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RESEARCH ARTICLE

Heterosis and combining ability analysis for yield and its components in rice (*Oryza sativa* L.)

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SUMMARY

Study of heterosis and combining ability were conducted on 40 F_1 hybrids along with of 2 CMS lines (females), 20 diverse rice varieties/genotypes as testers (males) to know the pattern of inheritance of some morphological traits for selecting superior genotypes. The experiment was carried out according to line x tester mating design. Analysis of variance revealed significant differences among genotypes, crosses, lines, testers and line x tester interactions for all the ten traits, *viz.*, days to 50 per cent flowering, flag leaf area, plant height, panicle bearing tillers plant^{-1}, panicle length, spikelets panicle^{-1}, grain yield plant^{-1}, test weight, biological yield plant^{-1} and harvest index. The highest heterosis (197.81%) was observed in cross IR 688897A X Sarjoo 52 followed by other eight crosses for yield and most of its related traits. Among the testers high GCA was recorded in Sarjoo 52 and Narendra Usar 3 for harvest index, grain yield plant^{-1}, days to 50 per cent flowering (earliness), plant height (dwarf stature), panicle bearing tillers plant^{-1} and biological yield. Among the female parental lines, IR 58025 was observed as a good general combiner only for seedling height, panicle length, spikelets panicle^{-1}, test weight, biological yield palnt^{-1}. Cross between IR 688897A X Sarjoo 52, IR 58025 A X 21-2-5-B-1-1, IR 58025 A X Narendra Usar 3 and IR 58025 A X IR 71829-3R-73-1-2-B shown favourable *per se* performances and higher significant positive SCA effects in related to grain yield plant^{-1}.These combinations proved to be good hybrids based on CMS system in rice.

Key Words : Heterosis, Combining ability analysis, Yield, Components in rice

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