

SUNFLOWER CO. 2 - A NEW HIGH YIELDING STRAIN FOR TAMIL NADU

MOHAMED SHERIFF N.¹ M. RANGASWAMY² and R. APPADURAI³

An improved strain Co. 2 sunflower has been developed and released for general cultivation in Tamil Nadu. This strain possesses higher yield potential higher oil content and better tolerance to rust disease than the existing variety Ec. 68414 (K. 1.). Its duration is 87 days and is suitable for rainfed and irrigated cropping.

Sunflower (*Helianthus annuus* L.) is gaining importance as an oilseed crop and it is grown in about 1.25 lakh hectares in Tamil Nadu, with the mean yield of 600 kg/ha. To boost the present level of production under varied agroclimatic conditions, efforts were made to develop new genotypes by utilising new genetic sources of exotic origin and the result of such an attempt is reported hereunder.

MATERIALS AND METHODS

Seven single cross hybrids of sunflower of Rumanian origin (Ec. 116208 to Ec. 116214) were intermated and the derivatives were systematically studied since 1978 at Tamil Nadu Agricultural University, Coimbatore to identify superior genotypes for yield and oil content. Among the two cultures (TNAU. TUF.3 and SUF.4) thus developed TNAU. SUF.3 showed promise. Based on the comparative performance of SUF.3 against the ruling variety

Ec. 68414 (k. 1.) in different trials his culture SUF.3 has been released, as Co.2 sunflower for general cultivation in Tamil Nadu.

RESULTS AND DISCUSSION

Sunflower TNAU. SUF.3 was tested for its yield potential both under rainfed and irrigated conditions at Coimbatore, University Research Stations, All India Co-ordinated Testing centres and also in cultivator's holdings (Adoptive research trials and multilocation trials). In all the 164 trials conducted, SUF.3 secured an overall mean yield of 1062 kg/ha as compared to 883 kg/ha by Ec. 68414 (K. 1.) representing an increase of 20.3 per cent (Table 1). At research stations under irrigated and rainfed conditions SUF.3 gave 1573 and 896 kg/ha showing an increase of 23.8 and 23.6 percent respectively over the check Ec. 68414 (Table 2). The economic attributes of SUF. 3 and its reaction to the incidence of rust disease with

1-3 School of Genetics, Tamil Nadu Agricultural University, Coimbatore-641 003

Table 1. Mean performance of SUF, 3 in Various Trials

Particulars	No. of trials	Grain yield in kg/ha.		
		SUF, 3	Ec. 68414 (K. 1)	% age on Control (K.1)
TNAU - Coimbatore	14	1480	1121	132.0
AICORPO Centres (All India Level)	49	1021	1003	111.8
TNAU Research Stations (MLT. 1)	8	989	807	122.6
State Level Trials (MLT. II)	30	1150	888	130.4
Adaptive Research Trials	63	663	597	111.1
Overall Mean	(164)	1092	883	120.3

Table 2. Performance of SUF, 3 at Research Stations

Year	season	Centre	Irrigated		Rainfed	
			SUF 3	Ec. 68414 (K. 1)	SUF, 3	Ec. 68414 (K. 1)
1978	Kharif	Coimbatore	1812	880	—	—
1979	Kharif	Coimbatore	3068	3241	—	—
1979	Summer	Coimbatore	1122	898	—	—
1980	Kharif	Coimbatore	1300	942	—	—
1980	Summer	Coimbatore	1380	1123	—	—
1980-81	Kharif	Coimbatore	1789	1448	—	—
1981-82	Kharif	Coimbatore	1185	1136	—	—
1982-83	kharif	Coimbatore	1073	817	—	—
1982- I	Rabi	Kovilpatty	—	—	563	365
1982- II	Rabi	Kovilpatty	—	—	531	330
1982- III	Rabi	Kovilpatty	—	—	798	709
1983-84 I	Kharif	Coimbatore	1227	1159	—	—
1983- II	Kharif	Coimbatore	1432	1262	—	—
1983-84	Rabi	Coimbatore	—	—	1353	994
1983-84	Rabi	Kovilpatty	—	—	522	676
1983-84	Rabi	Tindivanam	—	—	487	664
1983-84	Rabi	Palani	—	—	991	772
1984	Summer	Srivilliputhur	1020	941	—	—
1984-85 I	Kharif	Coimbatore	1349	998	—	—
1984-85 II	Kharif	Coimbatore	1259	951	—	—
1984-85	Rabi	Coimbatore	—	—	1925	1290
1985	Summer	Srivilliputhur	3000	2000	—	—
Mean			1573	1271	896	725
% age on control			123.8	—	123.6	—

relevance to Ec. 68414 given in Tables 3 and 4 also revealed the superiority of SUF. 3. Thus the genotype SUF. 3 developed from a new genetic base is having higher yield, higher oil content, better tolerance to rust incidence and shorter in duration than EC.68414 (K. 1). Therefore TNAU SUF. 3 has been released as Co. 2 during January, 1986 for general cultivation in the sunflower growing tracts of Tamil Nadu.

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Table - 3 Comparative Metric Traits of SUF. 3 with Ec 68414 (K.1)

Character	SUF.3	Ec 68414 (K.1)
Plant height (cm)	134.29	145.13
Stem girth (cm)	1.77	1.70
Number of leaves/plant	34.60	34.20
Diameter of capitulum (cm)	14.74	14.54
Number of seeds/Capitulum	806.50	711.15
Seed yield/Capitulum (g)	40.03	33.15
100 seed weight (g)	6.53	4.23
Oil content (soxhlet)	37.44	36.71
Hulling percent	72.50	70.00
Self fertility percentage	1.86	1.30
Duration in days	87	90

Table 4 Reaction to rust disease (percentage of infection)

Year	SUF, 3	Ec. 68414 (K1)
1982-83	39.5 (MR)	74.0 (S)
1983-84	8.0	8.0
1984-8	24.3 (MR)	52.8 (S)
1985-86	40.7 (MR)	72.7 (S)
Mean	28.13 (MR)	51.88 (S)

MR = Moderately resistant ; S = Susceptible