

manure. The plants grew to a height of about 9' without much branching and gave about 44,000 lb. of green matter per acre. The plant has been found to be incapable of withstanding water stagnation and hence is unsuitable for growing under wetland conditions. The plants flower when 4 to 4½ months old and seed setting is moderate. This variety is likely to prove useful for garden and dry lands.

**Crotalaria gorcensis:** This is an annual shrub with moderate branching and grows to a height of about 6'. It recorded 28,000 lb. of green matter per acre. When sown under wet land conditions the plant has been found not to tolerate water logging and hence is unsuitable for growing in wetlands. The plants flower when they are 4½ to 5 months old and seed setting is profuse. For garden and dry lands this appears to be a suitable green manure.

<https://doi.org/10.29321/MAJ.10.A04160>

## Paddy Strains for the East Coast Districts

by

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There are four seasons in which paddy is cultivated in the East Coast districts and these are (1) *Sornavari* or *Kuruvai* Season: from middle of May to end of September (2) *Samba* Season — from middle of July to end of January (3) *Thaladi* or *Second Crop* season — from end of September to end of February and (4) *Navarai* Season commencing from January and ending in May.

Even from as early as 1907—'08, i. e., a couple of years after the opening of the Palur Agricultural Station, improvements were attempted in all the important aspects of rice culture, namely, varietal, manurial and cultural. This paper embodies the results of the varietal aspects of the investigations conducted during recent years.

**Previous Work:** The two important rice seasons are *Kar* or *Kuruvai* season and *Samba* season. The varieties grown in these seasons were *Sornavari* and *Garudan Samba*. To find out if better varieties could be substituted for the local *Sornavari*, a short

duration variety grown in the *Kar* season, a large number of varieties were obtained, *Rascadam* from Madhya Pradesh and *Chitrakali* from Tirunelveli District being a few of them. With the object of finding out higher yielding substitutes to the local *Vadan Samba* for the *Samba* season, varieties such as *Sadai Samba* from Coimbatore, *Poombalai*, *Anaikomban* and *Jeeragasamba* from Tirunelveli, *Thuyamalli Samba* from Tiruchirapalli and *Red Sirumani*, *Vella Sirumani*, *Vellai Samba* and *Molagu Samba* from Tanjore were compared with the local varieties *Garudan Samba* and *Ramagarudan Samba*. By 1915—'16 selections made by the Government Economic Botanist became available and these were tried since then. Improved selections made at the Aduthurai Station were also included in the trials from 1922—'23. Efforts were also made to find out the possibility of mixing a short duration variety *Chitrakali* with a long duration variety *Ottadan* and raising it as an "Udu" crop as is being done in the tail end of the Cauvery delta in Tanjore. But the trials conducted for six seasons from 1916—'22 showed that two transplant crops gave larger yields than one *Udu* crop.

Semi-dry rice varieties like *Pisini*, *Sembalai*, *Mosanam*, *Mottakar*, *Vellaikar* and *Vadan Samba* were grown under dry conditions in the south west monsoon period and later on irrigated from rainfed tanks. A trial to compare these varieties under conditions similar to those of ryots was undertaken in the station from 1922—'23 and continued upto 1935—'36.

In the year 1934—'35 trials were first conducted to find out whether any of the *Kar* strains would prove useful in the *Navarai* season. It was also felt desirable to find out suitable strains for the different seasons viz. *Kar* or *Kuruvai* season, the early *Samba*, the late *Samba*, *Thaladi* and the *Navarai* seasons. Breeding work, however, was started only from 1938—'39. It is for this purpose that a very large number of strains were obtained from other stations and tried in the several seasons. By pure line selection, one long duration strain PLR. 1 from the local *Garudan Samba* bulk was evolved and distributed and one short duration strain PLR. 2 *Chitrakali* was next evolved from the station and its seed is under distribution. The trial with the *Sornavari* selections from local bulk resulted in the release of SW. 7 which yielded higher than all the other cultures. Reselection from SW. 7 was done from 1946—47 and this resulted in the isolation of a superior culture SW. 1251 in 1950. Varietal tests, though not in a systematic form, were also undertaken from 1939 to 1953.

**Experimental Work:** Yield tests were conducted in randomised replicated plots in all the four seasons in which paddy is grown in this district. Short duration strains evolved at other stations were tried in the *Kuravai* seasons along with the *Sornavari* strains of the station. In the *Samba* season long duration strains were under yield tests along with the local strain PLR. 1, *Garudan Samba* GEB. 24, MTU. 19 and BAM. 3. The medium duration strains included in the long duration series during 1952—'53 and 1953—'54 were however excluded from the series of long duration strains. In the *Thaladi* season, to find out a better yielding strain than Co. 2, yield tests were conducted with ASD. 5 in 1950—'51 season. In subsequent years other hybrid cultures like 5101, Curmatia cross strains and ADT. 25 were also included. For the *Navarai* season commencing from January a large number of short duration strains were under yield tests.

The yield data obtained from the several tests were subjected to statistical analysis and the results are presented in the appended tabular forms.

**Discussion and Summary of Results:** (1) *Sornavari or Kuruvai Season* (middle of May to end of September). Taking the results of all the four years into consideration, it would appear that the strains suitable for the *Sornavari* season are PLR. 2, SW. 1251, TKM. 6 and A. S. D. 1. The results are presented in table I.

(2) *Samba Season:* (July to January) The results of the trials conducted so far indicate that the strains Co. 19, Co. 25 and PLR. 1 are the most suitable strains for the *Samba* season. The results are presented in Table II.

(3) *Thaladi Season:* (October to February) The results of the trials conducted in this season for a period of four years are summarised and presented in Table III. Strain ASD. 5 is found to be the most suitable strain for this season.

(4) *Navarai Season:* (January to May) Since 1950 varietal trials were conducted in the *Navarai* season and the results are summarised in Table IV. Judged from the results of the five seasons, it is found that SW. 1251, TKM. 6, Co. 18, ADT. 18, and PLR. 2 are the strains best suited for *Navarai* season.

**Acknowledgments:** The authors are very grateful to the Paddy Specialists for their valuable suggestions and guidance in the conduct of these trials. They also like to record their thanks to all the Assistants in Paddy of this station who were in charge of the experiments.

TABLE I  
Performance of Sornavari Strains - Kar Seasons

Year	Particulars	PLR. 2	SW. 1251	SW. 7	Co. 13	Co. 18	Co. 18	ASD. 1	TKM. 3	TKM. 6	TKM. 16	ADT. 20	ADT. 23	General Mean	't' test satisfied or not	Standard error	Critical difference $P = .05$
1952-53	Acre yield in lb.	..	..	3233	..	..	..	..	4286	..	..	..	..	4095			
	% on standard	..	..	100.0	..	..	..	..	133.0	..	..	..	..	130.8	Yes	5.0	14.3
1953-54	Acre yield in lb.	3258	4465	..	..	..	3591	4354	2955	..	3103	3495	2644	3483			
	% on standard	100.0	137.1	..	..	..	110.3	133.7	90.7	..	95.2	107.3	81.2	106.9	Yes	8.1	23.7
1954-55	Acre yield in lb.	2870	3092	..	2642	..	..	2103	1704	4270	2155	1602	..	2551			
	% on standard	100.0	108.7	..	92.0	..	..	73.3	59.4	144.8	75.1	55.8	..	88.9	Yes	11.1	32.6
1955-56	Acre yield in lb.	4421	4070	..	3100	..	..	3315	2223	3475	3013	2847	1716	3131			
	% on standard	100.0	92.1	..	70.1	..	..	75.0	50.3	78.6	68.2	64.4	38.8	70.8	Yes	9.6	28.5

## Conclusion:

1952-53 TKM. 3 SW. 7

1953-54

SW. 1251. ASD. 1 Co. 18 ADT. 20 PLR. 2 (Std) ADT. 16 TKM. 3 ADT. 23

1954-55

TKM. 6 SW. 1251 PLR. 2 Co. 13 ADT. 16 ASD. 1 TKM. 3 ADT. 20

1955-56

PLR. 2 SW. 1251 TKM. 6 ASD. 1 Co. 13 ADT. 16 ADT. 20 TKM. 3 ADT. 23

TABLE II

Samba Season—Varietal yield trial.

Year	Particulars	PLR. Co. 25	Co. 26	Co. 19	Co. ADT. 25	PTB. 15	2092	BAM. GEB. 24	MTU. 19	GM.	SE.	Test entired or not	100.0 C 0.0 = H	
1952-53	Acro yield	5241	4938	4012	4118	..	3572	1038	1114	1639	3228	248	Yes	723
	% on Standard	100.0	94.2	78.9	78.0	..	68.1	20.8	32.7	31.8	61.6	4.6	..	15.1
1953-54	Acro yield	3000	4659	3292	3799	..	2650	580	1198	1597	2666	330.5	Yes	964.5
	% on Standard	100.0	131.1	92.6	106.8	..	74.5	16.3	33.7	44.9	74.9	9.29	..	27.1
1954-55	Acro yield	3874	3135	4028	4257	2641	2288	3364	..	..	3370	136.5	Yes	405.3
	% on Standard	100.0	81.0	104.0	109.9	68.2	59.1	86.9	..	..	87.0	3.52	..	10.47

Conclusion:

1952-'53

PLR. 1 Co. 25 Co. 19 Co. 26 PTB. 15 MTU. 19 GEB. 24 BAM. 3.

1953-'54

Co. 25 Co. 19 PLR. 1 Co. 26 PTB. 15 MTU. 19 GEB. 24 BAM. 3.

1954-'55

Co. 19 Co. 26 PLR. 1 2092 Co. 25 ADT. 25 PTB. 15.

TABLE III

Thaladi Season—Varietal Yield trial.

Year	Particulars	5108	ASD. 5	Co. 2	3345	Gur- matia.	General Mean.	S. E.	'F' Test Satisfied or not.	C. D. P=0.05.
1950-51	Acre yield in lb.	..	1400	1487	1369	..	1419	..	..	..
	% on Standard (Co. 2)	..	94.0	100.0	92.1	..	95.4	5.7	No	16.1
1952-53	Acre yield in lb.	3174	4043	..	..	..	3609	..	..	..
	% on Standard	100.0	127.4	..	..	..	113.7	5.9	Yes	14.7
1953-54	Acre yield in lb.	3605	3295	2930	..	..	3276.7	..	..	..
	% on Standard	123.0	112.5	100.0	..	..	111.8	2.69	Yes	8.19
1954-55	Acre yield in lb.	2433	3628	2950	..	1231	2561	..	..	..
	% on Standard	83.1	123.0	100.0	..	41.7	86.8	5.8	Yes	17.0

Conclusion:

1952-53

ASD, 5, 5108.

1953-54

5108, ASD, 5, Co. 2.

1954-55

ASD, 5, Co. 2, 5108, Gurnatia.

TABLE IV  
Navarai Season Varietal Yield Trials

Particulars	1950—51		1951—52		1952—53		1953—54	
	Acre yield (lb.)	% on standard SW. 1251	Acre yield (lb.)	% on standard SW. 1251	Acre yield (lb.)	% on standard SW. 1251	Acre yield (lb.)	% on standard SW. 1251
SW. 1251	2031	100.0	3115	100.0	2272	100.0	2791	100.0
SW. 7	3007	148.0	2983	95.7	..	..	..	..
PLR. 2	2900	142.8	2783	89.3	2116	93.2	2310	82.7
TKM. 3	..	..	1784	57.3	1475	64.9	590	21.1
TKM. 6	..	..	..	..	2604	114.7	2378	85.2
Co. 13	2828	139.2	2792	89.6	1099	48.4	1431	51.3
Co. 18	..	..	..	..	2316	102.0	2713	97.2
Co. 20	..	..	..	..	428	18.8	1287	46.1
Co. 22	3100	152.6	..	..	1807	79.5	..	..
Co. 22	..	..	..	..	2161	95.1	2545	91.2
CEB. 24	..	..	..	..	2072	91.2	2955	104.8
ADT. 3	..	..	..	..	..	..	608	21.8
ADT. 16	..	..	690	22.2	809	35.6	80	3.0
ADT. 18	..	..	..	..	2397	105.5	2515	90.1
ADT. 20	1969	97.0	1108	35.5	428	18.8	477	17.0
ADT. 22	..	..	..	..	..	..	1482	53.1
ADT. 23	..	..	..	..	2146	94.5	2432	87.1
Standard error	..	5.7	76	..	157	6.8	375	13.1
'F' test satisfied or not	..	Yes	Yes	..	Yes	Yes	Yes	Yes
Critical difference (P: 0.05)	..	15.7	344	..	357	15.5	1079	37.8

Conclusion:

1950-51 Co. 22, SW. 7, PLR. 2, Co. 13; SW. 1251, ADT. 20.

1951-52 1251, SW. 7, Co. 13, PLR. 2, TKM. 3, ADT. 20, ADT. 16,

1952-53 TKM. 6, ADT. 18, Co. 18, 1251, Co. 23, ADT. 23, PLR. 2, GEB. 24,  
Co. 22, TKM. 3, Co. 13, ADT. 16, ADT. 20.