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RESEARCH PAPER

Combining ability studies through diallel analysis in pearl millet [*Pennisetum glaucum* (L.) R.Br.]

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Abstract : Combining ability was studied in 8x8 diallel set, including reciprocals, for grain yield and its 11 component traits in pearl millet. Both GCA and SCA variances were highly significant for all the characters. The ratio of GCA and SCA revealed preponderance of non- additive gene action in expression of all the characters *viz*., grain yield per plant, days to flowering, days to maturity, number of effective tillers per plant, ear head length, ear head girth, ear head weight, plant height, number grains per square cm, 1000-grain weight, dry fodder yield per plant and harvest index. The parents like J-2467, J-2511 and J-2405 could be used in hybridization programme to exploit their GCA effects for grain yield and some important attributing traits. Inbred J-2405 was also found to be good source of genes for earliness. The crosses *viz*., J-2454 x J-2467, J-2454 x J-2511, J-2290 x J-2480 and J-2290 x J-2511 were the most promising having good SCA, coupled with high *per se* performance and heterobeltiosis for grain yield and some of its components. Analyses of crosses revealed majority of the superior crosses were involved poor x good or average x poor or average x good and few cases good x good general combiners. The development of new inbred lines with high *per se* performance and good combining ability, through appropriate breeding methodology is suggested.

Key Words : Combining ability, Pearl millet, Diallel analysis, Grain yield

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