

Combining ability and heterotic response for yield and its attributing traits in wheat (*Triticum aestivum* L.)

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SUMMARY

Diverse lines of wheat (*T. aestivum*) were taken to study the combining ability and heterotic response for yield and its attributing traits. Thirty six F₁ crosses were obtained by crossing nine parents in a half-diallel mating design and evaluated along with parents for eight characters. Analysis of variance for combining ability revealed the presence of genetic variability due to GCA among the parents and due to SCA among the crosses for all the traits studied. The estimated value of additive genetic component effect of genes were highly significant for plant height, days to 75 per cent flowering, days to maturity and spike length. Dominance component was highly significant for plant height, days to flowering, number of productive tillers per plant, ear length and grain weight per ear. PBW-343 was identified as best general combiner for all the traits studied, except for days to flowering, grain weight per ear, 1000-grain weight and grain yield per plant. The parent, K-8027 and PBW-343 for early flowering and days to maturity, K 9423 and NW 2036 for more number of grains per spike and grain yield per plant were identified as good general combiners. K 8027 was identified best common parent on the basis of GCA and per se performance whereas cross K9465 x NW2036 for grain yield per plant, grain weight per ear, number of grains per ear and ear length was recorded in hybrids. As well as K 9423 x K8962 and K 9533 x K 9465 were superior economic heterotic combiners. The level of heterotic observed in these crosses justifies the development of commercial hybrids in wheat.

Key Words : Combining ability, Heterosis, GCA, SCA, Wheat

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