

PTB 47, A PROMISING FLOOD TOLERANT RICE VARIETY

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Abstract: In order to identify a high yielding variety suited to the flood prone areas, a total of 405 entries were screened for their flood tolerance. Selected entries were yield tested for three seasons and finally BR 51-315-4, a semi-tall nonlodging variety with reasonably high grain as well as straw yield was identified as the ideal variety for these areas. Performance of this variety was highly promising in the multilocal farmers field trials also and this high yielding variety is capable of replacing all the traditional rice varieties in flood prone areas.

INTRODUCTION

Flash flood and consequent submergence of the crop is one of the problems faced in paddy cultivation especially during *virippu* (kharif) season. Tolerance to temporary submergence immediately after transplanting is the special attribute needed for varieties to be suitable for these locations (Richharia, 1960). In Kerala, search for such a variety started in 1980s.

MATERIALS AND METHODS

A total number of 405 entries were screened during kharif seasons of 1981 and 1982 under field conditions and six cultures exhibiting flood tolerance were finally selected. The procedure adopted for testing was temporary submergence of the field, one week after planting for a period of two weeks maintaining a water level of 30 cm. A total number of 100 plants in five rows with a spacing of 20 x 15 cm and fertiliser schedule of 40:20:20 kg NPK per hectare were tested for finding out survival percentage. Observations on survival were recorded one week after draining water. The entries were evaluated based on percentage of seedling survival, duration, plant height and yield.

During 1983, the selected cultures were yield tested in randomised block design adopting a spacing of 20 x 15 cm and fertiliser schedule of 40:20:20 kg NPK/ha. Two selected cultures BR 51 and BR 52 from the cross IR 20 x IR 5 having a total duration of 140 days were compared with Ptb 1 (a locally adapted flood tolerant variety) in replicated yield trials during 1985 and 1986 adopting a plot size of 10 m². Disease reaction of these cultures was studied following standard evaluation systems for rice. The two cultures were tested in farmers fields of Palghat and Trichur districts during kharif 1986.

RESULTS AND DISCUSSION

Out of the 405 entries screened for flood tolerance, a total number of six cultures recording 100% seedling survival and having duration of 140-155 days, plant height above 100 cm and grain yield above 4000 kg/ha were selected for further comparison. These six cultures were evaluated during kharif 1983-84 and the results are presented in Table 1. Two cultures BR 51-315-4 and BR 52-96-3 (both evolved at Bangladesh Rice Research Institute from the cross IR 20 x IR 5) recorded grain yields significantly superior to all the other cultures and checks. These two cultures were put

Table 1. Performance particulars of flood tolerant rice cultures at the Regional Agricultural Research Station, Pattambi during kharif 1983-84

Sl. No.	Culture / variety	Mean yield (kg / ha)	
		Grain	Straw
1	BR-51-315-4	2934	12710
2	BR-52-96-3	2630	12710
3	CR 1002	1901	14290
4	B 2489 BKN 1-76-8	1858	11840
5	B 3063 BTK-72-2	1606	13570
6	BR 10	1528	13140
7	25333	1475	3820
8	Ptb 1	1397	2810
	CD (0. 05)	610	3650

Table 2. Performance particulars of the flood tolerant cultures at the Regional Agricultural Research Station, Pattambi during 1985-86 and 86-87

Culture / variety	Days to 50% flowering	Plant height (cm)	Tiller No.	Grain yield, kg/ha		Mean of the two years	
				85-86	86-87		
BR 51-315-4	124	107	8	2370	3875	3122	
BR 52-96-3	131	108	7	2860	3547	3203	
Ptb 1	119	137	7	840	1470	1155	
				CD (0.05)	290	698	909

Table 3. Performance of two flood tolerant rice cultures in farmers fields during kharif 1986

District/locations	Local check variety	Grain yield (kg/ha)			Straw yield (kg/ha)		
		BR 51- 315-4	BR 52- 96-3	Local check	BR 51- 315-4	BR 52- 96-3	Local check
		Trichur district					
Trichur	Ptb 9	4030	4960	4960	6200	5270	4700
Pananchery	Ptb 9	6500	4000	2800	6875	6000	5625
Choondal	Ptb 9	2380	2130	1137	5616	6458	3360
Palghat district							
Shoranur	Ptb 1	3432	3888	2688	-	-	-
Muthalamada	Mashoori	7300	6800	6500	-	-	-
Pattanchery	Mashoori	6000	4687	2175	2750	3000	1700
Mean of 6 locations		4940	4411	3377	5360	5182	3846

under comparative yield trial with Ptb 1 as check at the Regional Agricultural Research Station, Pattambi, during 1985 and 1986. In these trials also BR 51 and BR 52 were significantly superior to the check variety Ptb 1, the mean grain yield being 3222 and 3203 kg/ha respectively.

Results of the multi-locational farmers field trials in Trichur and Palakkad districts revealed the superiority of these cultures to the checks Ptb 1, Ptb 9 and Mashoori for grain as well as straw

yields (Table 3). BR 51-315-4(Ptb 47) recorded the maximum mean grain yield of 4940 kg/ha. This culture was found to be moderately resistant to blast and sheath blight under normal field conditions.

This flood tolerant rice culture BR 51-315-4 has an ideal long duration plant type, nonlodging and sturdy with a mean plant height of 100 cm and with 7 to 8 productive tillers per hill. Semi-tall stature of this culture along with its nonlodging habit is highly preferred by

the farmers. Eventhough the culture is designated as a flood tolerant one, the performance is highly promising in the normal double crop wet lands also.

REFERENCE

- Richharia, R.H. and Miscro, B. 1960. Flood and deep water rices and future plan of their improvement. *Indian Agric.* 4 : 135-143

