

Concept of general and specific combining ability in relation to diallel crossing system

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ABSTRACT

Combining ability was studied in 7x7 diallel set (excluding reciprocals) of cowpea for pod yield and its nine component characters. Both GCA and SCA variances were highly significant. The higher magnitude of GCA variance compared to SCA variance indicated preponderance of additive gene effects for the inheritance of all the characters studied. Parents JCPL 2000-10 and GC-4 were identified as good general combiners for pod yield per plant as well as for pod length and leaf area. Majority of their crosses had also manifested significant and desirable SCA effects, coupled with high *per se* performance for pod yield per plant. Out of 21 crosses, 11 hybrids displayed significant and desirable SCA effects for pod yield per plant. Of these, three hybrids *viz.*, GC-3 x GC-4, JCPL 2000-10 x JCPL 2000-2 and JCPL 2000-10 x GC-4 had exhibited high positive SCA effects in addition to high *per se* performance for the trait. An analysis of crosses revealed majority of the superior crosses were involved high x low and in few cases high x high or low x low general combiners.

Key words : Cowpea, Diallel cross, Combining ability

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