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PRODUCTION POTENTIAL AND ECONOMICS ON SEVEN RICE BASED CROP ROTATIONS

The introduction of high yielding short duration varieties of cereals, oil seeds and pulses have opened up new vistas in the field of agriculture production utilising the new cropping technology of multiple cropping. But the adoption of any pattern by the farmer depends upon its profitability. Various workers have studied the economics of different cropping patterns throughout India. Bains *et al.* (1963) found that by relay cropping of 400 per cent intensity the farmers can get a profit of about Rs 11,500/- per hectare per year. According to Pande *et al.* (1972), one year crop rotation of Rice-Tomatto-Rice-Moong gave the highest net profit of Rs 11,025/-ha. in Sambalpur (Orissa). Sadanandan and Mahapatra (1972) reported that maximum net profit per hectare was obtained from the cropping pattern potato-Rice-Rice during 1967-'68 and 1968-'69. The present investigation was undertaken with a view to finding out the production potential and economics of cultivation of seven rice based crop rotations under Mannuthy conditions.

A field experiment was conducted with seven rice based cropping patterns replicated thrice in R. B. D. in the Research Station and Instructional Farm Mannuthy during 1976-77. The plot size was 5 x 5 M. The soil of the experimental area was sandy loam analysing 0.06 per cent N, 0.0026 per cent available P_2O_5 and 0.0027 per cent available K_2O with a pH value of 5.4. The treatments consisted of seven cropping patterns:— (t1) Rice—Rice—Rice. (t2) Rice—Rice—Groundnut. (t3) Rice—Rice—Cowpea. (t4) Rice—Rice—Greengram. (t5) Rice—Rice—Tapioca. (t6) Rice—Rice—Gingelly. (t7) Rice—Rice—Horsegram. While *Jaya*, a medium duration variety was used in the first crop season, *Triveni* and *Annapurna*, two short duration rice varieties were used for the second and third crop seasons respectively. The package of practices recommendations were followed for all the crop in the various cropping patterns.

The data on the cost of cultivation of crops included in the cropping patterns and the yield of produce from various crops and the net profit from each cropping pattern are presented in Table-1. The data on the cost of cultivation of individual crops show that the expenditure was high for the rice crop in all the crop seasons. Tapioca stood second in this respect and the lowest cost of cultivation was recorded by horsegram. Among the different rice crops the first crop rice has recorded the highest cost of cultivation.

Table 1 Cost of cultivation and profit per hectare of various cropping patterns

	Cost of cultivation Rs.	Produce per hectare		Value Rs.	Net profit Rs.	Total profit per hectare Rs.
		Grain (kg)	Straw (kg)			
Rice	3910	3972	14312	7550	3640	
1. Rice	3370	3333	5675	4752	1382	
Rice	3390	1585	3021	2340(—)	1050	
Total	10670			14642		3972
Rice	3910	3773	12364	6864	2954	
2. Rice	3370	3125	4996	4374	1004	
Groundnut	2387	1812	—	5436	3049	
Total	9667			16674		7007
Rice	3910	3474	10734	6158	2248	
3. Rice	3370	2912	5842	4373	1003	
Cowpea	1355	508	—	1219(—)	136	
Total	8635			11750		3115
Rice	3910	4076	13088	7348	3438	
4. Rice	3370	3216	5707	4643	1273	
Greengram	1219	109	—	392(—)	827	
Total	8499			12383		3884
Rice	3910	3759	12455	6873	2963	
5. Rice	3370	3093	4678	4263	893	
Tapioca	2710	11200	10000 (Stems)	3860	1150	
Total	9990			4996		5006
Rice	3910	3714	11640	6624	2714	
6. Rice	3370	3275	4982	4521	1151	
Gingelly	1390	213	—	1278(—)	112	
Total	8670			12423		3753
Rice	3910	3623	11413	6476	2566	
7. Rice	3370	2867	5765	4308	935	
Horsegram	1138	828	—	1159	21	
Total	8418			11943		3525

It is seen that Rice — Rice — Tapioca rotation has shown the maximum production potentiality by yielding nearly 180 quintals of produce. But the highest net income was obtained from the cropping pattern Rice—Rice—Groundnut (Rs. 7007/ha.). This may be due to the fact that the cost of cultivation of tapioca was high while the price of tuber was comparatively low. Still this cropping pattern has registered the second highest net income. The lowest net income was registered by the pattern Rice—Rice—Cowpea. The data clearly indicate that the inclusion of groundnut in the third crop season makes the cropping pattern most profitable.

സംഗ്രഹം

നെല്ല് ഉൾക്കൊള്ളുന്ന ഏഴുവിള പരിക്രമങ്ങളുടെ ഉല്പാദന ക്ഷമയും സാമ്പത്തിക ക്ഷമയും പരിശോധിച്ചു. അറിയുന്നവർക്ക് വേണ്ടി 1976-1977-ൽ നടത്തിയ പരീക്ഷണത്തിൽ നിന്ന് നെല്ല്—നെല്ല്—മരച്ചീനി എന്ന വിള ക്രമം ഉൽപ്പാദന ക്ഷമയിൽ മുന്നിട്ടു നിന്നപ്പോൾ നെല്ല്—നെല്ല്—നിലക്കടല എന്ന പരി ക്രമം കൂടുതൽ അറാദായം നൽകുന്നതായി കണ്ടു.

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