Heterotic Grouping of Inbred Lines based on Combining Ability for Kernel Yield in Maize (*Zea mays* L.)

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ABSTRACT

Grouping of maize inbred lines into heterotic groups is an initial step in exploitation of heterosis. Hence a field study was conducted to classify 27 inbred lines into heterotic groups by evaluating the performance of 54 crosses, 27 lines and 2 testers in a simple lattice design. Highly significant differences were noticed for kernel yield per plant, days to anthesis, days to silking and plant height among all the genotypes. One cross PI 330 × LM 13 was found to be promising among the crosses. Highly significant GCA and SCA effects for kernel yield per plant were recorded. Five inbred lines were identified as good general combiners for kernel yield per plant while nine test crosses were found to be good specific combiners. Out of 27 inbred lines, the testers could classify 15 inbred lines into 3 groups A, B and AB heterotic groups based on GCA and SCA effects and mean kernel yield per plant. The study demonstrated the applicability of combining ability effects in classifying the inbred lines.

Keywords: *Heterotic group, Combining ability and Tester.*