



Research Article

ADOPTION BEHAVIOUR OF RICE FARMERS OF TRIPURA TOWARDS SYSTEM OF RICE INTENSIFICATION (SRI)

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Abstract- The study was carried out in the two district of Tripura, viz., West Tripura and South Tripura with randomly selected 200 rice farmers from purposively selected 4 blocks of the districts. The State of Tripura is located between 22° 56" and 24° 32" North latitude and between 90° 09" and 92° 20" East latitude. Tripura is a landlocked State. System of Rice Intensification (SRI) method of paddy cultivation is important because it needs less seed, less water, less fertilizer and less attack of pest & disease but per hectare yield gain is more than traditional method of paddy cultivation. Rice is the major food crop in Tripura with 75 per cent of its cropped area devoted to the production of rice. In terms of production, it ranks next to Assam in North East states. The adoption of the majority of the rice farmers varied from high to medium (41.0% to 39.0%) favourable category of adoption towards SRI practices. However, nearly 20.0% of them were in less favourable category.

Keywords- Knowledge, Adoption, Tripura and SRI

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Introduction

Tripura is a state in North-East India, which borders Bangladesh, Mizoram and Assam. It is surrounded by Bangladesh on its north, south and west. It shares a 53 km long border with Assam and 109 km long border with Mizoram. The State of Tripura is located between 22° 56" and 24° 32" North latitude and between 90° 09" and 92° 20" East latitude. Tripura is a landlocked State. The System of Rice Intensification (SRI) methodology was synthesized in the early 1980s by Fr. Henri de Laulanié, S.J., who came to Madagascar from France in 1961 and spent the next (and last) 34 years of his life working with Malagasy farmers to improve their agricultural systems, and particularly their rice production, since rice is the staple food in Madagascar. SRI was developed by Father Henry de Laulanie who was striving to improve the lively hood of the poor rice farmers of Madagascar. SRI method of paddy cultivation is important because it needs less seed, less water, less fertilizer and less attack of pest & disease but per hectare yield gain is more than traditional method of paddy cultivation. Rice is the major food crop in Tripura with 75 per cent of its cropped area devoted to the production of rice. In terms of production, it ranks next to Assam in North East states. Despite all the rich profitability of the technology of system of rice intensification (SRI) practices, the extent of its spread has still remained insignificant due to various reasons. The present study has been designed to investigate some factors, which closely related with the knowledge and the adoption behaviour of rice farmers towards SRI, so that the knowledge could be used in rapid diffusion of the system of rice intensification technology to the rice farmers.

Materials and Methods

The present study was carried out in two districts viz., West Tripura and South Tripura district of Tripura. The two districts were selected purposively in view of the diverse land and agriculture resources ideally suited for taking up SRI technology and they have been situated in different agro ecological zones with minimum variation. Among seventeen development blocks in West Tripura district

two blocks namely Jirania and Bishalgarh and eleven development blocks in South Tripura district two blocks namely Matabari and Bokafa were selected purposively for the study. From each block, five villages were selected with the help of a random number Table following the method of simple random sampling. In total ten villages of each district are served as the representing unit for this study. A simple random sampling technique were followed in the selection of total 200 number of respondents, 100 respondents from each district, 50 respondents from each block and 10 respondents from each village for the final data collection. Total sample size is 200, of which 100 from each district. In the present study, the extent of adoption of recommended SRI practices was measured by using the adoption quotient. Accordingly, the following formula was used to calculate the general adoption level.

$$\text{Adoption quotient} = \frac{\text{Adoption score of the respondent}}{\text{Maximum adoption score one could get}} \times 100$$

The scores assigned for full, partial and non-adoption of the recommended practices was 2, 1 and 0 respectively. After computing individual adoption quotient scores, the respondents were grouped into three categories with mean and standard deviation as measure of check.

Category	Scores		
	West Tripura (n=100)	West Tripura (n=100)	Tripura (N=200)
Low (up to X- 1/2SD)	Upto 78.85	Up to 72.51	Up to 75.3111
Medium (X- 1/2 SD to X + 1/2 SD)	78.85 to 95.52	72.51 to 84.78	75.3111 to 90.5248
High (above X+ 1/2 SD)	Above 95.52	Above 84.78	Above 90.5248
	Mean : 87.187 SD : 16.669	Mean: 78.65 SD : 12.270	Mean: 82.918 SD : 15.2136

The adoption behavior of rice farmers towards SRI technology was measured in terms of overall adoption and extent of adoption of specific recommended SRI practices by rice farmers.

Result and Discussion

Adoption behaviour of rice farmers towards System of Rice Intensification (SRI) practices

Overall adoption:

Table-1 Distribution of respondents based on their level of adoption of rice farmer towards SRI practices (N=200)

Adoption category	West Tripura (n=100)			Adoption category	South Tripura (n=100)			Adoption category	Tripura (N=200)		
	F	%	Mean		F	%	Mean		F	%	Mean
Low	22	22	87	Low	18	18	79	Low	40	20	83
Medium	30	30		Medium	48	48		Medium	78	39	
High	48	48		High	34	34		High	82	41	

West Tripura: The average adoption score achieved by the low, medium and high categories is 60, 88 and 99 respectively. The results show that as large a portion as representing almost 48 per cent belongs to the category of high adopters while 30 per cent belong to medium and the remaining farmers 22 per cent belong to the low adoption category.

South Tripura: The mean of the adoption scores of low, medium and high adoption categories is 58, 48, and 89 respectively. The results show that almost 48 per cent of farmers are medium adopters while 34 per cent in the high adoption and the remaining 18 per cent farmers belong to the low adoption category.

Tripura: The mean of the adoption scores of low, medium and high adoption categories is 62, 83, and 98 respectively. The results show that almost 42 per cent of farmers are medium adopters while 34 per cent in the high adoption and the remaining 24 per cent farmers belong to the low adoption category.

In both the districts, the status of the adoption behaviour of the rice farmers towards SRI is on the whole encouraging, though the position is somewhat ahead so far as West Tripura is concerned. The knowledge of the rice farmers in this regard is also correspondingly favourable to the improvements in their adoption behaviour- a sort of symbiotic interrelationship being noticeable. Taken together the presence of both these helpful factors is very important in promoting a general climate on economic well being and entrepreneurial enthusiasm as based on the

progress of the exploitation of the potentials of a kind of natural resources in the right direction.

The results indicate that the majority of the rice farmers belong to high adopter category (39%) in West Tripura whereas in South Tripura they belong to medium to high adopter category. The overall adoption in the state of Tripura is high (41%) to medium (39%) and low level of adoption is only (20%). [3] reported that majority of participant farmers belong to high and medium adoption category (48.33 and 45.00 % respectively). Only 6.67 per cent of farmers belong to low adoption category, whereas 21.66 per cent of farmers belongs to high adoption category. The results indicate that the majority of the rice farmers of West Tripura have adopted the SRI technology to a high extent while in the case of South Tripura the adoption level ranges from medium to high, which might be due to the reason that most of the farmers of this area has precise knowledge about many of the simple and basic practices of SRI. Although this is an encouraging trend, efforts are still required to promote large scale adoption of this technology. The present findings are more or less in conformity with those reported by [1, 2].

Data presented in [Table-2] reveals that except very few majority of the respondent 90 per cent have fully adopted the method of line sowing, while only 10 per cent of the respondent have partially adopted the practice and there is no non-adoption under the category, whereas 89 per cent farmers have fully adopted the weed management practice and 11 per cent partially adopted, while there is no non-adoption under the category.

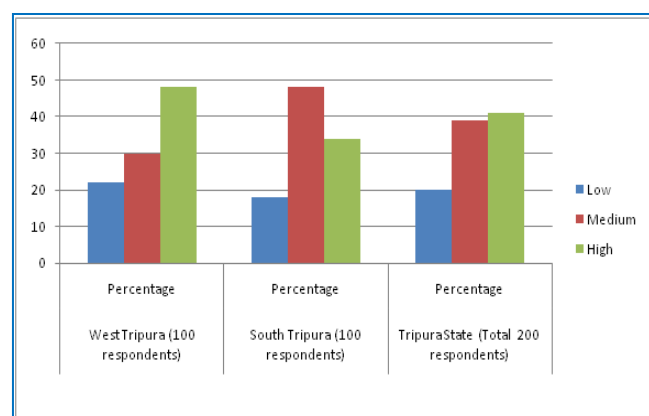
Extent of adoption of specific recommended SRI practices by rice farmers:

Table-2 Adoption of recommended SRI practices in West Tripura

SN	Recommended Practices	West Tripura (100 respondents)					
		Full adoption		Partial adoption		Non- adoption	
		No	%	No	%	No	%
A. Management Practices							
1	Testing of soil and water	66	66	34	34	0	0
2	Application of organic manure	82	82	18	18	0	0
3	Weed Management	89	89	11	11	0	0
4	Water management practices	80	80	20	20	0	0
5	Application of lime	88	88	12	12	0	0
6	Shallow planting of seedling	81	81	19	19	0	0
7	Sowing of single seedling	82	82	18	18	0	0
8	Transplanting of 8-12 days old seedling	82	82	18	18	0	0
9	Assured source of water	74	74	26	26	0	0
10	Method of nursery bed preparation	78	78	22	22	0	0
11	Line sowing	90	90	10	10	0	0
12	Following layout & drainage channel	81	81	18	18	1	1
B. Post Transplanting Management							
13	Maintaining water level as recommended	63	63	37	37	0	0
14	Maintaining draining facility.	78	78	22	22	0	0
15	Intercultural operation for control of weed.	69	69	31	31	0	0
16	Application of Bio-fertilizer.	71	71	29	29	0	0

Table-3 Adoption of recommended SRI practices in South Tripura (N=100)

SN	Recommended Practices	South Tripura					
		Full adoption		Partial adoption		Non-adoption	
		No	%	No	%	No	%
A. Management Practices							
1	Testing of soil and water	67	67	17	17	16	16
2	Application of organic manure	78	78	16	16	6	6
3	Weed Management	89	89	8	8	3	3
4	Water management practices	84	84	12	12	4	4
5	Application of lime	74	74	21	21	5	5
6	Shallow planting of seedling	85	85	12	12	3	3
7	Sowing of single seedling	89	89	7	7	4	4
8	Transplanting of 8-12 days old seedling	90	90	8	8	2	2
9	Assured source of water	72	72	19	19	9	9
10	Method of nursery bed preparation	79	79	17	17	4	4
11	Line sowing	84	84	12	12	4	4
12	Following layout & drainage channel	86	86	11	11	3	3
B. Post Transplanting Management							
13	Maintaining water level as recommended	78	78	14	14	8	8
14	Maintaining draining facility.	74	74	22	22	4	4
15	Intercultural operation for control of weed.	66	66	17	17	17	17
16	Application of Bio-fertilizer.	73	73	21	21	6	6

**Fig-1** Distribution of respondents based on their level of adoption

Data presented in [Table-3] reveals that most of the farmers 90 per cent have fully adopted transplanting of 8-12 days old seedling practice, while 8 per cent of the SRI farmers found under non-adoption category. The Table also reveals that (89.0%) farmers have fully adopted weed management practice and 8 per cent partially adopted, whereas 3 per cent of SRI farmers have non-adopted this practices and 89 per cent have fully adopted the single seedling method of planting, while 7 per cent of the SRI farmers have partially adopted the practice and 4 per cent non-adopters are found under the category of non-adoption.

Data presented in [Table-4] reveals that 89 per cent farmers have fully adopted weed management practice and 9.5 per cent partially adopted, whereas 1.5 per cent of SRI farmers have non-adopted this practices. Except very few majority of the respondent 87 per cent have fully adopted the method of line sowing, while only 11 per cent of the respondent have partially adopted the practice and there are 2 percent non-adoption under non-adoption category.

Table-4 Adoption of recommended SRI practices in Tripura (N=200)

SN	Recommended Practices	Tripura State					
		Full adoption		Partial adoption		Non-adoption	
		No	%	No	%	No	%
A. Management Practices							
1	Testing of soil and water	133	66.5	51	25.5	16	8
2	Application of organic manure	160	80	34	17	6	3
3	Weed Management	178	89	19	9.5	3	1.5
4	Water management practices	164	82	32	16	4	2
5	Application of lime	162	81	33	16.5	5	2.5
6	Shallow planting of seedling	166	83	31	15.5	3	1.5
7	Sowing of single seedling	171	85.5	25	12.5	4	2
8	Transplanting of 8-12 days old seedling	172	86	26	13	2	1
9	Assured source of water	146	73	45	22.5	9	4.5
10	Method of nursery bed preparation	157	78.5	39	19.5	4	2
11	Line sowing	174	87	22	11	4	2
12	Following layout & drainage channel	167	83.5	29	14.5	4	2
B. Post Transplanting Management							
13	Maintaining water level as recommended	141	70.5	51	25.5	8	4
14	Maintaining draining facility.	152	76	44	22	4	2
15	Intercultural operation for control of weed.	135	67.5	48	24	1	0.5
16	Application of Bio-fertilizer.	144	72	50	25	6	3

Conclusion

The majority of the farmers have obtained high adoption score. The mean adoption score (83.0) obtained by the SRI farmers also revealed the high level of adoption. This showed that SRI technology was mostly percolated to the SRI

farmers' level but they had constraint in the adoption of the technology fully due to some other factors like timely availability of skilled labourers, high cost of labour wages, problem of assured irrigation, weed management problem, farm mechanization, high cost of manures and fertilizer, high cost of pesticides-

insecticides, complicated procedure for obtaining loan from the credit organization, untimely release of loan by the credit organization and lack of support price.

Conflict of Interest: None declared

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