Correlation and Regression Studies in Soybean Yield Characteristics

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Knowledge of the interrelationship among yield determining characters and their association with seed yield is of paramount importance in crop improvement programme. In this study the experiment was laidout during *kharif* 1989 with four sowing dates (23rd June, 8th July, 23rd July and 7th August) and four seeding rates (40, 50, 60 and 70 kg/ha) in split plot design. Randomly selected 5 plants from each treatment were used for recording the observations on plant height, number of branches, leaves, nodules, pods and grains as well as 100 seed weight. Simple correlation coefficients was worked out by computer by adopting the formula described by Snedecor and Cochran (1967).

It is evident from Table-1 that the grain yield of soybean was highly significantly and positively associated with plant height and oil content. Whereas, number of nodules/plant,

TABLE 1

Association and simple regression equation of grain yield of soybean with growth, yield attributing and quality characters.

	Character	*Regression equation*	*'r'*
1.	Plant height (cm) at harvest	$\hat{Y} = 8.163 + 0.104^{**} x$	0.925**
2.	Number of branches/plant at harvest	$\hat{Y} = 13.760 + 0.630 x$	0.289
3.	Number of leaves/plant at harvest	$\hat{Y} = 10.369 + 0.407 x$	0.404
4.	Number of nodules/plant at harvest	$\hat{Y} = 4.392 + 0.468^{*} x$	0.588*
5.	Number of pods/plant	$\hat{Y} = 16.778 - 0.024 x$	0.609*
6.	Number of grains/pod	$\hat{Y} = 2.822 + 6.934 x$	0.102
7.	100 seed weight (g)	$\hat{Y} = -6.415 + 2.321^{*} x$	0.579*
8.	Oil content (per cent)	$\hat{Y} = -49.760 + 3.534^{*} x$	0.869**
9.	Protein content (per cent)	$\hat{Y} = -34.752 + 1.290^{*} x$	0.657*

** Significant at 1 per cent level of probability.

* Significant at 5 per cent level of probability.

number of pods/plant, 100 seed weight and protein content were positively and significantly correlated with final production. The association between plant height and grain yield was the highest (0.925) closely followed by oil content (0.869). This result clearly indicated that above parameters exhibited direct influence on final yield of soybean. Therefore, these attributes should be considered at the time of selecting the variety. Almost similar results were also reported by Chaudhari and Singh (1974).

The simple regression co-efficients were computed between yield of seed (y) and important growth, yield and quality attributes (x), which were taken for simple correlation studies. The simple linear regression equation obtained (Table-1) was of the type $\hat{y} = a + b x$, where,

$\hat{y}$ = predicted yield of seed; a = constant,

b = regression co-efficient.

x = growth, yield and quality attributes.

In these equations, plant height, number of nodules/plant, 100 seed weight, oil and protein content exhibited significant influence on seed yield. While rest of the parameters showed negligible impact on the final production of soybean.

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