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DIFFERENT METHODS OF GROWING RICE IN DIFFERENT SEASONS

Different methods of raising paddy crop by farmers during virippu, mundakan and punja seasons were studied in field experiments conducted at the Agricultural Research Station, Mannuthy. The soil of the experimental site was sandy loam with pH 5.5. The treatments during the virippu season included dry broadcasting the seeds at the rate of 90 kg/ha with the onset of pre-monsoon showers in May, dibbling seeds in line (20 x 15 cm) at the rate of 65 kg/ha, dibbling seed 65 kg/ha with a mixture of cowdung and ash in the ratio of 1:5:2 and sowing the seeds in nursery on the same day and transplanted (20 x 15 cm) 25 days after sowing. The variety used was Aswathy (of 125 days duration).

The trials during the virippu season were conducted during 1980-81, 82-83 and 83-84. During mundakan season the treatments consisted of broadcasting germinated seeds (90 kg/ha), dibbling germinated seeds (65 kg/ha) broadcasting the seeds in pinches of germinated seeds (65 kg/ha) and cowdung 1:10 by weight and sowing the seeds in the nursery on the same day and transplanting 20 days after sowing (15 x 10 cm). The variety used was Triveni (100 days). The experiments during mundakan season were laid out during 1980-81, 81-82 and 83-84.

Results of the trials conducted during virippu season of 1980-81, 82-83 and 83-84 are presented in Table 1. Treatments did not differ significantly with respect to grain yield during any one of the virippu seasons. However, the per hectare mean grain yield was comparatively higher under dry broadcasting during all the three virippu seasons. Transplanting rice during virippu season was not found promising as lowest mean per hectare grain yield was observed in transplanted condition in all the three trials conducted during virippu season.

The combined per hectare mean grain yield of 3040 kg of the three virippu seasons under dry broadcasting indicated an increase of 34 per cent over transplanting. Similar results of advantage of direct seedling over transplanting in respect of grain yield has also been reported by Purushothaman (1971). Between dibbling seeds alone in line and dibbling a mixture of seeds, cowdung and ash in the ratio 1:5:2 the mean grain yield was not seen varying significantly during any one of the virippu seasons. The percentage increase of the combined mean per hectare grain yield of the three virippu seasons under dibbling seeds alone in line over that of transplanting was 11.5 and the corresponding percentage increase under dibbling the mixture of seed, cowdung and ash in the ratio 1:5:2 was 13.31. Of the different systems of raising paddy crop during virippu, the cost of cultivation was also the minimum under dry broadcasting.

Table 1

Mean yield of rice under different methods of sowing during virippu season (kg/ha)

Treatments	1980-81	82-83	83-84	Combined	% increase over transplanting	Cost of cultivation (Rs)
Dry broadcasting	2739	1900	4480	3040	40.0	2480
Dibbling seeds in line	1987	1740	3867	2531	11.5	2755
Dibbling seeds + cowdung + ash (1:5:2 mixture)	2240	1680	3793	2571	13.3	2805
Transplanting	1693	1640	3475	2269	0.0	2925
CD (0.05)	NS	NS	NS	NS		

Table 2

Effect of different methods of sowing paddy on yield and its components during virippu 1983-84 (Mean values)

Treatments	Tiller/hill at maximum tillering	No. of panicles/ hill (20 x 15 cm)	Total number of grains/ panicle	Percentage of filled grains	1000 grain weight (g)	Yield (kg/ha)
Dry broadcasting	13.2	8.0	115.4	75.4	25	4480
Dibbling seeds in line	11.8	7.8	106.2	74.6	25	3867
Dibbling seeds + cowdung + ash (1:5:2 mixture)	14.8	8.2	112.6	74.0	25	3793
Transplanting	12.4	6.8	106.0	66.2	25	3475
CD (0.05)	NS	NS	NS	NS	NS	NS

Table 3

Mean yield of rice under different methods of sowing during mundakan season (kg/ha)

Treatments	1980-81	81-82	83-84	Combined	% decrease over transplanting	Cost of cultivation (Rs.)
Broadcasting germinated seeds	2647	1680	3456	2594	9.2	2550
Dibbling germinated seeds	2787	1540	3656	2661	6.9	2960
Broadcasting seeds in pinches of germinated seeds and cowdung (1:10 by weight)	2567	1524	3622	2571	10.0	2545
Transplanting	3080	1820	3675	2858	0.0	2800
CD (0.05)	NS	NS	NS	NS		

Table 4

Effect of different methods of sowing paddy on yield and its components during mundakan 1983-84

Treatments	Tiller/hill at maximum tillering	No. of panicles/ hill (20 x 15 cm)	Total Number of grains/ panicle	Percentage of filled grains	1000 grain weight (g)	Yield (kg/ha)
Broadcasting germinated seeds	10.8	4.8	980	65.0	23.5	3456
Dibbling germinated seeds	11.2	5.0	100	64.0	23.5	3656
Broadcasting seeds in pinches of germinated seeds and cowdung (1:10 by weight)	9.6	4.6	97.6	63 8	23.5	3622
Transplanting	11	5	103	65.2	23.5	3675
CD (0.05)	NS	NS	NS	NS	NS	NS

An overall analysis of the yield components of rice during virippu season, 1983-84 (Table 2) revealed that higher grain yield observed in dry broadcast treatment was due to the higher mean number of total grains per panicle in addition to the observed slightly higher percentage of filled grains compared to the same in other treatments. The mean yield components were not seen varying much between dibbling seeds alone in line and dibbling a mixture of seeds, cowdung and ash in the ration 1:5:2. In transplanted treatments the mean number of panicles per hill and filling percentage were lower compared to the same in other treatments and these contributed to the observed reduction of grain yield in that treatment. The only yield component that remained stable in all the treatments was the thousand grain weight in grams.

The effects of various methods of growing paddy crop on grain yield were not significant during any one of the three mundakan season trials, viz., 1980-81, 81-82 and 83-84. Eventhough the effects of various treatments on grain yield were non-significant, transplanting rice during mundakan season was found to be better during all the three mundakan seasons. Similarly the cost of cultivation was also not too high under transplanting compared to other treatments. The per hectare combined mean grain yield of the three munkakan season under broadcasting germinated seeds during mundakan season showed a percentage decrease of 9.24 compared to that of transplanting. The percentage decrease of the combined mean per hectare grain yield of the three mundakan seasons under dibbling germinated seeds alone compared to that of transplanting was 6.9 and the corresponding percentage decrease under broadcasting seeds in pinches of germinated seeds and cowdung (1:10 by weight) was 10. Similar results of advantages of transplanting in respect of grain yield over other methods of growing paddy during mundakan season have also been reported by workers like Mahapatra and Parasuram (1964), Singh *et al* (1973) and Nair *et al* (1971).

An analysis of the yield components of rice during mundakan season 1983-84 (Table 4) revealed that none of the yield components was varying significantly between the four treatments. However, mean values of the yield components like number of panicles per hill, total number of grains per panicle and filling percentage were slightly higher under transplanted condition compared to the same observed in other treatments.

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