.54 % (DVRT-2 x EC-520074) to 50.44 % (H-24 x EC-520077) total soluble solids.

**Key Words :** ToLCV, heterosis, yield and quality traits.