

VARIABILITY IN SELECTED VARIETIES OF COWPEA  
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Estimation of genetic parameters like genotypic coefficient of variation, heritability and genetic advance was attempted in selected varieties of cowpea to isolate promising types suitable for Kerala. Eight varieties, V 6008, Pusa Dofasli, K779, K858, K1552, CP-1-77, No, 18 and Kanakamani were grown in a Randomised block design with three replications at the Instructional Farm and Research Station of the College of Horticulture, Vellanikkara, during summer (March-June) 1979. The plot size was 2.5 m x 1.5 m and number of plants per plot was 80. Data on ten polygenic characters, days to 50% germination days to flower, days to first harvest (vegetable purpose), internodal length (cm), number of pods per cluster, weight of 10 pods (g), pod length (cm), number of seeds per pod, number of pods per plant and yield per plot (kg) were recorded and analysed statistically. The variance components, phenotypic coefficient of variation, heritability and genetic advance were estimated according to the methods suggested by Burton (1951) and Burton and Devane (1953).

The mean values of various quantitative characters are given in Table-1. The analysis of variance has revealed highly significant differences between varieties with respect to all characters suggesting considerable variability among them. The line K.1552 from Karnal was identified as the highest yielder (5.730 kg/plot) with more pods per plant (24.43) and earliness (35 days). The estimated genetic parameters are presented in Table 2. It may be seen that the range of variation for varietal means was quite large in respect of days to first harvest, internodal length, weight of 10 pods, seeds per pod, pods per plant and yield per plot.

The maximum value for genotypic coefficient of variation was obtained in yield per plot (57.12) followed by pods per plant (56.56) and internodal length (53.34). The lowest value of genotypic coefficient of variation was observed in pod length (6.44). Thus, the data has revealed that the major part of total variation in yield per plot, pods per plant and internodal length was due to genetic causes. The heritability estimate was the highest for days to flower (95.18%) followed by days to first harvest (95.74%). The genetic advance estimated as per cent of mean was maximum for seeds per pod (100.53%) followed by yield per plot (99.54%) and pods per plant (93.37%).

Table-1

Mean values of quantitative characters in cowpea

Characters	V.6008	Pusa Dofasli	K.779	K.868	K.1552	CP-1-77	No.18	Kanakani	C D	
									P=0.05	P=0.01
Days to 50% germination	5.33	3.67	3.67	3.67	3.33	7.33	6.67	3.00	0.81	1.13
Days to flower	67.67	36.33	36.00	35.33	35.00	46.33	51.00	45.67	3.11	4.31
Days to first harvest	81.00	51.00	51.00	51.00	51.00	61.33	74.67	53.00	3.81	5.29
Internodal length (cm)	13.35	4.27	5.27	5.77	4.71	14.17	17.53	9.10	2.70	3.75
Pods/cluster	1.07	2.20	2.00	2.37	2.87	1.47	1.27	1.33	0.30	0.41
Wt. of 10 pods (g)	43.00	43.67	42.00	36.67	45.67	43.33	43.00	53.33	4.78	6.63
Pod length (cm)	17.40	17.80	17.83	17.04	18.57	18.50	15.01	16.92	0.94	1.30
Seeds/pod	9.43	13.93	13.50	14.70	13.40	15.60	12.63	16.03	1.43	1.99
Pods/plant	3.20	17.89	16.06	17.17	24.43	11.55	2.35	7.61	6.60	9.16
Yield/plot (kg)	0.72	2.43	3.15	2.71	5.73	3.05	0.68	2.72	1.16	1.61

Table-2

Range, Mean, Phenotypic (PCV) Genotypic (GCV) and Environmental (EOV) coefficients of variation, Heritability and Genetic advance for various characters

	Range for varietal means	General mean of varieties	POV	PCV	EOV	Heritability (%)	Genetic advance as % of mean
Days to 50 germination	8.00-7.88	4.58 ± 0.88	87.99	84.98	14.84	84.48	95.88
Days to flower	55.00-87.87	44.18 ± 1.45	28.01	25.88	5.70	95.18	51.08
Days to first harvest	5.00-81.00	59.25 ± 1.78	20.88	20.20	5.21	98.74	40.88
Internodal length	4.27-17.58	9.28 ± 1.28	58.79	58.84	28.59	82.22	82.08
Pods/ster	1.07-2.87	1.82 ± 0.14	86.81	82.98	15.88	58.89	15.72
Wt. of 10 pods	88.87-58.88	48.25 ± 2.28	18.54	10.17	8.94	87.02	10.87
Pod length	15.01-18.57	17.88 ± 0.44	7.88	8.6	4.88	78.15	25.05
Seeds/pod	9.48-16.08	18.65 ± 0.87	18.55	14.18	8.57	88.58	100.53
Pods/plant	2.85-24.48	12.58 ± 3.08	71.18	58.18	42.81	88.87	98.87
Yield/plot	0.88-5.78	3.87 ± 0.54	87.51	57.12	88.02	71.57	39.54

### സംഗ്രഹം

തിരഞ്ഞെടുത്ത എട്ടു പയറിനങ്ങളിൽ പത്തു പരിമാണാത്മക ഘടകങ്ങൾ പഠനവിധേയമാക്കിയതിൽനിന്നും എല്ലാ ഘടകങ്ങളുടേയും പ്രഭാവങ്ങൾ സാർഥകങ്ങളാണെന്ന് നിരീക്ഷിക്കുകയുണ്ടായി. കർണ്ണാളിൽ നിന്നും ശേഖരിച്ച കെ.1552 എന്ന ഇനം മറ്റുള്ളവയേക്കാൾ കൂടുതൽ വിളവ് തരുന്നതായും കൂടുതൽ കായ്കൾ ഉൽപ്പാദിപ്പിക്കുന്നതായും നേരത്തെ പൂക്കുന്നതായും തെളിഞ്ഞു. വിളവ്, കായ്കളുടെ എണ്ണം, പർവസന്ധികൾക്കിടയിലുള്ള നീളം എന്നീ ഘടകങ്ങൾ ജനിതകവിചരണ ഗുണാംകത്തിലും, ജനിതക നേട്ടത്തിലും സാപേക്ഷകമായി ഉയർന്ന അകലങ്ങൾ ഉൾക്കൊള്ളുന്നവയായി കണ്ടു.

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