

Path analysis for seed yield in cowpea [*Vigna unguiculata* (L.) Walp.]

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SUMMARY

The present investigation on path analysis studies in cowpea [*Vigna unguiculata* (L.) Walp.] was conducted by using 44 genotypes of cowpea. Path co-efficient analysis for seed yield indicated that number of pods per plant, 100 seed weight and number of seeds per pod had high positive direct effect on seed yield per plant and also these traits had significant and positive correlation with seed yield per plant.

Key Words : Cowpea, Path analysis, Direct effect, Indirect effect

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Cowpea is multipurpose legume grown for seed as a pulse, green pod as a vegetable and whole plant as a fodder in tropics and subtropics. Because of its high protein content (20-25 %) cowpea has been referred as “poor man’s meat”. Path co-efficient analysis suggested by Dewey and Lu (1959) proves helpful in partitioning the correlation co-efficient into the measure of direct and indirect effects of a set of an independent variables on the dependent variable.

For the present study forty four genotypes of cowpea were used and grown in RBD with two replications. The experiment was conducted at Pulses Improvement Project Farm, Mahatma Phule Krishi Vidyapeeth, Rahuri, during 2010. Each genotype was sown in single row of 4 meter length. The spacing for seed plot is 30 x 10 cm. Five competitive plants per genotype were selected at random from each replication for recording observations for eight characters *i.e.* days to

maturity (no.), plant height at maturity (cm), number of pods per plant, number of seeds per plant, seed yield per plant (g). Mean, range were worked out using standard statistical procedures. Path analysis was carried out according to the method suggested by Dewey and Lu (1959).

In the present investigation, it was found that the character number of pods per plant (0.5537) recorded magnitudinally the highest direct effect on seed yield per plant and it was followed by 100 seed weight (0.5127) and number of seeds per pod (0.2497) (Table 1). The character days to maturity (0.0525) produced positive direct effect of low magnitude. Days to maturity, plant height at maturity, number of seeds per pod had significant positive correlation with seed yield per plant which was mainly through their indirect effect via number of pods per plant. Tyagi and Koranne (1988) obtained the same results for number of seeds per pod. Sawant (1994) obtained the same results for number of pods per plant, 100 seed weight, number of seeds per pod. Singh *et al.* (1997) reported same result for number of seeds per pod, Singh *et al.* (1998) reported same results for number of pods per plant and days to maturity. Number of seeds per plant had highly significant and positive correlation with seed yield per plant through its indirect effect via number of pods per plant followed by 100 seed weight, while the character 100 seed

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Table 1 : Direct and indirect effect for ten characters in cowpea

Sr. No.	Characters	Days to maturity	Plant height at maturity(cm)	No. of pods per plant	No. of seeds per pod	100 seed weight(g)	Correlation with seed yield per plant
1.	Days to maturity	0.0525	-0.0138	0.2367	0.1034	0.1504	0.5293**
2.	Plant height at maturity(cm)	0.0307	-0.0235	0.2557	0.1366	0.1696	0.5692**
3.	No. of pods per plant	0.0224	-0.0109	0.5537	0.1474	0.0360	0.7487**
4.	No. of seeds per pod	0.0217	-0.0129	0.3269	0.2497	0.2156	0.8010**
5.	100 seed weight(g)	0.0154	-0.0078	0.0389	0.1050	0.5127	0.6642**

* and ** indicate significance of values at P=0.05 and 0.01, respectively

Residual (R) =0.1748

Bold figures denote direct effect

weight produced its indirect effect on seed yield per plant via number of seeds per pod.

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