

Manuring of Rainfed Rice

By

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ABSTRACT

The suitability of the variety Annapoorna to the rainfed rice region of Coastal Ramanathapuram and its fertilizer requirements were studied. Field trials were conducted in six of the randomly selected villages of Mandapam Block. The variety Annapoorna with its shorter duration (95 days) and high yield potential (2.7 tons/ha) has impressed the farmers in this region. Fertilizer application at 60 kg N, 40 kg P_2O_5 and 30 kg K_2O /ha was found economical.

INTRODUCTION

Out of 71,500 hectares of dry land rice in Tamil Nadu State, Coastal sandy belt of Ramanathapuram District accounts for about 20,400 hectares. This region receives an average annual rainfall of 790 mm of which nearly 500 mm are recorded during the months from October to December. The clayey sub soil aids in impounding available rainfall and makes this region more suitable for cultivation of rainfed rice during the *rabi* season. However one limitation is that the local varieties now under cultivation are tall *Indicas* of longer duration with low yield potential. Hence, under the scheme of Simple Fertilizer Trials on Cultivator's fields, field experiments were conducted to study the suitability of the high yielding short duration variety "Annapoorna" to this tract and its manurial requirements.

MATERIAL AND METHODS

The trials were conducted in *rabi* 1972-73 in randomly selected cultivator's holdings in six villages of Mandapam Block viz. 1. Valantharavai, 2. Kuyavankudi, 3. Pattanamkathan, 4. Enmanankondan, 5. Thamaraikulam and 6. Nagatchi. In each of the above villages, two trials were conducted. The following were the manurial treatments.

Treatments	Nutrients (Kg/ha)		
	N	P_2O_5	K_2O
T ₁	0	40	0
T ₂	30	40	0
T ₃	60	40	0
T ₄	90	40	0
T ₅	60	0	0
T ₆	60	20	0
T ₇	60	60	0
T ₈	60	40	30
T ₉	90	60	0

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TABLE 1. Data on grain yield and economics of fertilizer input

S. No.	Particulars	Control plot	Treatments (Nutrients in kg/ha)											
			N P K 0:40:0	N P K 30:40:0	N P K 60:40:0	N P K 90:40:0	N P K 60:0:0	N P K 60:20:0	N P K 60:60:0	N P K 60:40:30	N P K 90:60:0			
1.	Grain yield of paddy (kg/ha)	1211	1460	2154	2378	2352	2004	2191	2333	2556	2767			
2.	Percentage of increase over control		20.6	77.9	96.4	94.2	65.5	80.9	92.7	111.0	128.5			
3.	Additional yield obtained on account of fertilizer application	—	249	943	1167	1141	793	980	1122	1345	1556			
4.	Gross additional income over control (Rs.)	—	124.50	471.50	583.50	570.50	396.50	490.00	561.00	672.50	778.00			
5.	Cost of inputs+Cost of application (Rs.)	—	137.70	224.50	311.70	398.70	186.50	249.10	374.30	341.70	461.30			
6.	(+) Profit or (—) loss (4-5)	—	-13.20	+247.00	+271.80	+171.80	+210.00	+240.90	+186.70	+330.80	+316.70			

Grain Yield :
SE—170
CD—337

Remarks : 1. Grain of paddy at Re. 0.50 per kg
2. Nitrogen at Rs. 2.90 per kg
3. Phosphorus at Re. 3.13 per kg
4. Potash at Re. 100 per kg

The rice variety Annapoorna was raised in the trial plots under rainfed condition. The gross and net area of the plots were 50 and 40 sq. m. respectively. Phosphatic fertilizer alone was applied as basal. Nitrogenous and potassic fertilizers at scheduled dosage were applied later on receipt of good rains and with moisture saturated condition of the field. The grain yields were recorded plotwise at harvest. The economics of fertilizer application has been worked out.

RESULTS AND DISCUSSION

Data on mean rice yield and economics of fertilizer application are presented in Table 1. The results show that N, NP and NPK application increase the yield considerably over control. The manurial treatment of 90 kg N + 40 kg P_2O_5 has registered the highest mean yield of 2767 kg/ha and is followed by the treatment 60 kg N + 40 kg P_2O_5 + 30 kg K_2O which has recorded an yield

of 2556 kg/ha. However, the latter treatment was found to be most economical manurial dosage, giving an additional net income of Rs. 330/- per hectare over control (Table 1).

Farmers of this region were much impressed with the performance of the variety Annapoorna since its yield potential here (2.7 tons/ha) is nearly twice of the local rice varieties. Also in quality aspect, Annapoorna is favoured more in the place of local varieties. Findings of this trial can definitely be expected to further the spread of the variety Annapoorna and to increase the production of rainfed rice in this tract.

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