

## Combining ability studies in a diallel cross of ten selected restorers of pearl millet

J.M. CHOTALIYA, C.J. DANGARIA AND K.K. DHEDHI\*

Main Pearl millet Research Station, Junagadh Agricultural University, JAMNAGAR (GUJARAT), INDIA

### **ABSTRACT**

Combining ability analysis was carried out in a 10 x 10 diallel set, excluding reciprocals, for yield and 11 yield components in pearl millet. The present study revealed the importance of non-additive gene action in the inheritance of traits *viz.*, grain yield per plant, fodder yield per plant, 1000 grain weight and harvest index; while, additive gene action was preponderant for plant height, ear head length, ear head girth and ear head weight. Both additive and non-additive gene action were found in days to 50 per cent flowering, days to maturity, number of effective tillers per plant and number of nodes. The parents like D-23, J-2480 and J-2467 could be used in hybridization programme to exploit their GCA effects for grain yield and some important attributing traits. The hybrids *viz.*, J-2467 x J-2474, J-2454 x J-108, J-2480 x D-23, J-2475 x D-23 and J-2340 x J-2480 were the most promising having good SCA, coupled with high *per se* performance and heterobeltiosis for grain yield. Analyses of crosses revealed majority of the superior crosses were involved high x high or high x low; and few cases low x low general combiners. The development of new inbred lines with high *per se* performance and good combining ability, through appropriate breeding methodology is suggested.

**Key words :** Combining ability, Pearl millet, Diallel cross, Grain yield