



# BEHAVIOURAL ANALYSIS OF FARMERS WITH RESPECT TO SYSTEM OF RICE INTENSIFICATION TECHNOLOGY (SRI) IN DHAMTARI DISTRICT OF CHHATTISGARH, INDIA

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## Abstract

The behavioral characters of individual play a vital role in the collection of information and adoption of advanced agriculture technology. An attempt has been made to know the farmer's behavior towards system of rice intensification technology (SRI). The present study was conducted in ten villages of the Dhamtari district of Chhattisgarh, India. Post facto research design was followed in this study and a total of 126 farmers from ten selected village were treated as respondents for this investigation. The study revealed that the majority of respondents (52.39%) of respondents had medium level of annual income, 50 per cent of respondents had high level of attitude towards SRI method of rice cultivation, 74.61 per cent of them had high level of risk orientation, 97.63 per cent of them had high level of scientific orientation, 17 motivational factors identified for knowledge up gradation for SRI method and among all identified motivational factors RAEO', relatives and ADO's found more credible factors, respectively and after the assessment it is suggested that the technology dissemination should be done by using participatory extension approach and dissemination of knowledge should be done by using credible sources like RAEO's.

**Key words :** SRI technology, attitude, risk & scientific orientation and knowledge.

## Introduction

SRI technology is a civil society innovation occurred outside the formal research system that was first developed accidentally in Madagascar by Father Henri de Laulanié, in 1980, who combined field observations of rice plant performance with a series of experiments over a decade (Laulanié, 1993). SRI technology involves the transplanting of young seedlings, one per hill instead of a clump of several seedlings and 8-12 days old instead of the usual 3-4 weeks; very carefully but quickly, taking special care to protect the young roots; with wider spacing and in a square pattern to give both roots and canopy more room to grow, for taking up nutrients and capturing sunlight; maintaining the soil in mostly aerobic condition, not suffocating the plant roots or beneficial soil organisms; controlling weeds with a simple mechanical hand weeder that also actively aerates the soil; and enhancing the soil organic matter as much as possible with compost or mulch to 'feed the soil' so that the life within it will help feed and protect the growing plants. The story SRI

technology in India indicates the complex evolution process of innovation and development. Today, India has one of the largest numbers of SRI farmers in the world. Official record indicates that SRI diffused first to Tamil Nadu State, followed by Andhra Pradesh in India (Prasad, 2006). However, there is a need to study how SRI was diffused and adopted across the States of Tamil Nadu and Andhra Pradesh (Krishnan, 2008). In Chhattisgarh, the area under SRI technology in 2010-11 was 1317 hectares. In the year 2011-12, the area under SRI technology was 20,000 hectares. The average yield through SRI technology was recorded 5313 kg ha<sup>-1</sup> (www.Cgagri.net). The area under SRI technology in current year (2013) in Kurud block is 400 hectares. (www.Cgagri.net). Farmers attitude and other psychological characters about particular technology have significant contribution to their adoption. The knowledge about recommended practices of SRI technology has a critical role in adoption of recommended practices to make rice farming more profitable and economical to farmers of Dhamtari district.

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## Materials and Methods

The present study was conducted in 10 selected villages of Kurud block of Dhamtari district of Chhattisgarh (India), because productivity of rice is quite high and majority of rice area is under assured irrigation. The respondents were selected from Kurud block by the help of proportionate random sampling procedure. Thus a total of 126 respondents were selected as a sample for the study. *Ex Post-facto design* was followed in this study. The data were collected with the help of well structured and pre-tested and well structured interview schedule. The findings are presented here under.

## Results and Discussion

### Annual income of respondents

It is very difficult to assess the average annual income of each individual, as they are not maintaining any records. The attempt was made to collect the annual income of the respondents through discussion and interpretation from different angles. The distribution of the respondents according to their annual income is presented in table 1. The data shows that the higher percentage of the respondents (52.39%) were having their income in the range of Rs. 1, 00001 to Rs. 2,00000 followed by 20.63 per cent of respondents had their annual income in the range between Rs. 2,00001 to Rs. 4,00000, while 15.08 per cent of the respondents had obtained income up to 1,00000 and only 11.90 per cent of respondents had very high income above Rs. 400000. Balmatti (1993) and Sathish (2010) also noted similar findings in their study.

**Table 1 :** Distribution of the respondents according to their annual income. (n = 126)

Annual income (Rs.)	Frequency	Percentage
• Low (Up to Rs. 1,00000)	19	15.08
• Medium (Rs. 1,00001 to Rs. 2,00000)	66	52.39
• High (Rs. 2,00001 to Rs. 4,00000)	26	20.63
• Very high (Above Rs.400000)	15	11.90

### Psychological attributes of farmers

The data on overall level of attitude, risk orientation and scientific orientation of respondents towards SRI technology are presented in table 2. The findings indicate that the majority of the respondents (50%) had high level of attitude, followed by 48.41 per cent of them had medium level of attitude and only 1.59 per cent of respondents had low level of attitude, majority of the respondents (74.60%) had high level of risk orientation,

**Table 2 :** Distribution of respondents according to their psychological attributes. (n = 126)

Attitude of farmers	Frequency	Percentage
➤ Less favourable	02	01.58
➤ Moderately favourable	61	48.42
➤ Most favourable	63	50.00
<b>Risk orientation</b>		
➤ Low	0	0.00
➤ Medium	32	25.40
➤ High level	94	74.60
<b>Scientific orientation</b>		
➤ Low level	01	0.79
➤ Medium	02	01.58
➤ High level	123	97.63

followed by 25.40 per cent of them had medium level of risk orientation. None of the respondent had low level of risk orientation. Savita (1999) also found similar findings in her study. Regarding scientific orientation findings indicate that majority of the respondents (97.62%) had high level of scientific orientation, followed by 1.59 per cent of them had medium level scientific orientation and only 0.79 per cent of respondents had low level of scientific orientation.

### Perception of farmers regarding SRI technology

The findings regarding farmer's perception towards SRI method present in table 3. The data shows that majority of farmers (77.77%) perceived that SRI method is better than traditional system of rice cultivation followed by 69.04 per cent of them perceived that SRI method required additional investment, 65.87 per cent of farmers perceived that it is labor intensive technique, 63.50 per cent of farmers perceived that SRI method provide maximum yield, 62 per cent of farmers perceived that it is a simple process and 46.82 per cent of them perceived that SRI method is a specialized process.

### Motivational factors for knowledge up gradation of farmers towards SRI method

The findings regarding motivational factors for knowledge up gradation towards SRI method are presented in table 4. The findings revealed that in the study area, majority of the respondents (75.39%) had found information regarding SRI method from Rural Agriculture Extension Officer (RAEO). The study also revealed that 60.31 per cent of the respondents had obtained the information from friends, followed by 48.41 per cent of respondents had obtained the information from T.V., 34.12 per cent had obtained the information from progressive farmer, 31.74 per cent of respondents obtained the information from neighbour, while 28.57 per

**Table 3 :** Perception of farmers towards SRI method.  
(n=126)

S. no.	Statements	Frequency	Percentage	Rank
1.	SRI method provide maximum yield	80	63.50%	IV
2.	SRI method is simple process	64	62.69%	V
3.	SRI method is specialized process	59	46.82%	VI
4.	SRI method is better than traditional system of rice cultivation	98	77.77%	I
5.	It requires additional investment	87	69.04%	II
6.	It is labor intensive technique	83	65.87%	III

**Table 4 :** Motivational factors for knowledge up gradation of farmers towards SRI method.  
(n = 126)

S. no.	Source of information	Frequency*	Percentage	Ranks
1.	Friends	76	60.31	II
2.	Relatives	36	28.57	VI
3.	Neighbour	40	31.74	V
4.	Progressive farmer	43	34.12	IV
5.	Sarpanch	09	07.14	XIII
6.	Rural Agriculture Extension officer	95	75.39	I
7.	Agriculture Development Officer	13	10.31	X
8.	Agricultural Scientist	11	08.73	XII
9.	Agriculture Store	35	27.77	VIII
10.	News Papers	13	10.31	X
11.	Agriculture Magazines	06	04.76	XV
12.	Radio	07	05.55	XIV
13.	T.V.	61	48.41	III
14.	Farmers Fair	36	28.57	VII
15.	Exhibition	12	09.52	XI
16.	Training	09	07.14	XIII
17.	Farmers friend (Kishan mitra)	13	10.31	X

cent of the respondents had obtained the information regarding rice cultivation from relatives and farmer fair, 27.77 per cent of the respondents had obtained the information from agriculture store, followed by about 10.31 per cent of the respondents used ADO, news paper and Kisan mitra as source of information, 9.52 per cent exhibition, 8.73 per cent Agriculture scientist, 7.14 per cent Sarpanch, 5.55 per cent Radio and 4.76 per cent Agriculture Magazines

#### Credibility of motivational factors

The findings regarding credibility of motivational factors presented in table 5. The data shows that RAEO's found most credible motivational factors among all the motivational factors used for knowledge up gradation about SRI method followed by relatives, agriculture scientist, ADO's, friends, agriculture store, neighbor, training, progressive farmers, farmers friend, T.V, farmers fair, newspapers, exhibition, sarpanch, radio and agriculture magazines.

#### Knowledge about system of rice intensification (SRI) technology

The data regarding overall level of knowledge of respondents about system of rice intensification (SRI) technology are presented in table 6. The data clearly revealed that the majority of the respondents (80.16%) had high level of overall knowledge, followed by 17.16 per cent of them had medium level of knowledge and only 2.38 per cent of them had low level of overall knowledge. Vedpathak (2001) and Johnson and Vijayaragavan (2011) had found similar findings in his study.

#### Factors associated with adoption of SRI technology

The table 7 represent the factors associated with adoption of SRI technology. Correlation coefficient was worked out to identify the important factors associated with the adoption of SRI technology. The result compiled in table file shows that out of 6 identified factors, only knowledge about SRI technology possess positive and significant correlation with the adoption of SRI technology. It shows that knowledge about SRI technology plays important role in increasing the adoption of SRI technology, so we may suggest increasing knowledge about SRI technology for enhancing its adoption. Some other variables like annual income, attitude towards SRI and scientific orientation were also positive and significant correlation with 0.05 level of probability so we have also to consider these factors for increasing the adoption of SRI technology. Remaining two variables shows non-significant association with adoption of SRI technology.

**Table 5 :** Credibility of motivational factors for knowledge up gradation about SRI technology.

(n=126)

S. no.	Source of information	Credibility of motivational factors			
		Full	Partial	Credibility Index	Rank
1.	Relatives	60	16	53.97	II
2.	Friends	35	1	28.17	V
3.	Neighbour	20	20	23.81	VII
4.	Agriculture Development Officer	40	3	32.94	IV
5.	Sarpanch	1	9	4.37	XV
6.	Rural Agriculture Extension Officer	95	0	75.40	I
7.	Progressive farmer	13	0	10.32	IX
8.	T.V.	9	2	7.94	XI
9.	Agriculture Store	30	5	25.79	VI
10.	News Papers	3	10	6.35	XIII
11.	Agriculture Magazines	1	5	2.78	XVII
12.	Radio	3	4	3.97	XVI
13.	Agricultural Scientist	50	11	44.05	III
14.	Training	6	30	16.67	VIII
15.	Exhibition	2	10	5.56	XIV
16.	Farmers Fair	8	1	6.75	XII
17.	Farmers friend (Kishan mitra)	12	1	9.92	X

**Table 6 :** Distribution of respondents according to their overall level of knowledge about System of Rice Intensification (SRI) technology. (n = 126)

Level of knowledge	Frequency	Percentage
Low (Up to 33.33%)	03	02.38
Medium (33.34% – 66.66%)	22	17.46
High (Above 66.66%)	101	80.16
<b>Total</b>	<b>126</b>	<b>100</b>

**Table 7 :** Factors associated with adoption of SRI technology.

Variable	Correlation Coefficient 'r' value
X <sub>1</sub> Annual income	0.1706*
X <sub>2</sub> Attitude of farmers towards SRI	0.1540*
X <sub>3</sub> Risk orientation	0.0890
X <sub>4</sub> Sources of information	0.1440
X <sub>5</sub> Scientific Orientation	0.1792*
X <sub>6</sub> Knowledge about SRI technology	0.2836**

\*Significant at 0.05 level of probability.

\*\* Significant at 0.01 level of probability.

NE : Non-significant.

**Suggestions and recommendation**

1. Technology dissemination should be done using credible sources like RAEO's, agriculture scientist, ADO and training,

2. Knowledge up gradation is essential for technology adoption there for agriculture related information should be done participatory extension approach and
3. Seeing is believing and learning by doing principle should be followed for dissemination of innovation for which demonstration and training programme should be essentially organized.

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