

## Stability analysis in okra [*Abelmoschus esculentus* (L.) Moench]

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### SUMMARY

The phenotypic stability for fruit yield and its component traits of 55 genotypes (40 hybrids, their 14 parents and a standard check variety GO-2) of okra grown over three different seasons revealed the significant differences among the genotypes (G), environments (E) and G x E interactions for all the characters (except number of branches per plant for environments and fruit girth for G x E interactions) indicating variable response of different genotypes for various traits under varied environmental conditions. The G x E (linear) interactions was significant for all the characters (except fruit girth) suggesting the genotypes responded considerably to the environmental fluctuations for all the traits. Significant pooled deviation for all the traits, except internodal length, number of fruits per plant and fruit yield per plant indicated difficulty in predicting the performance of genotypes over environments for these characters. The environmental indices revealed that early summer season was most congenial for fruit yield per plant and majority of the yield contributing traits. On the basis of stability parameters, parents JOL-06-S-7, JOL-1 and JOL-06-1 as well as hybrids GO-2 x Parbhani Kranti and JOL-06-S-6 x HRB-55 were identified as stable with wider adaptability over environments for fruit yield and its components hence, may be utilized in breeding programme for incorporation of stability for most of the traits in okra.

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Okra [*Abelmoschus esculentus* (L.) Moench] is one of the most important vegetable crops grown extensively throughout the country under diverse agro-climatic conditions, which results in fluctuation in its production, one of the constraints in increasing production is the lack of stability of high yielding and widely adapted varieties/hybrids. Varietal adaptation to environmental fluctuations is important for stabilization of the crop production. The study of G x E interaction leads to meaningful evaluation of individual genotype for fruit yield and its components, which could be used in future breeding programmes. Hence, the present investigation was undertaken to study the stability of genotypes for fruit yield and its component traits in okra.

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### MATERIALS AND METHODS

The experimental material comprised of 55 genotypes consisting of 40 F<sub>1</sub> hybrids resulting from a lines x testers mating method involving 10 lines (GO-2, JOL-06-S-2, JOL-06-S-3, JOL-06-S-4, JOL-06-S-5, JOL-06-S-6, JOL-06-S-7, JOL-06-S-8, JOL-1 and Pant Bhindi) and 4 testers (JOL-06-S-1, Parbhani Kranti, HRB-55 and Pusa Sawani) along with one check variety GO-2. These 55 genotypes were evaluated in Randomized Block Design with three replications over three seasons of sowing *i.e.* Kharif, 2007 (E<sub>1</sub>), early summer, 2007 (E<sub>2</sub>) and late summer, 2007 (E<sub>3</sub>) representing three environments at Instructional Farm, Junagadh Agricultural University, Junagadh, Gujarat. Individual plot consisted of single row of 3 m length spaced at 45 cm apart with plant-to-plant spacing of 30 cm. All the recommended agronomic practices and plant protection measures were followed timely to raise a good crop. The data were recorded on five randomly selected competitive plants for individual genotype in each replication, in each all three environments for fruit yield and its contributing traits. The stability analysis was done as per method suggested by Eberhart and Russell (1966).

### RESULTS AND DISCUSSION

The results obtained from the present investigation have been discussed in the following sub heads :