

RESEARCH ARTICLE

Study of heritability gene action and combining ability using CMS line in hybrid rice (*Oryza sativa* L.)

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SUMMARY

Low heritability (h_{ns}^2) estimate was observed with grain yield plant⁻¹ and test weight indicating preponderance of non-additive gene action to govern these traits. Combining ability revealed higher specific combining ability variance than their respective general combining ability variances indicating the predominance of non-additive gene effects indicated relevance of heterosis breeding for improving the yield and yield contributing attributes. Among the testers high gca was recorded in Sarjoo 52 and Narendra Usar 3 for harvest index, grain yield plant⁻¹, days to 50% 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 plant⁻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 favorable *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, Line x tester, Rice hybrids

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