

Influence of Varietal Option and Time of Planting on Grain Yield and Quality of Scented Rice

Ch. Bharat Bhushan Rao, Shaik Mohammad and A. Upendra Rao

Department of Agronomy, College of Agriculture, Acharya N. G. Ranga Agricultural University,
Hyderabad-500 030, India

ABSTRACT

A field experiment was conducted on screening of three aromatic rice varieties viz., Pusa Basmati-1, Kasturi and RNR 18833 with 3 dates of planting July 15th, July 30th and August 14th during *kharif*, 1998 at Rajendranagar, Hyderabad. Among three scented rice varieties, RNR 18833 produced significantly higher grain yield of 3354 kg ha⁻¹. With regard to the quality traits, RNR 18833 and Pusa Basmati-1 proved significantly superior to Kasturi in L/B ratio, head rice recovery, aroma and taste. These value addition traits were significantly superior by delayed planting of the crop in mid August than in July planting though mid July planting was found to be the optimum time of planting averaged over the three varieties to reap better harvest in Southern Telangana Region of Andhra Pradesh.

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INTRODUCTION

Aromatic rice enjoys a special place in the domestic as well as the international trade. The profitability in terms of yield and quality varies with option of genotypes and several management practices. Date of planting is one of the agronomic strategies to exploit the genotypic potential of a variety and its photoperiod sensitivity so as to harness maximum production with improved quality of grain for high premiums. Varietal option suitable to the specific ecological situations is a vital factor for enhancing yield and to obtain quality grain. Very little information is available on the performance of newly identified scented rice varieties under different times of transplanting for Southern Telangana Region of Andhra Pradesh. This prompted to evaluate the relative performance of newly developed scented rice varieties

Kasturi and RNR 18833 with the traditionally grown variety Pusa Basmati-1 and to evaluate the most optimum time of planting that increases yield and improves the grain quality for export preference.

MATERIALS AND METHODS

A field experiment was conducted at the Students Farm of the College of Agriculture, Acharya N. G. Ranga Agricultural University, Rajendranagar, Hyderabad during *kharif*, 1998. This soil was an alfisol with medium gradation of available nutrients viz., 261.0 kg N, 23.04 kg P₂O₅ and 409.2 kg K₂O ha⁻¹. The pH of the soil was 8.0 and ECE was 0.34 dSm⁻¹. The experiment was laid out in a Randomised Block Design, replicated thrice. The treatments were a factorial combination of three scented rice varieties viz., Pusa Basmati-1, Kasturi and RNR

18833 each tested for their response to planting on 15th July, 30th July and 14th August. The length and breadth of rice grain were measured with dial micrometer. Milling of rice, recovery per cent was recorded from a sample of 500 g from each plot which were milled with satake rice husker and polished to 8-10 per cent. The qualitative seed characteristics viz., aroma, taste and appearance was individually scored over 1-4 scale by 12 judges and the mean values were worked out (Julino *et al.*, 1965).

RESULTS AND DISCUSSION

Among the three varieties tested, RNR 18833 out yielded the other two varieties producing 3354 kg ha⁻¹ grain (Table-1). Kasturi resulted in least grain yield of 2940

kg ha⁻¹. Thus, RNR 18833 provided 4.3 per cent and 12.3 per cent additional grain over Pusa Basmati-1 and Kasturi respectively. The variety Pusa Basmati-1 had the finest grain with significant superior L/B ratio but significantly low head rice recovery per cent compared to RNR 18833 (Table-2) whereas Kasturi had significantly inferior values over other. The traits like water absorption (ml) during soaking as well as during cooking, time taken for cooking and aroma were higher with the cultivar RNR 18833 followed by Pusa Basmati-1 and the cultivar Kasturi. However, traits like the grain milling per cent, weight of cooked rice in grams and appearance of grain were similar in all the three varieties.

TABLE 1

Grain yield (kg ha⁻¹) of scented rice as influenced by varieties and dates of planting.

Grain yield (kg ha ⁻¹)	
Varieties (V)	
Pusa Basmati - 1 (V ₁)	3216
Kasturi (V ₂)	2940
RNR 18833 (V ₃)	3354
SE ±	36
CD (0.05%)	76
Dates of Planting (D)	
Mid of July (D ₁)	3433
End of July (D ₂)	3194
Mid of August (D ₃)	2883
SE ±	36
CD (0.05%)	76

Delaying in planting time from mid of July to mid of August progressively reduced the grain yield. The reduction was 6.96 per cent when it was delayed for 15 days (mid July to the end of July) and to the tune of 16 per cent when delayed by one month

(mid July to mid August). Singh and Pillai (1995) also confirmed that the scented variety Kasturi was sensitive to the time of planting. It produced significantly less yield which was 6.4 and 13.0 q ha⁻¹ low when planted on 25th July and 4th August than

TABLE 2

Physical properties and quality traits of scented rice grain as influenced by varieties and date of planting.

	Length / breadth	Milling (%)	Head rice recovery (%)	Water absorption (ml) during		taken for cooking (minutes)	Time cooked rice (g)	Weight of		Appea- rance
				Soaking	Cooking			Aroma	Taste	
Varieties										
Pusa Basmati-1	4.00	63.8	53.8	30.5	176.3	30.6	308.6	3.90	3.90	4.0
Kasturi	3.80	66.7	53.0	27.2	166.7	29.0	305.6	3.70	3.60	3.7
RNR 18833	3.90	65.8	54.5	32.3	178.0	32.3	313.7	4.00	3.90	3.6
SE±	0.03	1.8	0.3	0.7	1.9	0.9	4.1	0.05	0.02	0.3
CD (0.05)	0.08	NS	0.6	1.5	3.9	1.9	NS	0.10	0.05	NS
Dates of Planting										
Mid of July	3.80	63.9	52.6	31.0	175.7	30.6	311.0	3.80	3.70	3.3
End of July	3.90	65.4	53.7	30.1	173.3	31.6	310.0	3.80	3.80	3.9
Mid of August	3.90	67.1	54.7	28.9	171.9	29.6	307.0	4.00	3.90	4.0
SE±	0.03	1.8	0.3	0.7	1.9	0.9	4.1	0.05	0.02	0.3
CD (0.05)	0.08	NS	0.6	1.5	NS	NS	NS	0.10	0.05	NS

on 15th July. For obtaining higher yields early planting of scented rice was also revealed by many workers (Dhiman *et al.*, 1995., Amarjit Bali and Uppal, 1995; Gohain and Saikia, 1996; Hari Om *et al.*, 1997 and Gangwar and Sharma, 1997). The planting date had a significant impact on the quality of the grain. The L/B ratio as well as head rice recovery per cent increased significantly by planting the crop on 30th July than 15th. Planting of scented rice in mid August further increased the head rice recovery while the water needed for soaking reduced significantly compared to early planting in mid July. The dates of planting had no significant influence on the time taken for cooking, weight of cooked rice or appearance. But both the aroma as well as the taste improved significantly by delaying the planting time to the mid August.

With the foregoing investigation, it can be stated that RNR 18833 variety sown in mid July can be suitably recommended to the farmers of Southern Telangana Region of Andhra Pradesh to reap better harvest whereas the optimum planting time for value addition of grain for international trade is mid August.

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