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Abstracts of Ph.D. Thesis

Diallel Analysis Over Environments in Okra

Submitted to Gujarat Agricultural University

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In the present investigation information on the magnitude of heterosis, combining ability and stability parameters were obtained for fruit yield and its components following diallel analysis involving nine elite lines of okra which were tested at Navsari and Junagadh during *kharif*, 1990 and at Navsari during Summer, 1991. Ten characters studied were days to flowering, nodes/plant, internodal length, plant height, branches/plant, fruit length, fruit girth, fruits/plant, fruit yield/plant and YVM virus disease incidence.

The analysis of variance for parents and their hybrids for different characters revealed significant differences among the genotypes, environments and genotype x environment interactions for all the characters, indicating existance of considerable variability in the material studied and between the environments tested. Genotype x environment interactions which were significant for all the characters revealed differential response of the genotype to varying environments. This suggested the importance of testing material over a range of environments.

Highly significant positive heterobeltiosis and stan ard heterosis for yield and highly significant desirab heterosis for its components in the crosses involving eli lines as parents pointed out that there is a greater sco of exploiting heterosis commercially and also possibility isolating desirable segregants.

Combining ability analysis indicated th preponderance of additive and additive x additive type gene action for all the traits. However, non-additive type gene action was also important in the inheritance of all th characters studied.

Analysis of variance for stability parameter showed that environment component was substantiall larger than genotype and g x e interaction component fo all the characters. However, g x e interaction componer was of considerable magnitude for plant height and yiel per plant. The analysis further revealed that the com ponent of g x e (linear) had important contribution for a the nine characters indicating significant difference among the genotypes for their regression on environmer tal indices. Pooled deviation (non-linear componen variances were, however, significant for all the character suggesting importance of both linear and non-linear com ponents. None of the parents was found with high mea and average stability for yield. Hybrids Parbhani Kranti Line No. 51, Pusa Sawani x Ankur, Gujarat Bhindi-1 Ankur, Gujarat Bhindi-1 x Line No. 51 and Punjab Padmir x White Velvet exhibited high mean along with b_i valu near unity which lead to the interpretation of the greate production and stability of hybrids.

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