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Performance of Red gram (*Cajanus cajan* (L) Millsp) Varieties Under Rainfed Black Soil Conditions

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The red gram varietal trials conducted at All India Co-ordinated Research Project for Dryland Agriculture, Kovilpatti from 1971 - '72 to 1973 - '74 rabi seasons revealed the adaptability of Co.1 for the rainfed black soil area of Southern districts of Tamil Nadu. On equal yield, duration and high per-day-production capacity basis, coupled with bigger seed size, varieties Khargone-2 and S.8 may also be popularised to provide diversification of genotypes as an insurance against vagaries of monsoon.

Red gram (*Cajanus cajan* (L) (Mill sp) is the most important pulse crop of Tamil Nadu. It plays a vital role in the South Indian dietary as the primary supplier of vegetable protein. The production of red gram in Tamil Nadu is not sufficient to meet even half the needs of the population. As this pulse is extensively cultivated under rainfed black soil area of Southern districts of Tamil Nadu, with native varieties, the yield is very poor. Realising the need to step up the production of this pulse, programmes for the evaluation of high yielding strains were taken up in All India Co-ordinated Research Project for Dryland Agriculture, Kovilpatti.

MATERIALS AND METHODS

A total of 16 varieties was tested in randomised block design experiment replicated four times for three rabi seasons from 1971 - '72 onwards under black soil conditions. The crop was sown during third week of October. The experimental plot was fertilised with 20 kg N and 40 kg P_2O_5 per ha at the time of sowing. Regular plant protection was given to the crop against common pests infesting the crop. The second year of the trial was considered to be normal. The duration of all the varieties tested in the third year of trial was extended by a month due to unprecedented heavey rains during flowering phase.

RESULTS AND DISCUSSION

The yield data, along with ancillary information gathered in this trial are given in Table I. Significant yield differences were obtained in all the three years of trial except in trial 2 in the third year. Varieties Khargone-2, R.60 and S.8 significantly exceeded the local in yield. These were on par with Co.1 and No. 148. Khargone-2

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TABLE. I Performance of Red gram varieties

Variety	Yield kg/ha					Mean of 3 seasons		
	1971-'72	1972-'73	1973-'74					
			Trial 1	Trial 2	Mean	Duration in days	Yield in kg/ha per day	Wt. of 100 seeds (g)
Khargone-2	315	1320	683		773	139	5.56	9.30
CO.1	282	1119	771	897	767	142	5.40	7.64
R.60	313	965		783	687	145	4.74	8.22
No.148	280	957	726		654	143	4.57	9.43
S.5	250	1054	477		594	141	4.21	8.16
T.21	189	887	706		594	133	4.46	6.97
C.11		627		1066	847	155	5.46	8.97
S.8	310	1163			737	131	5.62	8.06
Local	246	1079			613	135	4.54	7.69
4488				1008	1008	170	5.92	8.33
5039				953	953	170	5.60	9.58
BS.1			831		831	158	5.25	7.31
4806				811	811	170	4.77	8.26
UPAS.120			497		497	161	3.08	6.68
Prabat			430		430	139	3.09	5.28
Pant A-2			418		418	139	3.00	6.18
S.E.	21	78	98	50	—	—	—	—
C.D. (5%)	63	227	284	N.S.	—	—	—	—

N.S : Not significant

gave significantly better performance in the second year of trial, giving 17.9 per cent enhanced yield over local. The former was also on par with CO.1 and S.8. In the third year of trial Co.1 recorded the maximum yield in trial 1, but was on par with Khargone-2 and four other varieties. Type C.11 recorded the highest yield of 1066 kg/ha in trial 2. The above promising varieties were medium in duration, ranging from 131 to 145 days except C.11. Of these, varieties Khargone-2 and 148 were noteworthy for higher seed size of 9.30 and 9.43 g/100 seeds respectively. Varieties R.60, C.11 and S.8 possessed bigger seed than CO.1, which possessed seed size more or less identical with local.

Based on yearwise and average performance over two or three seasons, duration and per day production the entries viz., Khargone-2, CO.1 and S.8 may be considered to be promising varieties. C.11 also is promising with reference to yield, but has a longer duration by a fortnight. Veerasamy and Ratnaswamy (1972) indicated that CO.1 can also be grown as a rainfed