"A Study on the Variety Environment Interaction in Groundnut in Gujarat."

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Yield of any crop is the result of the genotype x environment interaction. The knowledge about genotype x location, genotype x year and genotype x year x location helps to the breeder to decide whether the varieties are to be tested over locations or over years or over both to assess their performance. Statistically, it is possible to work out magnitude of variance components of these interactions. If the magnitude of variance component of variety x location is large as compared to that of variety x year, the comparison of the varieties and locations (space) will be necessary. In absence of variety x year interaction, the comparison of varieties should be restricted to different locations and time could be saved in assessing the varieties. If reverse is the case, it becomes necessary to repeat the trial over time reducing number of locations to a minimum. However if there is the presence of variety x location x year interaction, it is necessary to repeat the trials over space and year. Thus it is very essential to have a detailed study of such interactions for all crops.

A detailed investigation in this regard was undertaken for 62 groundnut varietal trials which were repeated over different years or locations and both over year and locations in Gujarat. The variance components $óe^2$, $ó^2vly$, $ó^2vy$ and $ó^2vl$ were worked out assuming variety, year and location as random variables and were compared.

The results of the analysis revealed that the variety x year, variety x location and variety x year x location interactions were absent indicating non-differential response of Groundnut varieties to different environmental conditions.

The behaviour of the genotypes was consistent over space and time, which resulted in the absence of interaction of any kind. Under the present circumstances and experience, it appears that testing of groundnut varieties on testing centres may be limited to few main centres.