

## COMPARATIVE PERFORMANCE OF COWPEA VARIETIES IN RICE FALLOWS

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Among the various pulse crops grown in Kerala, cowpea is the most popular and it is cultivated in homestead gardens round the year and in the paddy fields during summer. The present study was conducted to evaluate the performance of eight varieties of cowpea under irrigated conditions in the Malampuzha Command area and to select the most suited variety for the tract. The experiment was conducted in a farmers field at Muthalamada of Palghat district.

### Materials and Methods

The field experiment was conducted during the summer seasons of 1980-81, 1981-82 and 1982-83. It was laid out in randomised block design with three replications. The varieties used were V 16, V 37, V 38, HG 22, C 152, Ptb 1 (Kanakaman), S 488 and Pusa 2. Uniform cultural and manurial practices as per the recommendations of Kerala Agricultural University were followed (Anon. 1980). The crop was raised during January and harvested during April. Two irrigations, one 15 days after sowing and the other at the time of flowering were given.

Observations included growth characters like plant height, number of branches per plant, number of leaves per plant, days to 50% flowering and the yield components like number of pods per plant, length of pods and number of seeds per pod in addition to yield of grain. Growth observations were taken at the time of harvest during 1981-82 only.

### Results and Discussion

The results of the experiment on the growth and yield are presented and discussed below.

#### A. Growth characters

There were significant differences between the varieties only with regard to height of plant and number of days to 50% flowering. Ptb 1 recorded the maximum height (200.3 cm) which was on par with V 38 (185.9 cm) and superior to all other varieties. HG 22, V 38 and S 488 came to flower earlier (50.0, 51.7 and 52.0 days respectively), compared to other varieties. No significant difference was noted in the case of number of branches and number of leaves retained at the time of harvest (Table 1).

### B. Yield and yield components

Significant difference was noted between the varieties with respect to all yield components. HG 22 produced higher number of pods per plant (23.1) followed by Pusa 2, Ptb 1, S 488 and C 152 which were all on par. The maximum weight of pods per plant was recorded by Pusa 2 (20.0 g) which was on par with HG 22, Ptb 1, S 488 and C 152. Longer pods were produced by Pusa 2 (19.1 cm) which was on par with Ptb 1 and S 488 and superior to all other varieties tried. Ptb 1 produced higher number of seed per pod which was on par with S 488 and superior to other varieties (Table 2).

Table 1  
Growth characters of cowpea varieties (1980-81)

Varieties	Height of plant (cm)	Number of branches per plant	Number of leaves per plant	Number of days to 50% flowering
V 16	72.3	7.5	48.5	56.7
V 37	129.0	9.2	39.2	59.7
V 38	185.9	7.8	47.5	51.7
HG 22	66.7	7.9	25.3	50.0
C 152	108.9	9.0	39.5	57.0
Ptb 1	200.3	7.1	39.9	54.7
S 488	92.9	9.5	37.7	52.0
Pusa 2	112.5	8.0	28.9	55.7
CD (0.05)	50.45	N S	N S	2.62

Table 2  
Yield components of cowpea varieties (1980-81)

Varieties	Number of pods per plant	Weight of pods per plant (g)	Length of pod (cm)	Number of seeds per pod
V 16	12.1	11.7	15.4	12.9
V 37	9.1	10.0	14.6	12.3
V 38	12.9	13.3	14.5	12.2
HG 22	23.1	19.0	11.4	11.6
C 152	14.0	15.0	15.8	13.6
Ptb 1	14.4	18.7	17.4	14.8
S 488	14.3	18.7	18.9	17.1
Pusa 2	15.7	20.0	19.1	13.1
CD (0.05)	5.11	5.98	2.20	2.98

Table 3  
Yield of grains of cowpea varieties during three seasons (kg/ha)

Varieties	1980-81	1981-82	1982-83	Pooled
v 16	344	556	423	441
V 37	229	475	428	377
V 38	276	350	375	334
HG 22	507	752	579	613
C 152	405	675	482	521
Ptb 1	598	688	547	611
S 488	429	548	443	473
Pusa 2	471	718	553	581
CD (0.05)	169.0	NS	NS	121.0

It can be seen from Table 3 that the yield of grain varied significantly among the varieties. During 1980-81, Ptb 1 recorded the highest yield of 593 kg/ha which was on par with HG 22, Pusa 2 and S 488. The increased yield might have been contributed by the higher number of pods, weight of pods, length of pods and number of seeds per pod noted in these varieties. The lowest yield was registered by V 39, V 38 and V 16 during this season. Santhakumari *et al.* (1980) reported that Kunnankulam local (Ptb 1) and New Era are best suited for cultivation in the summer rice fallows of Onattukara region. During 1981-82, even though no statistical difference in yield was noticed between varieties, highest yield was recorded by HG 22 (752 kg/ha) followed by Pusa 2 (718 kg/ha), Ptb 1 and C 152. The same varieties were tried during 1982-83 also to get confirmatory results. During this season also, there was no statistical difference in yield between the different varieties. However, HG 22 recorded highest yield (575 kg/ha) followed by Pusa 2 (553 kg/ha) and Ptb 1. During 1981-82 and 1982-83 also the performance of V 16 and V 37 was very poor. Studies conducted at Rice Research Station, Pattambi during 1974-75 and 1975-76 revealed the superiority of Ptb 1 over other varieties (Anon, 1975 and 1976). George *et al.* (1981) also reported that New Era, Ptb 1 and P 118 as superior varieties.

Pooled analysis of the data for the three years was conducted (Table 3). The results showed that the varieties viz. HG 22, Ptb 1, Pusa 2 and C 152 were on par and significantly superior to other varieties. So it can be concluded that these four varieties are best suited for cultivation during summer season in rice fallows of Palghat district.

#### Summary

The performance of eight varieties of cowpea under irrigated conditions in the Malampuzha Command area was studied in the summer season of three consecutive years. Ptb 1, HG 22, Pusa 2 and C 152 were found to be superior varieties for cultivation under irrigated conditions during summer season in rice fallows.

സംഗ്രഹം

നെൽവയലുകളിൽ വേനൽക്കാലവീളയായി കൃഷിചെയ്യുന്നതിന് യോജിച്ച പയറിനങ്ങളെ സംബന്ധിച്ച് പാലക്കാട് ജില്ലയിൽ fl-tmejiis പ്രദേശത്ത് 1980-81, 1981-82, 1982-83 എന്നീ വർഷങ്ങളിൽ എട്ട് പയറിനങ്ങൾ പരീക്ഷിച്ചു നോക്കിയതിൽനിന്ന് പി. റി ബി. 1, എച്ച്. ജി. 22, പുസാ 2, സി 152 എന്നീ ഇനങ്ങൾ താരതമ്യേന കൂടുതൽ വിളവ് നൽകുന്നതായി കണ്ടു. ഈ നാല് ഇനങ്ങളെ പാലക്കാട് പ്രദേശത്തേക്ക് ശുപാർശ ചെയ്യാം.

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