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S R I – A SYSTEM OF CULTIVATION FOR INCREASING THE KNOWLEDGE LEVEL OF THE PADDY FARMERS

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Abstract

System of Rice Intensification (SRI) is now gaining popularity as it is found to increase the productivity and reduce the cost of cultivation, besides saving in water use. The practice of SRI are not aiming at maximum yield, but rather to promote the higher productivity of land, labour, capital and water in ways that benefit the farmer especially of resource poor (uphoff – 1999). This alternative system manages soil, water and nutrient differently in ways that increases the abundance and diversity of the soil biota. In India more than one million farmers are practicing SRI across almost all the rice cultivation districts. With above view, the study was taken up in Cuddalore districts of Tamil Nadu. 120 respondents were selected by proportionate random sampling procedure. Ex post – facto design was followed. Eleven independent variables and two dependent variables were selected for the study. The data were collected with the help of well structured and pre-tested interview schedule. The statistical tools used in this study were percentage analysis, mean, cumulative frequency method. The respondents expressed their knowledge level on SRI method in five major subject matter area *viz*., weed management, preparatory cultivation, seed rate, fertilizer management & seed treatment. The study reveals that 61.67 per cent of the respondents possessed medium level of knowledge followed by 26.67 per cent with low level and 11.66 per cent of the respondents with high level of knowledge on SRI methods of paddy cultivation.

Key words : SRI, Paddy cultivation, High productivity and Knowledge level.

Introduction

System of Rice Intensification (SRI) is now gaining popularity as it is found to increase the productivity and to reduce the cost of cultivation, besides saving in water use. It is a system rather than a technology developed in Madagascar is nearly 1980's by late Fr. Henri de laulanie. It can be adopted with suitable modifications to any eco-system. The practices of SRI are not aiming at maximum yield, but rather to promote the higher productivity of land, labour, capital and water in ways that benefit the farmers especially of resource poor (Uphoff, 1999). In India, more than one million farmers are practicing SRI across almost all the rice cultivating districts. While the area under SRI is still relativity small (under 8,00,000 ha), it is expanding rapidly as farmers learn from each other. If offers rice farmers yield increase and of other benefits while using less water provided this is done in conjunction with other changes how they manage the plans, soil and nutrients (Randriamiharisoa and uphoff, 2002).

The study on the knowledge level of paddy growers regarding SRI and influential factors on knowledge would help the development department personnel and agencies to plan and modify their extension approach, so as to increase the knowledge level of paddy growers regarding SRI. It would provide both quantitative and qualitative picture with regard to the major and specific training needs of SRI paddy growers. In this way, the study may also help in fixing the research priorities. This study would also help the training agencies to formulate appropriate training strategies preferred by the SRI paddy growers. Keeping these in view, an attempt was made in this study to assess the knowledge level of the SRI paddy farmers in SRI technologies.

Materials and Methods

Large area under SRI paddy cultivation in Cuddalore

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district and presence of the Krishi Vigyan Kendra (KVK) at Virudhachalam were considered for the selection of cuddalore district for the present study. There are eight taluks in Cuddalore District. Of the eight taluks, Kurinjipaditaluk has the maximum area under SRI paddy cultivation. The first six villages having the maximum area under SRI paddy crop were selected for the study. The selected villages are Kothavacheri, Adoor, Agaram, Karunguli, Kolakkudi, Kalkunam and Arangamangalam.

A sample size of 120 respondents was considered for the study. The number of respondents for each of the six villages were selected based on proportionate random sampling technique. Based on the rating by the judges, the mean and co-efficient of variation were worked out for all the independent variables. The variables which were having a mean than the overall mean and its co-efficient of variation less than the overall co-efficient of variation were selected for this study. Thus, eleven variables were finally selected for the study. They were age, educational status, occupational status, experience in rice cultivation, social participation, extension agency contact, mass media exposure, information seeking behavior, risk orientation, scientific orientation and training programmes attended.

The dependent variables selected for the study was toasses the knowledge level of the respondent on SRI technologies in paddy. In the present study, knowledge level denoted the understanding of farmers about cultivation practices of SRI paddy. Balakrishnan (2001) defined knowledge as those behavior and test situation, which emphasize remembering either by recognition or recall of ideas, materials and phenomena. In this study, knowledge is defined as the understanding of paddy farmers about the recommended practices in SRI on cultivation. To measure the knowledge on SRI paddy cultivation, a teacher made knowledge test was developed and used. Test items were framed on all important areas in SRI paddy cultivation with the available literature on SRI paddy cultivation and in consultation with agricultural officers of the study area. Each item of knowledge test was dichotomized into "Correct" and "Incorrect" responses. Every correct response was assigned two score, incorrect received one score. The total score obtained by the respondent on the knowledge test formed the respondent's knowledge score.

Results and Discussion

Knowledge level of paddy farmers on the S R I technologies

The knowledge level of respondents may vary from individual to individual. Hence an attempt was made to analysis the knowledge level of paddy farmers on SRI technologies are given in the area.

Overall knowledge level of paddy farmers on S R I technologies

Results on distribution of respondents according to their overall knowledge level are presented in Table 1.

Table 1: Distribution of respondents according to their overall knowledge level. (n=120)

S.No.	Category	Number	Per cent
1	Low	32	26.67
2	Medium	74	61.67
3	High	14	11.66
Total		120	100.00

The data from the table 1, reveals that 61.67 per cent of the respondents possessed medium level of knowledge followed by 26.67 per cent of respondents with low level of knowledge. Only 11.66 per cent of the respondents were high level of knowledge on SRI paddy cultivation. As majority of the respondents had medium level of social participation, extension agency contact, information seeking behavior and medium level of training undergone this would have enabled them to gain sound knowledge on SRI paddy cultivation practices. This result is in accordance with the results of Rajasekaran (2015).

Practice-wise knowledge level of the respondents on SRI technologies

Twenty two practices were selected for assessing the knowledge level of the respondents on SRI technologies. Results regarding the practice wise knowledge level of the respondents are furnished in table 2.

It is evident from the Table 2, that among the twenty-one selected practices of SRI technology in rice cultivation. Most of the respondents (94.16 per cent) had knowledge about the recommended number of seedling transplanted per hill. The respondents would have gained the knowledge from extension workers and mass media sources. Around ninety per cent (90.83 per cent) of the respondents had knowledge level about recommended water level after panicle initiation to before maturity. The respondents would have gained the knowledge from extension worker and mass media. Majority of the respondents (89.16 per cent) had knowledge on recommended spacing. This may be due to the efforts of the extension officials who would have given more information regarding the advantages of the spacing. Majority (88.33 per cent) of the respondents had knowledge on recommended dose of nitrogenous fertilizer/acre. This may be due to the appreciable efforts

Table 2: Practice-wise knowledge level of the respondents on SRI technologies. (n=120)

S.No.	Technologies	Number	Per cent
1	Recommended nursery area for 1acre	105	87.50
2	Recommended width of a nursery bed	90	75.00
3	Recommended height of nursery bed	93	77.50
4	Water must be maintained in the nursery	99	82.50
5	Recommended quantity of DAP/ bed	96	80.00
6	Recommended seed rate for 1 acre	53	44.16
7	Recommended for seed treatment	93	77.50
8	Recommended dose of *pseudomonas flouresecens*	73	60.83
9	Recommended age of seedling	81	67.50
10	Recommended number of seedling transplanted per hill	113	94.16
11	Recommended depth for transplanting	57	47.50
12	Recommended spacing	107	89.16
13	Recommended water level from transplantation to tillering stage	97	80.83
14	Recommended water level after panicle initiation to before maturity	109	90.83
15	Type of irrigation	103	85.83
16	'Weeder' recommended for weeding	87	72.50
17	Chart is used to identify the nutritional status of the leaf	77	64.16
18	Recommended are foliar sprays	101	84.16
19	Recommended quantity of nitrogenous fertilizer	106	88.33
20	Recommended quantity of phosphatic fertilizer	77	64.16
21	Recommended quantity of potash fertilizer	73	60.83

* - Multiple responds

taken by extension through mass media and by their personal acquaintance. Majority of the respondents (87.50 per cent) had knowledge about the size of recommended nursery area for 1 acre. The simple nature of the technology and the rich experience of the respondents in farming could be the reason for higher knowledge level. Majority of the respondents (85.83 per cent) had knowledge on type of irrigation must be given. Majority of the respondents were knowledgeable about this practice probably due to their experience in rice farming and traditionally there are doing.

Majority of the respondents (84.66 per cent) had knowledge about foliar sprays are recommended in SRI. This may be regular contact of the respondents with extension agency. More than four-fifth of the respondents (82.50 per cent) had better exposure to information about the practice through extension effort and direct monitoring by extension personnel. Majority of the respondents (80.83 per cent) had knowledge on recommended water level from transplantation to tillering stage. This might be due to the possession of more years of experience in rice cultivation. Majority of the respondents (80.00 per cent) had knowledge level about applications of DAP for nursery bed. This may be due to the long years of experience with the same crop and associated technologies. More than three-fourth (77.50 per cent) of the respondents had knowledge about recommended seed treatment practices and majority of the respondents (77.50 per cent) had knowledge about the recommended height of the nursery bed. This might be due to the extension officials take more exports to conduct demonstration on seed treatments and nursery bed raising. Majority of the respondents (75.00 per cent) had knowledge about the width of the nursery bed. This might be due to the extension efforts taken by the state department officials in highlighting the importance of the practice. Majority of the respondents (72.50 per cent) had knowledge about the of the 'weeder' recommended for weeding. This may be due to the extension efforts coupled with supply of cono-weeder by state department of agriculture to the individual respondents with subsidiary rate. The age of seedling was known to majority of the respondents (67.50 per cent) had knowledge on recommended age of the seedling might be due to the fact that this practice is important for professed tillering and for getting high yield. Sixty-four per cent of the respondents had knowledge about the recommended phospatic fertilizer/acre. This may be due to the appreciable efforts taken by extension through mass media and by their personal acquaintance.

Majority of the respondents (64.16 per cent) had knowledge about chart is used to identified the nutritional status of the leaf. This also might be due to their mass media exposure and extension agency. Majority of the respondents (60.83 per cent) had knowledge on recommended photash fertilizer/acre. This may be due to the appreciable efforts taken by extension through mass media and by their personal acquaintance. Sixty per cent of the respondent had knowledge about the recommended dose of *pseudomonas flouresecens*. The respondents might have known the importance of fungicide treatment through extension officials. Little more than half of the respondents (50.83 per cent) had knowledge about recommended seed rate for one acre. This also might be due to their mass media exposure and extension agency.

Nearly half of the respondents (47.50 per cent) had knowledge about recommended depth for transplanting. This may be due to the appreciable efforts taken by extension through mass media and extension programmes.

Summary and Conclusion

This Chapter provides comprehensive information on the systematized efforts undertaken for the empirical study which a focus on the emerged findings. The details of the research carried out are presented briefly as following.

System of rice intensification is a whole package of agronomic approaches which together exploit the genetic potential of rice plants to create a growing environment (both above and below ground) to enhance soil and reduce inputs (seed, water, labour). SRI can increase rice yields while less water and lowering the production cost. In India, more than one million farmers are practicing SRI across almost all the rice cultivating districts. While the area under SRI is still relatively small, it is expanding rapidly as farmers learn from each other. It offers rice farmers increased yield and other benefits while using less water, provided this is done in conjunction with other changes in how they manage the land, soil and nutrients.

More than half of the respondents (61.67 per cent) had medium level of knowledge followed by 26.67 per cent of respondents with low level of knowledge. Only 11.66 per cent of the respondents were high level of knowledge on SRI paddy cultivation. Among the twenty one selected items relating to recommended practices of SRI technologies, per cent of the respondents obtained correct knowledge score for the seedling transplanted per hill (94.16 per cent) Most of the respondents had knowledge on the recommended SRI technologies namely, water level after panicle initiation to before maturity (90.83 per cent). More than eighty per cent of the respondents had knowledge on the recommended SRI technologies namely, spacing (89.16 per cent), nitrogenous (88.33 per cent), nursery area for 1 acre (87.50 per cent), type of irrigation (85.83 per cent), foliar sprays (84.16 per cent), water must be maintained in the nursery bed (82.50 per cent), water level from transplantation to tillering stage (80.83 per cent), quantity of DAP / nursery bed (80.00 per cent).

Most of respondents belonged to medium category of knowledge level on SRI technologies. Since knowledge is a pre-requistie adoption, it is suggested that the extension officials of State Department of Agriculture may make frequent visits for increasing the knowledge the knowledge about SRI technologies. The knowledge may be imparted to the respondents by conducting training programmes. The variables *viz.*, educational status, experience in rice cultivation, mass media exposure, information seeking behavior, risk orientation and scientific orientation were found to influence the knowledge level of the SRI farmers in SRI technologies. Hence, the extension agencies should consider these characteristics, while selecting the trainees and formulating the training programme.

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