

VARIATION AND CHARACTER ASSOCIATION IN CLUSTERBEAN

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Clusterbean (*Cyamopsis tetragonoloba* (L.) Taub.) is mainly grown for fodder either pure or in mixture with other non-leguminous forages to improve the nutritional quality of fodder due to its higher protein content. An assessment of the variability in the germplasm collected is required to judge its potential as base material for genetic improvement. The direct selection for complex character, such as green fodder yield is not effective. For making a suitable selection indices for improving herbage quantity, a knowledge of association of simply inherited characters is required.

A total of 40 accessions collected from arid and semi-arid tract of north India were grown during 1992. The observations on days to flowering, plant height, number of nodes, branch numbers, leaf numbers, green fodder yield, dry matter yield and leaf-stem ratio on dry matter basis were made. The extent of variation among accessions for stem girth, number of nodes, branch numbers and leaf numbers per plant was worked out according to Barah *et al.* (1981). The correlation coefficients analysis was performed according to Singh and Chaudhary (1979). The association analysis (Table 1) indicated that the green fodder yield was positively correlated at phenotypic level with days to flowering while dry matter yield with leaf stem ratio, number of leaves per plant, number of nodes per plant and plant height. Similar observations were reported by Chaudhary and Lodhi (1980) and Rao and Paroda (1975). The leaf-stem ratio on dry matter basis also positively associated with all characters except green fodder yield.

There was considerable variation among accessions for stem- girth, nodes, branch number and leaf numbers/plant. Mean of all characters are plotted against their respective variances in Fig. 1. Mean stem girth for most of accessions varied between 0.50-0.82 cm although the highest stem-girth from

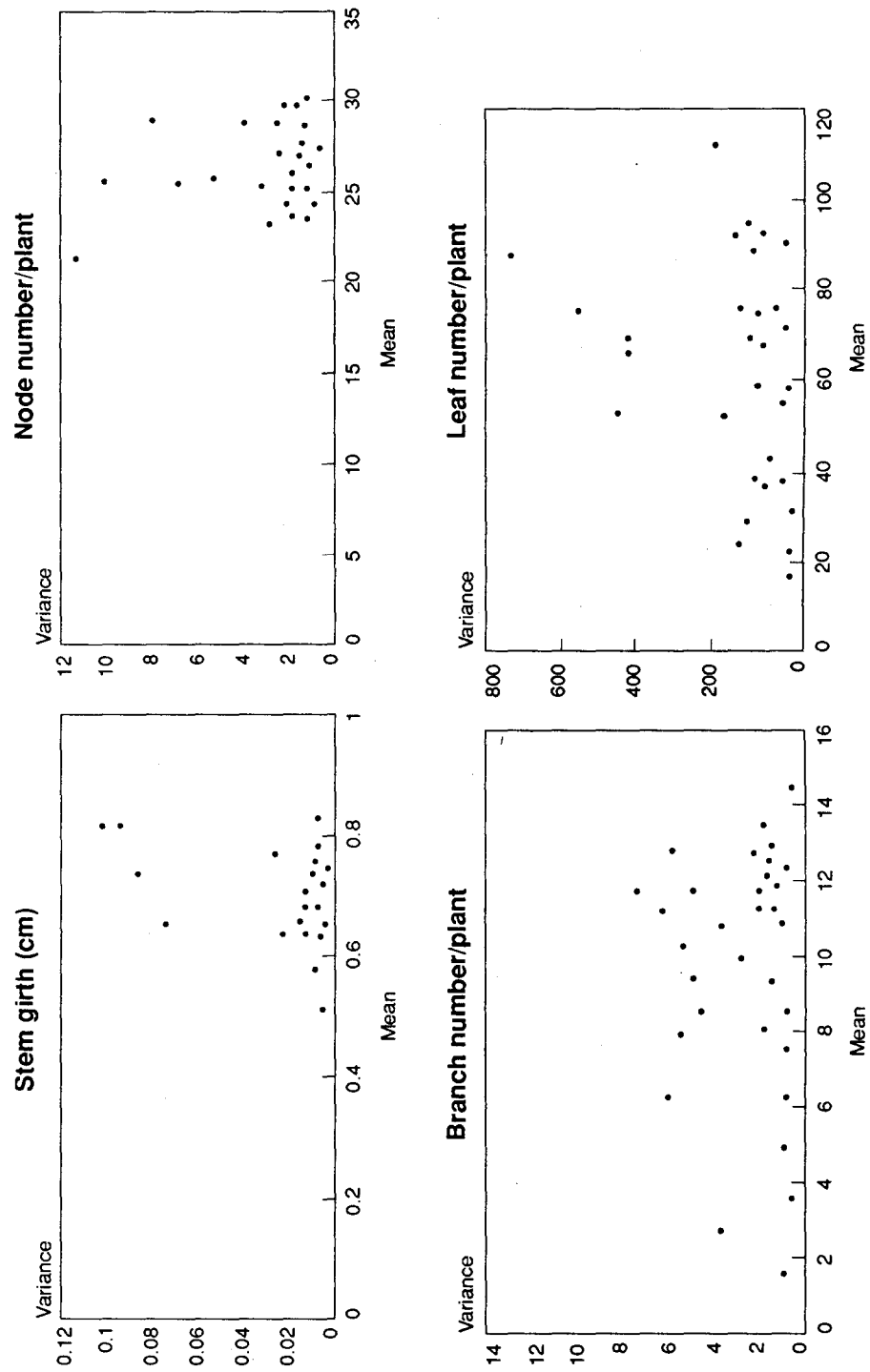


Fig. 1. Variation in cluster bean accessions for different growth parameters

Table 1. Phenotypic correlations coefficients between characters of cluster bean

	Plant height	Nodes/plant	Branches/plant	Leaf No.	Green fodder yield	Dry matter yield	Leaf: stem ratio
Days to flowering	0.12	-0.37*	0.22	0.07	0.22	-0.02	0.06
Plant height		0.05**	0.06	0.16	-0.29	0.54**	0.47**
Number of nodes/plant			0.18	0.38*	-0.37*	0.63**	0.42**
Number of branches/plant				0.84*	-0.01	0.47**	0.59**
Number of leaves/plant					-0.17	0.71**	0.74**
Green fodder yield						-0.31*	-0.20
Dry matter yield							0.73**

*, ** Significant at 5% and 1% level respectively.

individual plant was 1.10 cm. The nodes, branch numbers and leaf numbers/plant ranged from 24.20 to 30.53, 1.00 to 14.40 and 18.80 to 110.16; respectively. The variances for stem girth among collections varied from 4-6 times of mean values. The intravarietal variability is generally more conspicuous in respect of branching pattern ranging from unbranched to profuse branched types with various intermediate forms varying in height of plants, leafiness and branching pattern. The branched types generally produce small leaflets. The single stemmed types are generally tall with large and more leaves giving high herbage quantity.

The flexible breeding system and the wide range of variability among collections provides ample opportunity for selection of material with high herbage quantity on the basis of leaf-stem ratio and early maturity.

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