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RESEARCH ARTICLE

Study of combining ability analysis for seed cotton yield, yield contributing and fibre quality traits in *Desi* cotton (*Gossypium arboreum* L.)

■ **K.M. Lokesh, S.B. Borgaonkar, D.B. Deosarkar and V.N. Chinchane**

SUMMARY

The present investigation entitled study on heterosis and combining ability for yield, its components and fibre characters in *Desi* cotton (*Gossypium arboreum* L.) was undertaken to estimate general combining ability effects (GCA) of the parents and specific combining ability effects (SCA) of the crosses. The experimental material comprised of 24 F_1 hybrids obtained by crossing 6 lines with 4 testers in line x tester mating system. Sum total of 36 treatments consisting of 24 crosses, 10 parents and two checks were sown in Randomized Complete Block Design. The analysis of variance for combining ability revealed significant general combining ability effects (GCA) and specific combining ability effects (SCA) for all the traits. Among ten parental lines, most of the lines were found to be best general combiner, which had significant general combining ability (GCA) effect for seed cotton yield and its contributing characters including fibre quality traits. Parents PA 778, PAIG 62 and PA 832 among lines, while NDLA 3047 among testers were good general combiners for seed cotton yield per plant. For number of bolls per plant the lines PA 832, PA 778 and PAIG 62 were good general combiners, while in testers NDLA 3047 and JLA 0716 were found good general combiners. The parents PA 832 and ARBAS 1401 recorded significant general combining ability effects (GCA) for 2.5% span length. Out of twenty four crosses, the cross PA 832 x NDLA 3047 was found to have good specific combining ability effects, which had significant SCA effects for days to 50 per cent flowering, days to maturity, number of bolls per plant, number of sympodia per plant and seed cotton yield per plant. The cross PA 785 x ARBAS 1401 had good specific combining ability effects (SCA) for plant height and uniformity ratio. Whereas, cross PA 807 x NDLA 3047 recorded high general combining ability effects (GCA) for boll weight; PA 778 x ARBAS 1401 for lint index; PA 800 x CNA 1013 for seed index; PAIG 62 x CNA 1013 for 2.5 per cent span length; PA 778 x JLA 0716 for fibre fineness (micronaire) and fibre strength and PA 807 x ARBAS 1401 for ginning outturn.

Key Words : General combining ability (GCA), Specific combining ability, Cotton (SCA), Yield

MEMBERS OF THE RESEARCH FORUM

Author to be contacted :
K.M. Lokesh, Department of Agriculture Botany, College of Agriculture, Vasantrao Naik Marathwada Krishi Vidyapeeth, Parbhani (M.S.) India

Address of the Co-authors:
S.B. Borgaonkar, D.B. Deosarkar and V.N. Chinchane, Department of Agriculture Botany, College of Agriculture, Vasantrao Naik Marathwada Krishi Vidyapeeth, Parbhani (M.S.) India

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