

PAIYUR - 1 A HIGH YIELDING RAINFED RAGI VARIETY FOR THE NORTH WESTERN ZONE OF TAMIL NADU

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ABSTRACT

A new high yielding ragi culture DPI 1161, a pure line selection has been developed and released as Paiyur 1. This strain with an average yield of 1800 Kg of grain and 4250 Kg of straw per hectare matures in 115-120 days. The special attributes of the strain viz higher grain and straw yield, medium duration, long open earheads and moderately resistance to blast render this variety more suited to rainfed cropping in the zone.

Ragi (*Eleusine coracana* Gaertn), the most important small millet crop, is grown in the Northwestern zone of Tamil Nadu in an area of 1.17 lakh hectares accounting for 39 per cent of the total ragi area of the State. Nearly 91 per cent of area under the crop in the zone are rainfed. The crop undergoes a dry spell of nearly one month after sowing followed by moderate rains. Under such monsoonic conditions, long duration varieties maturing in 120-125 days with open fingers are preferred. The local types are inherently poor yielders though they are highly suited to the agro-climatic condition of the tract. The recently introduced Indaf selections are susceptible to blast and other diseases during unfavourable seasonal conditions. Moreover the thick stem of these varieties render the straw less palatable to the cattle. Therefore, research work was undertaken at the Regional Research Station, Tamil Nadu Agricultural University, Paiyur to develop varieties suited to the rainfed situations of this tract, and the results are reported.

MATERIALS AND METHODS:

Germplasm accessions numbering 260 collected from different sources at national level were evaluated under rainfed condition during 1977. A pure line selection DPI 1161 from PR 722 was advanced to yield trials and tested in other research stations of Tamil

Nadu Agricultural University during 1980-83. On-farm trials were conducted in the region during 1981-83 and the culture was compared with Co 7 and Indaf 5. Eighty two minikits were conducted during 1983 and it was compared with Indaf 5. In 36 large scale demonstrations, the culture was tested against the local variety "Chinnakattu Ariyam".

RESULTS AND DISCUSSION:

The results of yield trials conducted in research stations during 1980-83 are presented in Table 1. The culture DPI 1161 recorded a mean grain yield of 2438 Kg/ha registering 26.4 per cent higher yield over Indaf 5. When compared to Co 11, it yielded 25.7 per cent increased yield. The straw yield was also higher in DPI 1161, the increase being 40.1 and 17.7 per cent respectively over Indaf 5 and Co 11.

The overall performance of the culture DPI 1161 under different trials is presented in Table 2. In the extensive on-farm trials conducted over three seasons in farmers' holdings, it outyielded the checks Co 7 and Indaf 5 by 17.5 and 23.7 per cent, respectively. In the minikit trials also the culture excelled Indaf 5 by 14 per cent. The superiority of this culture in grain yield over local was also conclusively proved by its higher yield of 34.8 per cent in large scale demonstrations.

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Table 1. Performance of DPI 1161 ragi culture in the university research stations.

Year	Research Station	Yield (kg/ha)					
		Grain			Straw		
		DPI 1161	Co 11	Indaf 5	DPI 1161	Co 11	Indaf 5
1980	Regl. Res. Station, Paiyur	2296	1153	-	-	-	-
	Cotton Res. Station, Pottaneri	1893	1075	-	3686	2950	-
	Agrl. Res. Station, Bhavanisagar	2754	1927	-	-	-	-
	Tamilnadu Agrl. University, Coimbatore	1889	2211	-	-	-	-
	Agrl. Res. Station Aliyarnagar	5000	4500	-	-	-	-
	Agrl. College & Res. Institute, Madurai	2200	1633	-	-	-	-
	National Pulses Res. Centre, Vamban	2300	2400	-	8760	6350	-
1981	Regional Res. Station, Paiyur (AYT)	3307	1805	2190	8330	6950	7260
	-do- (CYT)	2923	-	2923	6820	-	5438
	Pottaneri	1779	1507	-	7904	7410	-
1982	Reg. Res. Station, Paiyur	1464	1172	1248	2186	1214	1894
1983	-do-	1445	-	1353	2814	-	2136
	Mean	2438	1939	1929	5861	4980	4182
	% on Indaf 5	126.3	100.5	100.0	140.1	119.1	100.0
	% on Co 11	125.7	100.0	99.5	117.6	100.0	83.9

Table 2. The overall performance of the culture DPI 1161 ragi in research stations, on-farm, minikit and large scale demonstration trials

Experiment	No. of trials	DPI 1161	Co 7	Indaf 5	Local
a. Grain Yield					
Res. Station Trials	12	2436	-	1929	-
On-farm trials	26	1774	1510	1434	-
Minikit trials	82	1455	-	1258	-
Large scale demonstrations	36	1570	-	-	1165
Mean		1809	1510	1540	1165
% on Indaf 5		117.5	98.1	100.0	75.6
% on Local		155.2	129.6	132.2	100.0
b. Straw Yield					
Research Station Trials	7	5861	-	4182	-
On-farm trials	12	2639	1691	2500	-
Mean		4250	1691	3341	-
% on Indaf 5		127.2	50.6	100.0	-

Table 3. Morphology and grain quality characteristics of ragi culture DPI-1161.

Characters	Description	
Stem	erect	
Plant height	110 cm	
No. of tillers/plant	1 - 3	
Days to 50% flowering	80	
Duration	115 - 120 days	
Earhead size and shape	open	
No. of finger/earhead	6 - 8	
Ear length (cm)	8	
Grain colour	brown	
1000 grain weight (g)	2.7	
Protein (%)	grain	3.34
	straw	1.91
	empty earheads	4.07
Calcium (%)	grain	0.59
	empty earheads	0.58

The mean performance indicated that the culture is capable of yielding on an average 1800 Kg of grain and 4250 Kg of straw under rainfed condition, the increase in grain yield being 18 per cent over Indaf 5 and 55 per cent over traditional local types. It outyielded Indaf 5 by 27 per cent in straw production.

The morphological and grain quality characteristics are presented in Table 3. It is a semi-tall culture growing to a height of 110 cm and matures in 115-120 days. Its

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characteristic trait of open earheads with long fingers facilitates to avoid the attack of pests and diseases during rainy weather and its medium duration is favourable for ripening and harvesting processes during dry weather. The culture is moderately resistant to blast under field condition.

In view of the above desirable attributes, the culture DPI 1161 was released by TNAU as paiyur 1 for rainfed tracts of the region.

PAIYUR - 1 A NEW HIGH YIELDING SESAMUM STRAIN

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ABSTRACT

A new high yielding sesamum culture DPI 1523, a hybrid derivative of the cross Si 2511 X Si 2314, has been released as Paiyur 1. Maturing in 90-95 days duration, it is best suited to summer irrigated cropping in Tamil Nadu. It gives on an average, 650 Kg of seed yield per hectare under irrigated condition. Resistance to powdery mildew under field condition is an added virtue of this strain.

In Tamil Nadu sesamum is grown during Kharif, cold weather and summer seasons accounting for 1.4 lakh hectares under the

crop. Development of high yielding strain responding to high level of management coupled with resistance to powdery mildew

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