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<https://doi.org/10.29321/MAJ.10.A01996>

Madras Agric. 77, (9-12): 469-470 (1990)

## PAIYUR 1 - A NEW HIGH YIELDING SAMAI VARIETY FOR THE MARGINAL LANDS OF TAMIL NADU

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### ABSTRACT

A high yielding samai culture DPI 1213 has been developed through pure line selection. It was released as Paiyur 1 for general cultivation in the marginal and sub-marginal drylands of Tamil Nadu. This strain with a high yield potential of 873 kg/ha, matures in 105-110 days, and is suitable for early monsoon sowings.

KEY WORDS : Samai, Paiyur 1, New Variety.

Among small millets, samai (*Penicum miliare*) forms the principal food crop in the marginal and sub-marginal rainfed farming situations of Dharmapuri-Salem region of Tamil Nadu. Out of the total State area of 1.4 lakh hectares under this crop, 42 per cent is grown in this region accounting for 76 per cent (0.46 lakh tonnes) of the total production. The presently available improved strain Co 2 is shorter in duration and less productive in poor and marginal soils. Moreover, it does not withstand early season drought which is a common occurrence in this tract. Therefore research work was carried out at Regional Research Station, Tamil Nadu Agricultural University, Paiyur to identify a new high yielding type with different genetic make up from the presently cultivated ones, and the results are reported.

### MATERIALS AND METHODS

The single plant selections totalling 185 numbers collected at farmers' holdings in

different parts of the State were evaluated for yield and other attributes in progeny rows under rainfed condition during 1979. The promising accessions were evaluated in preliminary yield trial during 1980. A high yielding accession DPI 1213 which was a pure line selection from Santhur local was tested in advanced yield trials for three years from 1981-'84. It was tested in other Research Stations of Tamil Nadu Agricultural University during 1983 and 1984 and in All India Co-ordinated trials from 1982-'85. On-farm trials were

Table 1. Performance of DPI 1213 Samai Culture at Regional Research Station, Paiyur.

Year	Grain Yield (kg/ha)		Straw yield (t/ha)	
	DPI 1213	Co 2	DPI 1213	Co 2
1981	725	512	4.2	3.4
1982	300	218	—	—
1983	893	702	3.0	2.3
1984	644	530	1.3	0.5
Mean	641	490	2.6	1.9
% on CO 2	130	100	137	100

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conducted in this region during 1985 and 1986. It was also tested in 118 minikit trials and in 14 large scale demonstration plots in this tract during 1986.

## RESULTS AND DISCUSSION

The culture DPI 1213 at Regional Research Station, Paiyur recorded a mean grain yield of 641 kg/ha with an increase of 30 per cent over the check Co 2 (Table 1). In the trials conducted at the other Research Stations, it recorded 610 kg/ha as against 560 kg/ha of Co 2, the yield increase being nine per cent (Table 2).

**Table 2. Performance of DPI 1213 Samai culture at Regional Research Stations.**

S.No.	Research Station	Grain Yield (kg/ha)	
		DPI 1213	Co 2
<b>1983</b>			
1.	Kumaraperumal Farm Science Centre, Trichy	430	361
2.	National Pulses Research Centre, Vamban	835	820
<b>1984</b>			
1.	Tamil Nadu Agri. University, Coimbatore	362	452
2.	Agricultural Research Station, Kovilpatti	420	325
3.	Regional Research Station, Aruppukottai	1004	843
	Mean	610	560
	% on CO 2	109	100

In the 34 on-farm trials conducted at farmers' holdings, it gave a mean yield of 959 kg/ha with an increase of 34.3 per cent over Co 2. The results of minikits, AICMIP trials and large scale demonstrations have also conclusively proved the superiority of DPI 1213 in grain yield over Co 2. In the overall performance of 198 trials, it excelled Co 2 by 20 per cent recording a mean yield of 873 kg/ha (Table 3).

**Table 3. Mean performance of DPI 1213 Samai culture in Research Stations, AICMIP On-farm and Minikit Trials.**

S.No.	Experiment	Number of Trials	Grain Yield (kg/ha)	
			DPI 1213	Co 2
1.	Regional Research Station, Paiyur	4	641	490
2.	Other Research Stations	5	610	560
3.	AICMIP Trials	23	1165	1099
4.	On-Farm Trials - 1985	27	800	655
	- 1986	7	1118	773
5.	Minikits	118	812	694
6.	Large Scale Demonstrations	14	966	817
	Mean		873	727
	% on Co 2		120	100

It is longer in duration by 20-25 days as compared to Co 2 and matures in 105-110 days. It is a semi-tall type growing to a height of 110-120 cm and non-lodging and possesses dark green foliage. The panicles are long and semi-compact with brown seeds. With 1.69g/ 1000 grain and seed density of 0.99, the grain has 7.8% protein, 4.9% fat and 17.2 mg calcium. The quality of the grain is quite acceptable and in all respects similar to Co 2. Higher straw yield (2.6 t/ha) as compared to Co 2 (1.9 t/ha) is an added advantage of this culture. The enhanced per day productivity, responsiveness to fertilizer application and tolerance to early season drought are special attributes of this culture. It is best suited for June/July sowings as a preceding crop of the horsegram.

In view of the above desirable attributes, this culture was released by Tamil Nadu Agricultural University as Paiyur 1 during 1987 for general cultivation in marginal and sub-marginal lands of Tamil Nadu.