

Studies on characters association and path analysis for seed yield and its components in pigeonpea

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SUMMARY

An investigation was carried out in pigeonpea to understand the association among the yield components and their direct and indirect effect on the seed yield. The estimates of genotypic correlation co-efficient in general were higher than their corresponding phenotypic correlation co-efficients indicating strong inherent association among the traits. Characters association studies indicated that number of pods, secondary branches per plant, plant height, primary branches per plant showed significantly positive correlation with seed yield at genotypic and phenotypic levels. Path co-efficient analysis revealed that number of pods, secondary branches per plant, plant height, and primary branches per plant were the most important character which can be strategically used to improve yield in pigeonpea. The study was carried out during 2009-10 to 2010-11 under International Central Research Institute for Semi Arid Tropics funded project at Department of Agricultural Botany, Marathwada Krishi Vidyapeeth, Parbhani.

Key Words : Correlation, Path analysis, Pigeonpea

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Pigeonpea [*Cajanus cajan* (L.) Millsp., (2n=22)] is the fifth most important pulse crop in the world. In India, it is second (next to chickpea) in area a production. Yield is a complex character controlled by polygenes. Therefore, selection made on the basis of its phenotypic expression alone is likely to be misleading. Seed yield is a dependent trait, which is influenced by many independent traits. The correlation among the yield and yield contributing characters provides reliable information on nature and direction of selection also useful as a basis for selecting desirable plant type. Correlation co-efficient enables to identity characters or combination of characters, which might be useful as indications of high yield by way of evaluating the relative influence of various

characters as well. It provides reliable information on the consequence of selection for simultaneous improvement of desirable yield component characters. Path co-efficient analysis is the best method to evaluate the causes and effect relationship between yield and its contributing traits the present study was undertaken to derive information on genotypic and phenotypic correlation, direct and indirect effect or various traits.

MATERIALS AND METHODS

The material used in the present study consisted of 121 genotype were evaluated in Randomized Block Design with two replications during *Kharif* 2010-11 at department Agricultural Botany, Parbhani. The present study comprised of four lines *i.e.* ICPA-2043, ICPA-2047, ICPA-2078 and ICPA-2092 and 23 testers *i.e.* ICP-7192, ICP-9939, ICP-12320, ICP-12057, ICP-1482, ICPL-20108, ICPL-20120, BSMR-846, BSMR-736, BDN-2, BSMR-198, BSMR-571, BSMR-243, BSMR-174, BSMR-175, BSMR-253A, BWR-153, BSMR-539, BSMR-528, BWR-133, BWR-154, BWR-553, and BWR-123. The genotype 121 includes twenty seven parents (Four CGMS based lines and 23 tasters) together with 92 crosses, a standard check BSMR-736 and

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