Breeding Criteria For Selection Of Black Gram (*Vigna Mungo* L.) Genotypes For Hill Agro-Ecology Of *Jhabua District* In Western Madhya Pradesh

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ABSTRACT

The present study was under-taken to derive genetic information through variability, correlation and direct and indirect effects of these component characters on seed yield of black gram (*Vigna mungo* L. Hemper). The components of variability were estimated for seven quantitative characters in fourteen genotypes of black gram during *Kharif* 2003 -04 at *Jhabua* hill region of western Madhya Pradesh. Genotypic coefficients of variation were high for plant height, number of branches per plant and number of pods per plant. High heritability estimates for days to 50% flowering, days to maturity, plant height and 1000 seed weight were recorded. Correlation and path coefficient analysis indicated that the seed yield per plant was positive and significantly associated with number of pods per plant, branches per plant and 1000 seed weight. Path coefficient analysis revealed that number of pods per plant, branches per plant and 1000 seed weight had positive direct effect on seed yield per plant.

Key words : Black gram, correlation.

INTRODUCTION

Black gram (*Vigna mungo* L. Hemper) is an important nutritious pulse crop of the tribes of *Jhabua* hill region of western Madhya Pradesh. Genetic improvement of expression in a quantitative character is dependent upon having genotypes with a range of genetically controlled variability. The genetic variability for the improvement of black gram in this region is a prerequisite to achieve the genetic gain in the population under selection. Biometrical procedures such as correlation and path coefficient analysis establish the extent of association between yield and its component characters so that the yield components may form additional indices for selection in breeding programmes. There is need to analyze the observed correlations among component characters to identify direct and indirect causes of their contribution to seed yield by performing path coefficient analysis. Thus correlation in conjunction with path coefficient analysis would give a better insight into the cause and effect relationships between different pairs of characters. The present investigation is an attempt to define the character combination in order to identify the superior genotypes for the region.

MATERIALS AND METHODS

The experiment was laid out during Kharif 2003-04 in

Randomized Complete Block Design (RCBD) with three replications at Zonal Agricultural Research Station, KVK, *Jhabua* (M.P.) using fourteen diverse genotypes of black gram (*Vigna mungo* L.) developed under JNKVV-Gramin Vikas Trust collaborative research project at College of Agriculture, JNKVV, Indore (M.P.). The genotypes were planted in plots of eight rows of 4m length each, with a uniform spacing of 30cm x 10cm. Data on five randomly selected plants from each genotype per replication were recorded on days to 50% flowering, days to maturity, plant height, branches per plant, number of pods per plant, seed yield per plant and 1000 seed weight. Variability parameters were estimated as per the standard formula elaborated by Johnson et al. (1955). Genotypic and phenotypic coefficients of variations were determined following the procedure adopted by Burton & Vane 1951. Heritability (h^2_{bs}) and genetic advance were calculated with following respective methods elaborated by Allard (1960) and Robinson et. al. (1949). Phenotypic and genotypic correlation coefficients were estimated following the method suggested by Goulden (1952). The data were analyzed for path coefficients following the method suggested by Dewey and Lu (1959).

RESULTS AND DISCUSION

The parameters of genetic variability viz. mean, range, genotypic and phenotypic coefficients of variation,

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