

Generation mean analysis for grain yield and its components in sorghum [*Sorghum bicolor* (L.) Moench] grown under two different environments

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SUMMARY

The nature of gene effects for harvest index and its components in sorghum [*Sorghum bicolor* (L.) Moench] was analyzed in three crosses involving four diverse parents through generation mean analysis. Grain yield per plant, harvest index and biological yield per plant appeared to be influenced by additive and non-additive gene actions. Additive as well as dominance gene action were prevalent in expression of harvest index, biological yield per plant and grain yield per plant except in both the environments. For SPV 1329 x ICSV 272 where by dominance was prevalent in expression of biological yield per plant. Epistatic components were found to be important for all most all the characters. Duplicate type of interaction was predominantly involved in inheritance of most of the characters. For genetic improvement of harvest index utilizing non-additive components three crosses can be exploded through hybrid breeding after incorporating suitable male sterile system. The non-allelic interactions particularly at three gene level were predominant for this trait. Thus, a breeding method that can top up. The gene to form superior gene constellations interacting in a favourable manner would be more suitable to accelerate the pace of its genetic improvements. Negative 'I' suggest that heterosis may further be improved by providing better transgressive segregants if selection is practiced for positive dominant genes.

Key Words : Sorghum, Generation mean analysis, Scaling test, Gene effects, Harvest index, Grain yield, Biological yield, Coarser test Chi-square

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