

Correlation studies in pigeon pea [*Cajanus cajan* (L.) Millsp.]

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The present investigation was undertaken with the objective to study correlation and path analysis among the population consisting of eight parents and twelve F₂'s of pigeon pea genotypes. Positive and significant associations were recorded between yield and yield contributing characters viz., days to maturity, 100 seed weight and pods per plant. The study indicated that the days to maturity, 100 seed weight and numbers of pods per plant should be given maximum weightage while making selections to improve the yield. Path analysis at phenotypic levels revealed that number of pods per plant and plant height had greater direct effects on seed yield, while the number of primary branches and days to maturity had direct effects on seed yield at genotypic level.

Key words : Correlation, Path analysis, Direct effects, Genotypes.

INTRODUCTION

Pigeon pea [*Cajanus cajan* (L.) Millsp.] is the second most important pulse crop in India. It can thrive well under rainfed conditions due to its deep root system and hence serve as an important companion crop under intercropping. Interest in this crop is growing day by day in many countries because of its multiple uses. Yield is a complex character and contributed by many component characters. Hence the information on the correlation between yield and its component characters is a prerequisite for crop improvement. The path analysis determines whether the association of these characters is due to their direct effects on yield or as a consequence of their indirect effect through other component characters. The present study was, therefore, undertaken to find out the relative importance of degree of association different yield contributing traits and direct and indirect effects on yield.

MATERIALS AND METHODS

The experiment was conducted during kharif, 2003 at Experimental farm of College of Agriculture, Latur, Marathwada Agriculture University, Parbhani. The experimental material for the present investigation was comprised of ten parents and twelve F₂ crosses. The 22 treatments were grown in Randomized Block Design with three replications. Row to row spacing was kept 60 cm and that for plant to plant was 30 cm. Observations were recorded on five randomly selected plants for all character namely days to 50% flowering, days to maturity, plant height (cm), number of primary branches, number of

secondary branches, number of pods per plant, 100 seed weight (g) and grain yield per plant. Mean values were subjected to analysis of variance and phenotypic correlations and path coefficients were computed by using the formula of Dewey and Lu (1959).

RESULTS AND DISCUSSION

The analysis of variance indicated highly significant differences among all the genotypes for all the characters studied. The estimates of phenotypic and genotypic correlation coefficient are presented in Table 1. Positive and significant phenotypic as well as genotypic correlations were observed between yield and days to maturity, pods per plant and 100 seed weight. The yield was negatively correlated with days to 50% flowering. The character days to 50% flowering showed negative correlation with days to maturity, plant height and 100 seed weight. The number of secondary branches per plant showed negative association with number of days to maturity. Plant height showed positive significant genotypic and phenotypic correlation with 100 seed weight. While it was negatively correlated with number of primary branches, number of secondary branches, number of pods per plant. Positive but non significant phenotypic and genotypic correlation was observed between number of primary branches with number of secondary branches per plant and number of pods per plant. The trait number of secondary branches per plant exhibited positive correlation coefficients with 100 seed weight and yield per plant. The character 100 seed weight

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