Electronic Journal of Plant Breeding, 1(4): 794-801 (July 2010)

Research Article

A high yielding new ragi variety Paiyur 2

K.Geetha, P. Suthamathi, A.K. Mani, M. Suresh And S.Vijayabaskaran

Abstract :
A high yielding long duration ragi culture DPI 20030 was developed at Regional Research Station, Paiyur and released as Paiyur 2 during 2008 at State level. It is a derivative of the cross involving VL 145 x Selection 10. It yields on an average 2527 kg/ha of grain and 4200 kg/ha of straw under rainfed condition. Besides high yield, compact incurved fingers, uniform maturity, non-lodging nature and moderate protein content (7.2 %) are the added advantages of this culture. The 1000 grain weight of this culture is 2.9 g as compared to 2.71 g of GPU 28. This culture recorded a grain yield of 2527 kg/ha which was 14.6 % increase over the check GPU 28 (2206 kg/ha) and 6.6 % over the check Paiyur 1 (2371 kg/ha) in station trials and farmers fields. It recorded a grain yield of 2312 kg/ha which was 9.36 % increase over the check GPU 28 (2114 kg/ha) and 10.62 % over the check Paiyur 1 (2090 kg/ha) in OFT's conducted during kharif 2006 in 40 locations. It has given the mean yield of 2535 kg/ha which was 4.67 % increase over the national check PR 202 (2422kg/ha) in All India Coordinated Trials tested over three years from 2002 to 2004 ranking fourth, ninth and fourth in grain yield tested over 19, 14 & 14 locations respectively.

Key words:
Grain yield, trials, culture, rainfed, incurved, fingers.

Introduction

A member of sub family Panicoideae of the family Poaceae, Finger millet *(Eleusine coracana Gaertn.)* is widely cultivated as millet crop across India, Ethiopia, Nepal, Sri Lanka and South Eastern countries. Finger millet is a staple crop in many communities. It is a source of good, healthy food during difficult times, such as drought or crop failure. It is relatively cheap and easy to grow and stores well for years (Mamba, 2001). It is grown throughout India in more than 2.5 million hectares with major areas being in the states of Karnataka, Tamil Nadu, Andhra Pradesh, Orissa, Maharashtra, Uttar Pradesh, Bihar, Gujarat and Madhya Pradesh. In Tamil Nadu, finger millet is grown in 1.24 lakh ha with the productivity of 1325 kg/ha at Erode, Salem, Dharmapuri, and Coimbatore in larger areas and in smaller areas in Kancheepuram, Thiruvannamalai, Vellore and in some Southern districts of Tamil Nadu. Generally finger millet is sown during July-August with the onset of South West monsoon. Because of high tolerance to drought, finger millet is preferred in drought prone areas with less rainfall.
Evolution of varieties with high yield combined with resistance to disease is one of the long felt need in a crop like ragi which is predominantly grown by poor and marginal farmers who have little means of controlling diseases through chemicals (Prabhu, 2006). Finger millet is a staple food in parts of Africa and India. This grain is rich in calcium, iron, methionine, and tryptophan (Newman, 2005 & Thatham et al. 1996). So, breeding for high yielding varieties with nutritionally rich grains suited to rainfed conditions assumes greater importance in ragi. The success of such a programme depends on the identification of stable good yielding resistant sources and its subsequent utilization in breeding. Finger millet accessions especially from Africa possess genes for robust growth, early vigour, large panicle size, finger number and branching, blast resistance and higher grain density. The new culture DPI 20030, a hybrid derivative of a cross VL 145 x Selection 10, developed by recombining the desirable characteristics of both the parents at this Station is a long duration high yielding variety Paiyur 2. This variety matures in 110-115 days with resistance to blast specially suited to kharif season under rainfed conditions which is highly required. A ragi growing area of 1.24 lakh ha under rainfed in the Northwestern region is benefited by introduction of this new high yielding variety Paiyur 2.

Regional Research Station, Tamil Nadu Agricultural University, Paiyur-635112

Materials and methods

Breeding programme to develop high yielding long duration ragi genotypes suited to rainfed condition of

the Northwestern region of Tamil Nadu was undertaken at the Regional Research Station, Paiyur from 2001 to 2006. From the yield trials conducted, a long duration high yielding culture DPI 20030, a hybrid derivative of the cross VL 145 x Selection 10, maturing in 110-115 days has been identified and released as Paiyur 2 variety at State level. This variety is suitable for cultivation in Tamil Nadu during adipattam season under rainfed conditions.

Results and discussion

The culture recorded a grain yield of 2527 kg/ha which was 14.6 % increase over the check GPU 28 (2206 kg/ha) and 6.6 % over the check Paiyur 1 (2371 kg/ha) in station trials and farmers fields (Table 1.) This culture recorded a grain yield of 2312 kg/ha which was 9.36 % increase over the check GPU 28 (2114 kg/ha) and 10.62 % over the check Paiyur 1 (2090 kg/ha) in OFT's conducted during kharif 2006 in 40 locations.

It has given the mean yield of 2535 kg/ha which was 4.67 % increase over the national check PR 202 (2422kg/ha) in All India Coordinated Trials tested over three years from 2002 to 2004 in 47 locations (Table 2 & 3). In All India Coordinated Trials conducted during kharif 2002, 2003 & 2004, DPI 20030 ranked fourth, ninth and fourth in grain yield tested over 19, 14 & 14 locations respectively (Table 4).

Reaction to pest and diseases

The reaction of this culture to leaf, neck and finger blast were moderately resistant compared to that of ruling strain GPU 28 and national check PR 202 (Table 5). The incidence of pests was relatively low in DPI 20030 compared to the National checks and other qualifying entries (Table 6). In large scale agronomic experiments conducted at three locations, DPI 20030 recorded the highest mean grain yield of 2691 kg/ha with an increase of 12.36 per cent over the national check PR 202 and 11.75 per cent over the local check (Table 7). It is resistant to lodging, fertilizer responsive, suitable for kharif rainfed conditions.

Grain quality

Besides high yield, uniform maturity and moderate protein content (7.2 %) are the added advantages of this culture. The protein content in DPI 20030 was 7.2% as compared to PR 202 (6.8%) and Paiyur 1(6.9%). While, the contents of minerals such as P, K, Ca & Mg were similar to that of GPU 28 (Table 8). The 1000 grain weight of this culture was 2.9 g as compared to 2.63 g of PR 202 and 2.71 g of GPU 28.

Morphological characters

Finger millet variety Paiyur 2 is a long duration variety maturing in 115 days suitable for rainfed agriculture, poor soils and resource poor small and tribal farmers, attains 50 % flowering in 85-90 days after sowing, medium tall with erect non lodging green pigmented plant type, medium sized ear heads with incurved fingers (7-8 no.) with nutritionally rich brown grain with 1000 grain weight of 2.9 g, moderately resistant to blast and no major pest incidence (Table 9).

Because of superior performance of Paiyur 2 (DPI 20030) over the checks GPU 28 & Paiyur 1 (Table 10), it was identified as new variety and recommended for larger cultivation in Tamil Nadu and Karnataka during 2008 by State Variety Release Committee.

References

Mamba. 2001.The advantages of growing and using finger millet-a broadcasted radio script 7, package 58, January 2001.

Newman. 2005. Holding on to finger millet. Plant Microbial, and Insect Genetic Resources, Genomics, and Genetic Improvement (#301), an ARS National Program described on the World Wide Web at www.nps.ars.usda.gov.

Prabhu. M.J. 2006. New finger millet varieties resistant to fungal attacks published in online edition of Hindu dated 6th April 2006.

Thatham, 1996. Characterisation of the Major Prolamins of Tef (*Eragrostis tef*) and Finger Millet (*Eleusine coracana*). Journal of cereal Science, 24(1): 65-71.

Table 1. Performance of DPI 20030 in station trials and farmers fields

Trials	No. of trials	Grain yield (kg / ha)		
		DPI 20030	Paiyur 1	GPU 28
Station trials (2001-2006)	6	2792	2453	2333
MLT (2003-2006)	5	2723	2701	2416
ART/OFT (2006-07)	80	2067	1959	1868
Mean	91	**2527**	**2371**	**2206**
% increase over Paiyur 1		**6.6**		
% increase over GPU 28		**14.6**		

Table 2. Performance of DPI 20030 in AICRP trials

Year	Grain yield (kg / ha)	
	DPI 20030	PR 202
2002-03 (Mean of 19 locations)	2413	2325
2003-04 (Mean of 14 locations)	2535	2446
2004-05 (Mean of 3 locations) Agronomy trial	2656	2495
Mean	**2535**	**2422**
% increase over PR202 (National check)	**4.67**	-

Table 3. Performance of finger millet entries for grain yield (Q/Ha) in AICRP trials.

S. No	State	Centre	Year	Proposed variety	Check 1	Check 2	Qual. 1	Qual. 2	Qual. 3	Qual. 4
				DPI 20030	PR 202	PES 110	VR 847	VR 849	JM 1	MR 33
1	2	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
1	Andra pradesh	Perumalapalli	2002-03	36.37	30.69	-	29.30	31.94	13.89	31.61
		Peddapuram	2003-04	36.30	31.11	33.33	30.37	30.37	26.30	32.22
		Peddapuram	2004-05	41.23	33.58	41.73	44.20	33.83	28.89	33.83
			Mean	37.97	31.79	37.53	34.62	32.05	23.03	32.55
		Vizianagaram	2002-03	23.90	30.17	-	24.34	23.45	17.24	27.37
			2003-04	17.54	13.42	15.96	16.32	16.56	21.48	16.80
			2004-05	20.87	18.81	20.57	20.53	23.54	31.06	27.79
			Mean	20.77	20.80	18.27	20.40	21.18	23.26	23.99
	STATE	***MEAN***		**29.37**	**26.295**	**27.9**	**27.51**	**26.615**	**23.145**	**28.27**
2.	Bihar	Dholi	2002-03	27.53	21.79	-	16.05	19.17	30.56	27.90
			2003-04	-	-	-	-	-	-	-
			2004-05	-	-	-	-	-	-	-
			Mean	27.53	21.79	-	16.05	19.17	30.56	27.90
	STATE	***MEAN***		**27.53**	**21.79**	**-**	**16.05**	**19.17**	**30.56**	**27.90**
3.	Chattisgarh	Jagadalpur	2002-03	26.08	28.65	-	30.88	26.92	19.02	27.66
			2003-04	-	-	-	-	-	-	-
			2004-05	-	-	-	-	-	-	-
			Mean	26.08	28.65	-	30.88	26.92	19.02	27.66
	STATE	***MEAN***		**26.08**	**28.65**	**-**	**30.88**	**26.92**	**19.02**	**27.66**
4.	Gujrat	Dahod	2002-03	15.56	16.19	-	19.78	18.87	-	18.28
			2003-04	10.63	11.19	1167	12.96	13.52	5.00	17.30
			2004-05	4.63	11.11	11.57	11.34	6.02	9.26	9.35
			Mean	10.27	12.83	11.62	14.69	12.80	4.75	14.98

		Wagahai	2002-03	36.89	53.26	-	37.82	38.07	39.51	24.21
			2003-04	31.17	26.68	26.39	39.54	26.05	25.77	27.67
			2004-05	39.87	25.86	14.54	36.77	18.77	15.76	28.70
			Mean	35.98	35.27	20.47	38.04	27.63	27.01	26.86
	STATE	***MEAN***		**23.13**	**24.05**	**16.05**	**26.37**	**20.22**	**15.88**	**20.92**
5.	Jharkhand	Ranch	2002-03	20.99	20.99	-	19.44	22.84	23.15	24.69
			2003-04	24.07	23.15	24.38	27.78	26.54	23.15	25.62
			2004-05	23.77	26.54	23.15	24.69	29.14	27.47	26.23
			Mean	22.94	23.56	23.77	23.97	26.17	24.59	25.51
	STATE	***MEAN***		**22.94**	**23.56**	**23.77**	**23.97**	**26.17**	**24.59**	**25.51**
6.	Karnataka	Bangalore	2002-03	44.58	46.37	-	51.20	44.68	43.71	53.23
			2003-04	25.24	27.66	28.56	29.59	29.44	36.71	26.87
			2004-05	52.25	51.05	53.75	54.95	55.86	43.84	48.71
			Mean	40.69	41.69	41.16	45.25	43.33	41.42	42.94
		Hanumanapatti	2002-03	11.49	14.53	-	15.25	10.17	7.47	10.80
			2003-04	-	-	-	-	-	-	-
			2004-05	-	-	-	-	-	-	-
			Mean	11.49	14.53	-	15.25	10.17	7.47	10.80
		Mandya	2002-03	73.58	61.73	-	75.56	66.17	54.82	51.85
			2003-04	43.26	33.78	47.90	44.64	53.19	40.00	48.00
			2004-05	46.17	53.78	57.04	48.20	49.11	54.57	45.33
			Mean	54.34	49.76	52.47	56.13	56.16	49.80	48.39
	STATE	***MEAN***		**35.51**	**35.33**	**46.82**	**38.88**	**36.55**	**32.90**	**34.04**
7.	M.P	Rewa	2002-03	12.84	6.79	-	8.33	13.64	7.72	18.21
			2003-04	-	-	-	-	-	-	-
			2004-05	-	-	-	-	-	-	-
			Mean	12.84	6.79	-	8.33	13.64	7.72	18.21
	STATE	***MEAN***		12.84	6.79	-	8.33	13.64	7.72	18.21
8.	Maharashtra	Kolhapur	2002-03	9.58	3.14	-	7.09	9.23	3.83	4.26
			2003-04	26.67	19.75	21.11	18.83	24.81	15.25	22.22
			2004-05	14.84	20.96	13.84	11.20	12.32	8.41	13.75
			Mean	17.03	14.62	17.48	12.37	15.45	9.16	13.41
		Achalpur	2002-03	11.36	19.01	-	16.79	12.84	27.41	14.81
		Dapoli	2003-04	16.48	17.27	13.12	20.73	18.97	24.55	10.27
			2004-05	4.01	6.76	4.72	3.25	4.23	4.03	3.78
			Mean	10.62	14.35	8.92	13.59	12.01	18.66	9.62
		Igathpuri	2002-03	-	-	-	-	-	-	-
			2003-04	21.81	21.08	18.58	16.96	11.46	23.51	22.26
			2004-05	11.46	11.13	18.58	18.43	24.28	21.08	16.92
			Mean	16.64	16.11	18.58	17.70	17.87	22.30	19.59
	STATE	***Mean***		**14.76**	**15.03**	**14.99**	**14.55**	**15.11**	**16.71**	**14.21**
9.	Orissa	Berhampur	2002-03	21.23	20.25	-	18.77	20.25	22.72	22.22
			2003-04	10.86	12.84	12.35	10.86	9.38	6.91	11.60
			2004-05	14.32	14.32	16.79	12.10	8.40	16.30	12.84
			Mean	15.47	15.80	14.57	13.91	12.68	15.31	15.55
		Bhubaneshwar	2002-03	-	-	-	-	-	-	-
			2003-04	29.48	32.88	38.17	35.53	35.15	26.83	34.39
			2004-05	29.30	25.46	24.03	26.01	24.25	18.66	31.06
			Mean	29.39	29.17	31.10	30.77	29.70	22.75	32.73
	STATE	***Mean***		**22.43**	**22.49**	**22.84**	**22.34**	**21.19**	**19.03**	**24.14**
10.	T.Nadu	Coimbatore	2002-03	30.37	27.41	-	33.09	32.84	23.07	29.14
			2003-04	19.51	27.16	19.26	25.68	20.25	9.14	20.25
			2004-05	39.68	25.46	47.62	35.71	46.96	52.92	24.47
			Mean	29.85	26.68	33.44	31.49	33.35	28.38	24.62
		Paiyur	2002-03	32.25	17.56	-	32.25	39.91	20.11	34.48
			2003-04	41.83	44.51	37.29	57.15	55.81	10.34	45.66
			2004-05	29.44	24.46	23.05	33.21	27.91	21.26	24.58

		Mean	34.51	28.84	30.17	40.87	41.21	17.24	34.91
STATE	***MEAN***		**32.18**	**27.76**	**31.81**	**36.18**	**37.28**	**22.81**	**29.77**
11. chal	Almora	2002-03	16.49	14.72	-	20.02	22.42	-	18.17
		2003-04	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		2004-05	-	-	-	-	-	-	-
		Mean	16.49	14.72	-	20.02	22.42	-	18.17
	Ranichauri	2002-03	4.83	4.83	-	4.83	5.64	-	6.44
		2003-04	-	-	-	-	-	-	-
		2004-05	-	-	-	-	-	-	-
		Mean	4.83	4.83	-	4.83	5.64	-	6.44
STATE	***MEAN***		**10.66**	**9.78**	**0.00**	**12.43**	**14.03**	**0.00**	**12.31**
12.	Kanpur	2002-03	2.50	4.17	-	3.33	3.06	13.33	3.33
		2003-04	-	-	-	-	-	-	-
		2004-05	-	-	-	-	-	-	-
		Mean	2.50	4.17	-	3.33	3.06	13.33	3.33
STATE	***MEAN***		**2.50**	**4.17**	**-**	**3.33**	**3.06**	**13.33**	**3.33**
Overall mean (47 trials)			**25.22**	**24.22**	**25.68**	**25.79**	**25.62**	**23.08**	**24.63**
% increase over check PR 202			**4.67**						

Table 4. Summary yield data of Coordinated Varietal Trials

Name of proposed Variety: **Finger millet – DPI 20030**

Adaptability Zone: **National variety** Production condition: **Rainfed**

	Year of testing	**No.of trials**	**Proposed variety**	**Check Var. 1**	**Check Var. 2**	**Qual. Var 1**	**Qual. Var 2**	**Qual. Var 3**	**Qual. Var 4**
			DPI 20030	**PR 202**	**PES 110**	**VR 847**	**VR 849**	**JM 1**	**MR 33**
Mean grain yield (q/ha)	2002-03	19	24.13	23.25	-	24.43	24.32	23.01	23.64
a. Zonal b. Across zones (if applicable)	2003-04	14	25.35	24.46	24.86	26.25	2696	21.01	25.79
	2004-05	14	26.56	24.95	26.50	27.18	26.04	25.25	24.81
MEAN			**25.35**	**24.22**	**25.68**	**25.95**	**915.45**	**23.09**	**24.75**
% increase of DPI 20030 over the respective varieties									
Percentage increase or decrease over the checks & qualifying varieties	2002-03	19		3.78	-	-1.20	-0.79	4.86	2.07
	2003-04	14		3.64	1.97	-3.40	-5.07	20.65	-1.70
	2004-05	14		6.45	0.22	-2.30	2.00	5.08	7.05
Frequency in the top group (pooled for 3 years	2002-03	4th	Rank						
	2003-04	9th	Rank						
	2004-05	4th	Rank						

(Source: AICSMIP Annual report 2002-03, 2003-04, 2004-05, 2005-06 & 2006-2007)

Qualifying variety is one which has completed three years of testing in co-ordinated trials

Table 5. Reaction of DPI 20030 ragi culture to blast disease in station trails

S. No.	Cultures	Years	Trial	Leaf Blast grade	Blast score %	
					Neck	Finger
1.	DPI 20030	2003	Paiyur	1.9	4.6	6.0
		2004	Paiyur	1.3	3.3	4.0
		2004	Coimbatore	3.3	4.6	4.2
			Mean	**2.2** R	**4.2** MR	**4.7** MR
2.	Paiyur 1	2003	Paiyur	2.3	5.7	4.3
		2004	Paiyur	3.3	6.0	5.3
			Mean	**2.8** R	**5.9** MR	**4.8** MR
3.	GPU 28	2003	Paiyur	2.6	3.7	7.8
		2004	Paiyur	2.6	5.3	7.4
		2004	Coimbatore	3.0	11.6	7.4
			Mean	**2.7** R	**6.9** S	**7.5** S

R-Resistant MR-Moderately Resistant S-Susceptible

The proposed culture DPI 20030 is moderately resistant to leaf, neck and finger blast and it has recorded relatively lesser incidence of leaf, neck and finger blast when compared to the checks Paiyur 1 and GPU 28.

Table 6. Reaction of DPI 20030 ragi culture to major pests in multiple resistance screening trial

Sl. No.	Entries	Per cent incidence								
		Grass hopper			Myllocerus weevil			Earhead caterpillar		
		2003-04	2004-05	Mean	2003-04	2004-05	Mean	2003-04	2004-05	Mean
1.	DPI 20030	1.05	0.77	**0.91**	0.44	0.77	**0.61**	0.44	1.99	**1.22**
2.	VR 847	1.89	1.06	**1.47**	1.75	0.55	**1.05**	0.55	2.77	**1.66**
3.	VR 849	2.13	1.20	**2.73**	1.84	0.66	**0.64**	2.55	2.44	**2.50**
4.	JM 1	0.93	1.10	**1.01**	0.66	0.99	**0.83**	2.77	2.11	**2.44**
5.	MR 33	1.08	1.15	**1.11**	0.50	3.11	**1.81**	0.44	1.55	**0.99**
6.	PR 202 (c)	1.14	1.08	**1.11**	0.55	0.88	**0.72**	1.00	2.22	**1.61**
7.	PES 110 (c)	0.99	1.64	**1.32**	0.55	0.88	**0.72**	0.77	2.99	**1.88**

Mean of three locations viz., Bangalore, Berhampur and Kanke for each year.
The incidence of pests was relatively low in DPI 20030 compared to the National Checks and other qualifying entries.

Table 7. Yield of long duration pre release ragi culture DPI 20030 as influenced by nitrogen levels under rainfed conditions in agronomic trails under All India Coordinated programme

Name of proposed Variety: **Finger millet – DPI 20030**
Adaptability Zone: **National variety** Production condition: **Rainfed, 2004-2005**

Treatment	Bangalore		Coimbatore		Jagadalpur		Mean over 3 locations	
Varieties	**grain**	**straw**	**grain**	**straw**	**grain**	**straw**	**grain**	**straw**
DPI 20030	3899	6040	2815	5071	1358	3300	2691	4129
VR 849	3478	5675	2370	3914	1362	2799	2403	4464
VR 847	3412	6089	2530	4382	1454	2921	2465	4804
PR 202*	3674	6321	2220	3931	1292	3632	2395	4628
Local check**	3856	6289	2064	3637	1304	2925	2408	4284
SE m+	86	145	30	15	25	68		
CD@ 5%	238	414	85	43	71	188		
Nitrogen (kg/ha)								
0	3117	5090	2161	3934	891	1065	2056	3363
30	3500	5674	2299	4217	1294	2413	2364	4101
60	3883	6448	2484	3831	1476	3567	2614	4615
90	4153	7100	2656	4414	1755	5327	2855	5614
SE m+	77	130	26	13	23	61		

CD@ 5%	214	371	76	38	64	169
N X V Interaction						
SE m+	172	292	64	30	51	37
CD@ 5%	NS	NS	169	87	NS	NS
Local check	L5		CO 12		IGF 29	

* National check ** Local check

Remarks: In agronomic experiments conducted at three locations, DPI 20030 recorded the highest mean grain yield of 2691 kg/ha with an increase of 12.36 per cent over the national check PR 202 and 11.75 per cent over the local check.

Table 8. Quality characteristics of grain

Quality Characteristics	Item	Proposed variety	Check Var.1	Check Var.2	Check Var.3
Parameter 1		**DPI 20030**	**PR 202**	**GPU 28**	**Paiyur 1**
Nutritional quality characters of grain	Crude protein (%)	7.2	6.8	6.93	6.9
	Crude fat (%)	2.0	1.8	1.7	1.8
	Crude fibre (%)	1.7	1.5	1.6	1.6
	Ca (mg/100g)	294	289	287	280
	Carbohydrates	71	76	73	72
Parameter 2					
Sensory evaluation score	Colour & appearance	Good	Good	Good	Good
	Flavour	Good	Good	Good	Good
	Texture	Good	Good	Good	Good
	Taste	Good	Good	Good	Good
	Overall acceptability	Good	Good	Good	Good
Parameter 3					
Flouring capacity	Initial grain weight (g)	2000	2000	1990	2000
	Final weight (g)	1850	1800	1800	1830
	Residues weight (g)	150	200	170	170
Parameter 4					
Cooking qualities	Before cooking flour weight (g)	280	270	275	270
	After cooking (Ragi ball) weight (g)	910	850	865	860
	Expansion by weight (%)	325	315	315	319
	Before cooking flour volume (ml)	500	500	500	500
	After cooking (Ragi ball) volume (ml)	940	900	926	920
	Volume of expansion (%)	188	180	185	184

Table 9. Morphological characters of Paiyur 2 finger millet

S.No.	Descriptors	Measurements
1	Days to 50 per cent flowering	81
2	Plant height (cm)	90
3	No. of productive tillers (cm)	3
4	Main ear length (cm)	7
5	No.of fingers per ear	7
6	Peduncle length (cm)	15
7	Panicle exertion	Fully exerted
8	Days to maturity	115
9	1000 grain weight (g)	2.9
10	Plant pigmentation	Non pigmented

		(Green)
11	Leaf colour	Green
12	Blade pubescence	Essentially glabrous
13	Sheath pubescence	Essentially glabrous
14	Degree of lodging at maturity	0 – Non lodging
15	Senescence	Moderate
16	Thumb finger lobes	Absent
17	Earhead shape	Incurved
18	Earhead compactness	Compact
19	Grain colour	Brown
20	Grain shape	Round
21	Apical sterility in ear head panicle	Absent

Table 10. Over all performance of ragi culture DPI 20030 in Station trials, Multilocation trials and Adaptive Research Trials (2001-2006)

S. No.	Name of the trials	No.	Grain yield (kg/ha)	
			Paiyur 2	**Check (GPU 28)**
1.	Station trials	6	2792	2333
2.	Multi Location trials	4	2723	2416
3.	Adaptive Research Trials	40	1821	1621
4.	Farmers participatory Variety Evaluation trials	40	2312	2114
	Weighted average		**2412**	**2121**
5.	All India Coordinated Trials	36	2535	2422 (PR 202)
	Percentage increase over check GPU 28		**13.7 %**	