

Genotypes grouping based on stability parameters in pigeonpea

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SUMMARY

Fifty three genotypes of pigeonpea grown over four different environments were analysed for stability of ten biometrical traits. The pooled analysis of variance showed the presence of enough diversity among genotypes and among environments. Based on three stability parameters, MSPrabhatDT/ amban1, QMS1 / ICPL161 and MST21 / ICPL 161 recorded stable performance for seed yield along with desirable mean

Key words : Genotypes, Diversity, Stability, Seed yield.

The discovery of stable genetic male sterility coupled with its outcrossing nature has opened the possibility of commercial utilisation of heterosis in pigeonpea¹. Successful hybrids are produced from those combinations where specific combining ability effects confer considerable heterosis in the F1 generation. To find these combinations and to develop a successful hybrid programme. It is necessary to test a large number of hybrids at different environments. In the present study the phenotypic stability of 13 parents and 40 hybrids was assessed out to identify genotypes for their adoption to environments and to establish the interaction between the genotypes and different environments in which they were grown.

MATERIALS AND METHODS

The experimental material comprised of (eight genetic male sterile lines viz., MSPrabhatDT, QMS1, QMS2, QMS9, IMS1, MSCO5, MST21 and MSPrabhatNDT and five testers viz. ICPL151, ICPL161, Vamban1, ICPL87 and ICPL84032) 13 parents and fourty hybrids of

pigeonpea generated by 13 parents were grown in a randomised block design with three replications during Rabi 1991 (E1) at the Agricultural Research Station (TNAU), Kovilpatti during Rabi, 1992 (E2), Summer 1993 (E3) and Kharif 1993 (E4) at Agricultural College and Research Institute, Madurai. Each genotype was accomodated in a single row of 4.5 m length with a spacing of 60 x 30 cm. Recommended package of practices and plant protection measures were followed to raise a good crop. Data were recorded on five random plants from each genotype in each replication for days to 50% flowering, days to maturity, plant height, branches per plant, clusters per plant, pods per plant, pod length, seeds per pod, 100 seed weight and seed yield per plant. Since the female parents segregated for fertility / sterility, only the random fertile lines within a row were used for recording the observations. The data were subjected to stability analysis².

RESULTS AND DISCUSSION

The ten characters studied revealed significant

Table 1 : Genotype group.

Group	Mean	bi	S ² di	Remarks
I	High	Around unity	Around zero	Average respondents and highly stable over environments
II	High	Significantly deviating from unity	Around zero	Above (or) below average respondents and suited for stress or favourable environments and will be stable in the respective environments
III	High	Significantly deviating from unity	Significantly deviating from zero	Behaviour of those groups cannot be predicted
IV	High	Around unity	Significantly deviating from zero	