

Evaluation of Oilseed Varieties for Rainfed Black Soil Tract of Tamil Nadu

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Eight varieties in sunflower, nine in safflower, twelve in castor and four in gingelly were evaluated for their suitability to the rainfed black soil tract of the southern districts of Tamil Nadu during 1976-77 to 1978-79 in the North East monsoon season (October-December). The seed yield data showed that EC 68414, EC 68413, Composite I and 'Modern Variety' of sunflower; Co. 1, K 1 and CTS 7205 of safflower, 50-6-4, 30-8-4 and 40-28-11 of castor and Si 1740 gingelly are promising and can be recommended for the rainfed black soil tract.

More than fifty % of the cultivated area in Tamil Nadu is rainfed. In the black soil tract, groundnut is not raised as the soil conditions do not permit proper development of the pegs. Gingelly and sunflower are sown when the north east monsoon is delayed while castor is sown with the early on set of the monsoon, generally as a mixed or border crop in cotton and chillies. To evaluate the new genotypes of sunflower, safflower, gingelly and castor, trials were conducted from 1976 to 1979 in the rainfed black soil of Kovilpatti and the results are presented in this paper.

MATERIAL AND METHODS:

Eight varieties in sunflower, nine in safflower, twelve in castor and four gingelly were evaluated for their performance under rainfed conditions during North East Monsoon season (October-December) in the black soil of Kovilpatti. Seeds were sown with the receipt of rains in October in plots of 7.5 m x 3.6 m size, randomised and

replicated thrice adopting a spacing of 30 cm x 15 cm for sunflower and gingelly, 45 cm x 30 cm for safflower and 60 cm x 30 cm for castor. Basal application of 20 kg N and 40 kg P_2O_5 /ha was done uniformly for all the crops. An application of 40 kg K_2O /ha was done for sunflower. The seed yield data were statistically scrutinised.

RESULTS AND DISCUSSION

Among the varieties of sunflower evaluated, EC 68414, EC 68413, Composite I and 'Modern Variety' were promising with average seed yield of 7.5 q, 7.3 q, 7.3 q and 7.2 q/ha respectively (Table I).

CTS 7403 (Co. 1), a spineless variety of safflower, is quite promising with an average seed yield of 4.1 q/ha. Among the spiny varieties K 1 recorded an average yield of 4.0 q/ha followed by CTS 7205 and A 300 (Table II).

The traditional varieties of castor grown in the rainfed areas are of long

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duration (180 to 240 days) and they are rarely raised as pure crops. The performance of the varieties in pure stand in the present investigation indicated that short duration (120 - 140 days) varieties of castor can be grown profitably as pure crop in rainfed black soils. Selections 50-6-4, 30-8-4, and 40-28-11 were stable in their yield performance by recording on an average 12.0 q, 11.8 q and 11.4 q of seeds/ha respectively (Table III).

The seed yield data of the four varieties of gingelly evaluated revealed that gingelly does not perform as well in black soils as the other oilseed crops. The highest mean seed yield recorded was only 1.65 q/ha by the variety Si 1740 (Table IV).

It is imperative, therefore, that suitable high yielding varieties for the rainfed black soil tract should be developed through breeding.

TABLE I Seed yield of sunflower varieties in the rainfed black soil of Kovilpatti.

Variety	Origin	Duration (days)	Seed yield (q/ha)				Mean
			1975-76	1976-77	1977-78	1978-79	
EC 68414	Coimbatore	88	7.9	3.3	5.2	13.4	7.5
EC 68413	Coimbatore	88	8.5	3.1	5.6	11.8	7.3
Composite I	Coimbatore	89	7.2	2.3	5.9	13.8	7.3
Modern Variety	Bangalore	85	—	5.1	4.2	12.3	7.2
Sun Rise	Coimbatore	88	5.6	3.9	4.9	13.7	7.0
Latur Selection	Coimbatore	90	4.5	3.7	5.0	14.4	6.9
EC 101495	Coimbatore	84	2.4	5.1	4.0	12.2*	5.9
EC 68415	Bangalore	89	1.3	4.1	5.3	13.5	6.1
SE			0.7	0.5	0.6	0.8	
CD (5%)			N.S.	1.5	N.S.	N.S.	

* 101495 Improved.

TABLE II Seed yield of safflower Varieties in the rainfed black soil of Kovilpatti.

Variety	Origin	Duration (days)	Seed yield (q/ha)				Mean
			1975-76	1976-77	1977-78	1978-79	
CTS 7403 (Co. 1)	Coimbatore	120	—	—	5.7	2.4	4.1
K.1	Kovilpatti	125	4.9	1.2	6.3	3.4	4.0
CTS 7205	Coimbatore	122	4.4	1.2	4.5	3.8	3.5
A 300	Coimbatore	122	5.4	1.3	4.5	2.8	3.5
CTS 7218	Coimbatore	123	4.9	1.6	3.8	3.4	3.4
Nagpur 7	Nagpur	126	1.3	4.8	—	—	3.1
Tara	Coimbatore	128	4.0	1.1	5.4	2.0	3.1
M-13-3	Coimbatore	120	—	—	—	1.1	1.1
S 144	Dharwar	122	—	—	—	0.8	0.8
SE			0.8	0.5	1.3	0.5	
CD			N.S.	N.S.	N.S.	1.4	

TABLE III Seed yield of castor varieties in the rainfed black soil of Kovilpatti

Variety	Origin	Duration (days)	Yield (q/ha)			Mean
			1976-77	1977-78	1978-79	
M 1	Coimbatore	140	—	—	18.3	18.3*
M 2	Coimbatore	140	—	—	17.2	17.2*
60-6-4	Coimbatore	135	6.0	11.0	20.1	12.0
30-8-4	Coimbatore	135	4.9	11.9	18.6	11.8
40-28-11	Coimbatore	140	3.8	11.6	18.9	11.4
SA.2	Salem	120	3.2	9.8	17.1	10.0
Aruna	Hyderabad	120	3.0	10.3	14.6	9.3
TMV. 1	Tindivanam	130	1.6	11.5	14.1	9.1
40-5-34	Coimbatore	145	2.8	10.7	13.7	9.1
30-24-23	Coimbatore	132	3.2	7.6	—	5.4
30-24-9	Coimbatore	132	3.5	7.1	—	5.3
R 63	Hyderabad	145	2.0	8.6	15.1	8.6
SE			0.5	4.2	2.5	
CD (5%)			1.6	N.S.	N.S.	

* Included only in 1978-79

TABLE IV Seed yield of gingelly varieties in the rainfed black soil of Kovilpatti

Variety	Origin	Duration (days)	Grain yield (q/ha)			Mean
			1976-77	1977-78	1978-79	
Si 1740	Coimbatore	85	0.72	1.93	2.02	1.65
Si 3240	Coimbatore	90	0.58	1.34	1.55	1.15
Si 1855/1	Coimbatore	88	0.77	1.39	0.85	1.00
TMV 3	Coimbatore	90	0.61	1.37	0.84	0.94
SE			0.04	1.05	0.07	0.5
CD (5%)			0.16	N.S.	0.23	N.S.