RESEARCH PAPER International Journal of Agricultural Sciences, Vol. 7 Issue 1 (January, 2011) : 32-34

Variability and heritability studies in bunch groundnut (*Arachis hypogaea* L.)

H.B. VEKARIYA, M.D. KHANPARA[1], J.H. VACHHANI*, V.H. KACHHADIA, R.B. MADARIYA[2] AND L.L. JIVANI

Main Oilseeds Research Station, Junagadh Agricultural University, JUNAGADH (GUJARAT), INDIA

ABSTRACT

Fifty diverse genotypes of bunch groundnut were evaluated during *Kharif* 2009 for genetic parameter *viz*., variability, heritability and genetic advance. The estimates of PCV and GCV were high for number of mature pods per plant, protein content, kernel yield per plant, harvest index, biological yield per plant and 100-kernel weight. High heritability coupled with high genetic advance expressed as percentage of mean was observed for number of mature pods per plants, kernel yield per plant and pod yield per plant indicating that these traits were mainly governed by additive gene action and responsive for further improvement of these traits.

Vekariya, H.B., Khanpara, M.D., Vachhani, J.H., Kachhadia, V.H., Madariya, R.B. and Jivani, L.L. (2011). Variability and heritability studies in bunch groundnut (*Arachis hypogaea* L.). *Internat. J. agric. Sci.*, **7**(1): 32-34.

Key words : Genetic variability, Heritability, Genetic advance, Groundnut

INTRODUCTION

Groundnut (*Arachis hypogaea* L.) is a highly self pollinated crop and can be grown successfully in tropical and subtropical areas. The crop has narrow genetic base therefore, it is essential to create more variability in the segregating materials. Genetic variability is the basic requirement for crop improvement as it provides wider scope for selection. Thus, effectiveness of selection is dependent upon the nature, extent and magnitude of genetic variability present in the material and the extent to which it is heritable. Hence, in present investigation an attempt was made to assess the variability of important pod yield and yield contributing traits, along with the indices of variability *i.e.* genotypic coefficient of variation (GCV), phenotypic coefficient of variation (PCV), heritability in broad sense (h^2_{bs}), genetic advance (Gs) and genetic advance as percentage of mean (GAM). This study will facilitate an understanding behind expression of character and also role of environment therein.

MATERIALS AND METHODS

Fifty genotypes of groundnut were sown in a Randomized Block Design with three replications during *Kharif* 2009. Each entry was accommodated in a single row of 3.0 m length with a spacing of 45 cm between rows and 10 cm between plants within the row. The fertilizer in the experimental area was applied at the rate of 25.0 kg N and 50.0 kg P_2O_5 ha^{-1} as it is a recommended dose for *Kharif* cultivation of groundnut in the region. All the recommended package of practices were followed for raising healthy crop. Data were recorded on randomly selected five plants from each genotype and average value was used for the statistical analysis for sixteen characters *viz*., days to first flower, days to 50% flowering, days to maturity, plant height, primary branches per plant, number of mature pods per plant, number of immature pods per plant, 100-pod weight, 100- kernel weight, shelling out-turn, oil content, protein content, kernel yield per pod, pod yield per plant, biological yield per plant and harvest index. The data subjected to different statistical analysis *viz*., analysis of variance, magnitude of genetic variability were performed following the standard procedures, phenotypic and genotypic coefficient of variation as suggested by Burton (1952), heritability (broad sense) and genetic advance as followed by Allard (1960).

RESULTS AND DISCUSSION

The analysis of variance showed significant differences among the accessions indicating sufficient variability exists among the accessions. The present experimental material showed a wide range of variation for plant height, number of mature pods per plant, 100-pod weight, 100-kernel weight, shelling out-turn, plant height, kernel yield per plant, pod yield per plant, biological yield per plant and harvest index (Table1). Wide range of phenotypic coefficients of variation (PCV) was observed for plant height, number of mature pods per plant, 100-

*** Author for correspondence.**

[1]Regional Cotton Research Station (J.A.U.), JUNAGADH (GUJARAT) INDIA

[2]Department of Agricultural Botany, Junagadh Agricultural University, JUNAGADH (GUJARAT) INDIA