

# Heterosis for seed cotton yield and fibre quality in upland cotton (*G. hirsutum* L.)

■ K.T. AMBHORE, S.P. PANDIT, V.A. LODAM AND B.R. PATIL

## SUMMARY

The present investigation was undertaken by adopting diallel analysis including reciprocals involving six diverse parents to estimate the extent of heterosis for yield, its components and fibre during *Kharif* 2006-2007 in *G. hirsutum*. The analysis of variance indicated that the mean squares due to parents and hybrids were highly significant for all the characters under study. The best performing  $F_1$ s AKH 8660 x AKH 081 and LRK 516 x AKH 081 and reciprocals AKH-081 x LRK-516 and AKH-081 x AKH-8660 showed significant positive heterosis over standard parent 18.64, 25.83, 28.38 and 14.93 per cent, respectively. These crosses also reported economic heterosis for more than one components traits and fibre quality parameters.

**Key Words :** Diallel analysis, Heterosis, Upland cotton

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Cotton is one of the most important industrial and economic crops of India. Cotton being often cross pollinated crop and is highly amenable to both heterosis and recombination breeding. For the commercial exploitation of heterosis, the magnitude of heterosis provides a basis for genetic diversity and is guide for choice of desirable parents for developing superior  $F_1$  hybrids. Heterosis in cotton has been reported by several workers *viz.*, Dheva *et al.* (2002), Tuteja *et al.* (2006) Rajamani *et al.* (2009) and Wankhade *et al.* (2009). Hence, present investigation was undertaken to out the extent of heterosis for seed cotton yield and fibre properties in upland cotton.

## MATERIALS AND METHODS

The experimental material consisted of six genetically

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diverse genotypes *viz.*, AKH 8660, AKH 87B, AKH 70G, LRK 516, AKH 081 and LCMS 2. The parental genotypes were crossed in a diallel fashion including reciprocals. The experiment was conducted at Cotton Research Unit, Dr. PDKV, during *Kharif* 2006-2007. These 30 hybrids along with their six parents and a check (PKV Hy. 2) were grown in randomized block design with three replications. The spacing was 90 cm between rows and 60 cm between plant to plant. Observations were recorded on plant height (cm), number of sympodia per plant, number of bolls per plant, boll weight (g), number of locule per boll, number of seeds per locule, seed cotton yield per plant (g), ginning percentage (%), seed index (g), lint index, 2.5 per cent span length (mm), uniformity ratio (%), micronaire value ( $\mu\text{g}/\text{inch}$ ) and fibre strength (g/tex). Heterosis was estimated over the better parent as per the standard procedure of Meredith and Bridge (1972).

## RESULTS AND DISCUSSION

The analysis of variance indicated that the mean squares due to parents and hybrids were highly significant for all the characters under study. The mean square due to the parents vs. hybrids were significant for all the traits, while non-significant for ginning percentage, seed index, lint index, uniformity ratio and micronaire value (Table 1).