

## RATOONING ABILITY OF MEDIUM DURATION RICE VARIETIES

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### ABSTRACT

In the ratoon crop, Bhavani out yielded Ponni regarding the growth, yield attributes and yield. Bhavani ratoon crop produced 2752 kg/ha grain yield which accounted for 50.2% of the maincrop grain yield. Different spacings had no significant influence on the ratoon yield.

*Key words: Ratooncrop, Maincrop, Spacing*

### INTRODUCTION

Ratooning is basically a varietal character and it differs among cultivars (Chatterjee et.al., 1982 and Reddy and Pawar, 1959). Reddy et.al., (1979) reported that Intan rice variety yielded 140% of its maincrop yield in Karnataka. Nayak et.al., (1983) reported that IET 3609 produced 56% of its maincrop yield.

In Kerala, IR 42 yielded 55% of its maincrop yield (Karunakaran et. al., 1983). Good agronomic practices and the care with which the maincrop is protected against pests and diseases determine the success of ratooning. Maincrop plant spacing decides the number of ratoon tillers and finally the ratoon yield (Bahar and De Datta, 1977). Little study has been undertaken in optimum plant spacing in maincrop to get good ratoon crop. Hence, to find

out the effect of spacing on the ratooning ability of two medium duration rice varieties this trial was conducted.

### MATERIALS AND METHODS

A field trial was conducted during the Kharif season of 1986-87 at Agricultural College Farm, Madurai, to study the effect of maincrop spacing on ratoon yield of rice. The soil was of sandy clay loam with a pH of 6.8 analysing low, low and medium in N, P and K status respectively. Six treatment combinations comprising two varieties viz., Ponni (V<sub>1</sub>) and Bhavani (V<sub>2</sub>) and three spacings viz., Closer spacing of 15 x 10 cm (S<sub>1</sub>), normal spacing of 20 x 10 cm (S<sub>2</sub>) and wider spacing 25 x 10 cm (S<sub>3</sub>) were tried in a split plot design replicated thrice. Varieties, formed the mainplot while the spacings were allotted to the subplot. Both the main and ratooncrops were given with a fertilizer dose of

100:50:50 Kg NPK/ha. The maincrop was ratooned at a height of 15 cm from the ground level and all the fertilizers were applied as basal, immediately after the harvest of the maincrop. Growth and yield attributes were taken and statistically analysed for interpretation.

## RESULTS AND DISCUSSION

### Growth characters

The varieties showed significant difference for all the growth characters viz., Plant height, number of tillers/hill, leaf area index and dry matter production. Bhavani ratoon crop significantly produced taller plants (74 cm), more number of ratoon tillers/hill (11.9), higher leaf area index (4.73) and higher dry matter production (7255 kg/ha), than Ponni ratoon crop.

The effect of spacing was not significant on the ratoon plant height, number of tillers/hill and leaf area index. However, the dry matter production was significantly higher in closer spacing of 15 x 10 cm, may be due to more number of hills per unit area in closer spacing. The percentage increase in DMP in closer spacing over normal and wider spacings were 12% and 17% respectively.

### Yield attributes

Significant varietal difference existed for all the yield attributes studied. Ratooncrop of variety Bhavani was significantly superior in producing higher number of yield attributes viz., number of productive tillers, no of filled grains/panicle and 1000 grain weight. This is attributed to the varietal trait and

also higher ratooning ability of Bhavani variety. Bhavani ratoon produced 8.1 productive tillers/hill while ponni produced 6.3 only. The number of filled grains/panicle in Bhavani ratoon was 20.8 g while in ponni it was 66.2 while in Ponni it was 59.4'. The 1000 grain weight in Bhavani ratoon was 15.5 g only.

Regarding different spacings, wider spacing of 25 x 10 cm produced significantly more number of productive tillers/hill. This might be due to wider feeding zone and minimum competition between plants in wider spacing. However, the reverse trend was noticed in the number of productive tillers/m<sup>2</sup>. This might be due to more number of hills/m<sup>2</sup> in the closer spacing. Though the wider spacing produced more number of productive tillers/hill, it could not compensate for the increased number of hills/m<sup>2</sup> in the closer spacing. The number of filled grains/panicle and 1000 grain weight were also significantly higher in wider spacing.

### Grain and straw yield

Bhavani ratoon crop was significantly superior to Ponni in producing higher ratoon grain yield. Bhavani produced 2752 kg/ha of grain yield with an increase of 57% over Ponni (1754 kg/ha). Bhavani ratoon yield accounted for 52% of its maincrop yield while Ponni ratoon yield accounted for 38% of its maincrop yield. It was reasoned out that Bhavani having higher inherent ratooning ability with higher carbohydrate content in the maincrop stubbles, produced more ratoon tillers leading to superior growth and

Table 1. Effect of spacing (maincrop) on growth and yield attributes of ratoon crop

Treatments	Plant height (cm)	No. of tillers/hill	LAI	DMP (kg/ha)	No. of productive tillers/hill	No. of productive tillers/m <sup>2</sup>	No. of filled grains/panicle	1000 grain weight (g)
<b>Variety</b>								
Ponni	69.7	9.4	3.99	7207	6.3	319.2	59.4	15.5
Bhavani	74.0	11.9	4.73	7255	8.1	414.2	66.2	20.8
SED	0.8	0.2	0.03	17	0.1	4.2	1.2	0.05
CD (5%)	1.7	0.4	0.07	39	0.2	9.5	2.6	0.11
<b>Spacing</b>								
15 x 10 cm	72.8	10.7	4.39	7880	6.1	406.9	59.5	17.5
20 x 10 cm	71.5	10.7	4.35	7050	7.3	363.1	62.8	18.4
25 x 10 cm	71.5	10.7	4.33	6764	8.3	330.2	66.1	18.6
SED	0.9	0.2	0.04	21	0.1	5.2	1.4	0.06
CD (5%)	NS	NS	NS	48	0.2	11.6	3.2	0.14
<b>Interaction</b>								
SED	1.3	0.3	0.06	30	0.2	7.4	2.0	0.09
CD (5%)	NS	NS	NS	67	NS	16.4	NS	NS

Table 2. Effect of spacing on the grain and straw yields of main and ratoon crops

Treatments	Grain yield (kg/ha)		Straw yield (kg/ha)	
	Maincrop	Ratooncrop	Maincrop	Ratooncrop
<b>Variety</b>				
Ponni	4663	1754	5621	2310
Bhavani	5476	2752	6192	3381
SED	8	118	70	148
CD (5%)	18	263	157	331
<b>Spacing</b>				
15 x 10 cm	5226	2424	6261	3047
20 x 10 cm	5011	2223	5818	2810
25 x 10 cm	4972	2113	5641	2680
SED	10	145	86	182
CD (5%)	22	NS	192	NS
<b>Interaction</b>				
SED	14	205	122	257
CD (5%)	NS	NS	NS	NS

yield attributes and higher yield. This is in pace with the findings of Palchamy and Kolandaisamy (1982).

Different spacings, exerted no significant response on the ratoon grain yield. However, closer spacing produced highest ratoon grain yield of 2424 kg/ha which was 9% and 14.7% increased yields over normal and wider spacing respectively. This is in line with the findings of Bahar and De Datta (1977).

The ratoon straw yield was also significantly higher in Bhavani variety, producing 3381 kg/ha which was 54.6% of its maincrop straw yield. Different spacings had no significant effect on the ratoon straw yield also.

Thus, Bhavani variety proves to be a good ratooning variety than Ponni and closer spacing of 15 x 10 cm can be adopted for rice ratooning.

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