

Genetic variability studies in groundnut (*Arachis hypogaea* L.)

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SUMMARY

An investigation was carried out during *kharif*, 2005 with fifty six groundnut genotypes collected from Oilseeds Research Station, Jalgaon (MS) and also two improved varieties collected from Department of Agricultural Botany, College of Agriculture, Dapoli Dist. Ratnagiri (M.S.) to study their performance, genetic variability, heritability and genetic advance for yield and yield contributing characters. Significant variations were observed for all the characters in all the genotypes used in the experiments. Higher phenotypic and genotypic coefficients of variations were observed for dry fodder yield per plant followed by dry pod yield per plant. Highest heritability values were recorded in respect of 100 dry pod weight, number of days to maturity, oil per cent in kernels, crude fibre content for fodder per plant, dry matter per plant, leaf area, pod length and dry fodder yield per plant. The character which showed high genetic advance as per cent of mean were dry fodder yield per plant, dry pod yield per plant, leaf area, number of pods per plant, number of sound mature kernels per plant and 100 dry pod weight.

Key words : Variability, Heritability, Genetic advance, Groundnut, Correlation.

Oilseed crops have been the backbone of agricultural economy of world and India. Among oilseeds groundnut is one of the important crop grown in the world. In India groundnut ranks first among the edible oil seed groups. As such edible oil economy of India is primarily depends upon groundnut production. Groundnut is most common mans item in daily diet and is considered as poor mans almond. Groundnut contains oil up to 40 to 50 per cent, protein 21.40 to 36.40 grams per hundred grams of seed, carbohydrate 6.02 to 24.90 per cent and moisture 3.90 to 13.20 per cent.

Plant characters are highly influenced by environmental fluctuations. The quantitative character like pod yield is associated with other characters. The pod yield is influenced by environment to a considerable degree. Therefore, selection for such characters based on phenotypic expression is less efficient. For reliable selection, it becomes necessary to estimate the relative amount of heritable (genetic) and non heritable (non genetic) variability exhibited by such quantitatively inherited characters which can be obtained with the help of certain genetic parameters like genotypic coefficient of variation, heritability estimates and expected genetic advance over mean.

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The genetic coefficient of variability gives an estimates of range of genetic variability shown by plant characters, but it does not enable, the plant breeder to determine the amount of variation that is heritable which can be worked out with the help of heritability estimates. The importance of these estimates lies in the fact that traits with high heritability are highly heritable and selection for such traits can be reliably based on their phenotypic performance.

MATERIALS AND METHODS

The field experiment was conducted at Research Farm, Department of Agricultural Botany, College of Agriculture, Dapoli, Dist. Ratnagiri, Maharashtra state during *kharif*, 2005. Dapoli is situated in the sub-tropical region on the 17°45' North latitude and 73°12' East longitude having elevation of 250 meters above the mean sea level. Soil of experimental plot was lateritic. The climate was tropical which is cauterized by warm and humid. The total rainfall received during the period of field trial was 3733.00 mm in 94 days. The relative humidity during the crop period was in the range of 83 per cent to 98 per cent. The minimum temperature varied from 13° C to 25.1° C, while the maximum temperature was in the range of 26.8° C to 33.2° C.

The seed material used for the present investigation comprised of 56 genotypes of groundnut collected from Oilseed Research station, Jalgaon (M.S.) and also 2 improved varieties collected from Department of Agricultural Botany, College of Agriculture, Dapoli, Dist. Ratnagiri (MS).

The experiment was laid out in Randomized Block Design with 3 replication. Seeds of groundnut genotypes