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Estimates of Variability, Heritability and Correlations for Yield and its Components in Urd *(Phaseolus mungo L.)*

The success of selection as a breeding method is determined by specific genetic parameters. Correlation responses, heritability, genetic advance, path analysis and selection index are the main parameters which help in making the selection of superior genotypes trom a diverse genetic population. Importance of the selection parameters has been emphasized by Singh and Malhotra (1970), Singh and Singh (1973) in mung and Singh and Mahndiratta (1970) in cowpea. Such information is lacking in Urd and the present study attempts to fulfil this lacuna.

An experiment was conducted with 36 diverse strains of urd in a randomised block design with four replications. The plot consisted of two rows of three meter length. The spacing between and and within rows was maintained at 45 and 15 cm respectively. At maturity, five plants were selected at random from each plot and data were recorded on six characters *viz.*, primary branches per plant, height (cm), pods per cluster, cluster per plant, test weight (g), and grain yield per plant (g).

The coefficients of variation and associations were worked out by the formula of Burton (1952) and Johnson *et al* (1956). Heritability and genetic advance were calculated by the method suggested by Robinson *et al* (1949).

The results on variablility, heritability and correlations are briefly discussed.

(a) **Variability:** The values of genotypic and phenotypic coefficients of variation were observed from 3.08 to 25.70 and 3.62 to 26.18 per cent, respectively (Table 1) for different traits. The maximum variability was observed

TABLE 1. Estimates of variability, heritability and genetic advance.

Character	Coefficient of variation		Heritability (Per cent)	Genetic advance
	Genotypic	Phenotypic		
Primary branches	6.36	6.88	89.21	28.41
Plant height	25.70	26.18	97.30	25.59
Pods/cluster	6.32	7.22	76.54	1.70
Cluster/plant	6.71	8.54	61.76	3.99
Test weight	3.08	3.62	72.48	3.02
Yield/plant	4.13	4.62	70.50	19.22

for plant height both at genotypic as well as phenotypic levels, whereas test weight showed, the lowest value of variability. This indicates that selection will be more effective for the improvement of plant height than other traits.

(b) **Heritability and genetic advance :** The estimates of heritability were found from 61.76 to 97.30 per cent (Table 1). The plant height showed the highest value of heritability (97.30), while it was the lowest for clusters per plant. The genetic advance varied from 1.70 to 23.41. It was found high for primary branches, plant height and grain yield per plant. This suggests that these characters could be further improved upon through selection.

TABLE 2. Genotypic and phenotypic correlations between different pairs of characters.

Character	Primary branches	Plant height	Pod per culster	Culster/plant	Test weight
Plant height	+0.813** (+0.804)**				
Pods/cluster	+0.938 ** (+0.534)**	+0.501 ** (+0.544)**			
Cluster/plant	+0.702 ** (+0.966)**	+0.789 ** (+0.981)**	+0.785 ** (+0.778)**		
Test weight	+0.047)** (+0.243)**	—0.031 (—0.142)	+0.207 (+0.209)	+0 064 (+0.219)	
Yield/plant	+0.461 ** (+0.448)**	+0.582 ** (+0.630)**	+0.586 ** (+0.821)	+0.558 ** (+0.809)**	+0.704 ** +0.458 **

** = Significant at 1% level.
Figures in parentheses indicate phenotypic associations.

(c) **Correlations :** The primary yield components *viz.*, primary branches, plant height, pods per cluster, cluster per plant and test weight showed a positive and significant associations with yield both at genotypic as well as phenotypic levels. This indicates that selections for these traits will lead to an increase in grain yield of urd. The other character combinations also exhibited positive associations except test weight vs plant height, where it was negative.

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