The Pharma Innovation Journal 2022; SP-11(11): 1265-1268

www.ThePharmaJournal.com

The Pharma Innovation

ISSN (E): 2277-7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2022; SP-11(11): 1265-1268

www.thepharmajournal.com
Received: 28-09-2022
Accepted: 30-10-2022

Ajit Kumar Mallik
M.Sc. Student, Department of Agricultural Extension, Faculty of Agriculture, BCKV, Mohanpur, Nadia, West Bengal, India

Dr. Sagar Mondal
Professor, Department of Agricultural Extension, Faculty of Agriculture, BCKV, Mohanpur, Nadia, West Bengal, India

Dr. Aditya Kumar Malla
Guest Faculty, Department of Extension Education, College of Agriculture, OUAT, Sambalpur, Odisha, India

Corresponding Author:
Ajit Kumar Mallik
M.Sc. Student, Department of Agricultural Extension, Faculty of Agriculture, BCKV, Mohanpur, Nadia, West Bengal, India

Study some important problems and their measures perceived by the farmers in SRI method of rice cultivation in Bargarh district of Odisha

Ajit Kumar Mallik, Dr. Sagar Mondal and Dr. Aditya Kumar Malla

Abstract
Rice is not everything in India, but everything in most parts of India starts and ends with rice, from birth to death. SRI uses 25-50 percent more labour than conventional rice cultivation methods in the initial stages. Once farmers master the techniques of SRI, labour requirements will be reduced by about 10 percent. It is more resistant to biotic and abiotic stress beside drought. In the present study, ex post facto research design has been followed. The study was carried out in 4 villages of Bargarh district. The villages were Turunga, Haldipali, Sayaan and Birmal of Bargarh block. Multi stage random sampling technique was followed to select the sample for the study. Total respondents were 100. The ecological constraints for adoption of SRI method were found to be minimal and among which inadequate rainfall and poor soil condition perceived high constraints by 35% and 13% respectively by the farmers. The major constraints of the farmers regarding government policies were lack of insurance and lack of subsidy which was notified as very high constraints by 28% and 22% farmers. For the constraints due to input supply the labour force problem is the highest i.e. 68% very high constraint. Others are fewer constraints. In the social constraints the farmers perceived that the hesitation of family members to adopt new technology and traditionally adopted practice are low constraints i.e. 98% and 83% respectively. Among organizational constraints lack of effective supervision by extension worker is perceived as very high constraint by 32% farmers.35% of the farmers were having very high constraints in lack of crop insurance in rice cultivation from the economic factors. In the technological factors, 40% and 28% farmers of the study area perceived that lack of soil testing facility and inadequate training to farmers are very high constraints. So the agriculture department of the district may take necessary measures for training of the SRI farmers regarding the above areas for more adoption and better management of SRI method of rice cultivation.

Keywords: Ecological problems, government policy, input supply, social constraints, organisational constraints and technological constraints

1. Introduction
Rice provides 21 percent of Global human per capita energy and 15 percent of per capita protein. For thousands of years, farmers 'innovations and natural selection pressures like drought, submergence, flooding, and nutrient and biotic stresses led to a great diversity in rice ecosystems. In addition to the rich genetic diversity, each region adopted diverse cultivation practices to adapt to the local conditions. Culturally, rice is in separable from the lives of the people. India has the world's largest area devoted to rice cultivation, and it is the Second largest producer of rice after China. Over half of its rice area is irrigated, contributing 75 percent of the total production. Notably, this area also consumes 50- 60 percent of the nation's finite freshwater resources. Of the country's 1.15 billion inhabitants, 70 percent rely on rice for at least a third of their energy requirements. Rice area in India has fluctuated fairly stably around 43 million hectares during the last two decades, with a maximum rice area of 45.5 million hectares in 2008-2009.

The System of Rice Intensification improves yields with less water, less seed, and less chemical inputs than most conventional methods of rice cultivation. This means that the returns on inputs are higher, making the method potentially more profitable than most of the traditional methods. SRI improves the productivity of land, labour, water and capital used in rice cultivation. Proponents of SRI have reported that the average rice yield with SRI is double the current average yield and can be increased to the level of three to four times.

2. Material and Methods

In the present study, ex post facto research design has been followed because in ex post facto research design the events have taken place (cultivation of rice by SRI method) prior to undertaking the research. The study was carried out in 4 villages of Bargarh district. The villages were Turunga, Haldipali, Sayaan and Birmal of Bargarh block. While selecting the villages the focus was given on extent of adoption of farmers, the knowledge and the socio-economic gain that resulted in adoption of SRI method of rice cultivation by farming farmers. Multi stage random sampling technique was followed to select the sample for the study. The District and Block were selected purposively. Then random sampling procedure was adopted to select the Panchayats, Villages and respondents for the study. Total respondents were 100. For the present investigation pre-testing of the interview schedule has been done by 10 SRI farmers who have not been included as a respondent in the final study.

3. Result and Discussion

3.1 Ecological problems

In the context of diffusion and adoption of any innovation, members of social system don't adopt the very innovation as free agent without being influenced by the various factors existing in the immediate environment and outside their immediate environment. In addition to the specific characteristics of the said innovation, these factors may be situational in nature, may be personal, may be social or even agro-ecological, geographical and environmental in nature. All these factors together have interaction effects which in turn influence the individual. Whether accept or to reject the innovation, and use it and there or certain it for some time and then discontinuance it, after being disenchanted with or due to replacement by some other innovation. In the present study, some interest was shown by researchers to study the specific factors which are responsible for promoting the adoption of SRI method of rice cultivation.

That is why in this background, the following factors illuminated in the specific table are the result of the sincere investigation and will give clue about key factors associated with adoption of SRI method rice cultivation. Thus, the following identified factors are present at different values as given below table 1.

Table 1: Ecological problems hindering adoption of SRI method

(N=100)

Sl. No.	Factors	Very High		High		Low	
		F	%	F	%	F	%
1	Poor Soil condition	8	8	13	13	79	79
2	Unfavourable Climate	3	3	21	21	76	76
3	High Temperature	04	04	08	08	88	88
4	Inadequate Rainfall	02	02	35	35	63	63

From the above table ecology or environment is an important issue which always linked with any type of agricultural production programme in which rice cultivation in general and SRI method of rice cultivation is no exception. Against the specific item in ecological factors as revealed in the above table is observed that about 79% are in opinion that soil is a factor which is least responsible or facilitate or accountable in SRI method of rice cultivation. Similarly, about 76% of respondent consider climate as least responsible for their decision to adopt the innovation under consideration. Temperature is also considered least responsible factor by 88% of the rice growers for adopting SRI method. However, rainfall about 63% is least responsible for adoption of SRI method. The observation about statistical data depicted in above table grossly express one thing which is evidently clear that SRI method of rice cultivation is very much sensitive to ecological factor and accordingly the adoption made by so called adopters in the present study, our sample respondent because they didn't see any difference about decision, they would have taken in case of conventional method of cultivation.

3.2 Government policy

All short of developmental activities started initially with the initiatives at individual level on private basis, later such type activities were planned, developed, implemented, monitored and evaluated through government intervention. Gradually it was felt by all the stake holders of any type welfare or development activities or rural activities or activities related to agriculture. It is neither possible to do everything though public extension system nor through private extension system. Thus, the blending of the two is thought to be the ideal approach and hence everywhere we find programmes, implemented through public private partnership mode. Thus, we may logically conclude that all activities need patronization from government or support from government for its smooth implementation and ultimate success in achieving stated objective.

In the present study where adoption of SRI method of rice cultivation is in question, it is wise to see whether the existing plan and policies of the government are of some help in promoting and popularising SRI method of rice cultivation. In the present study researchers did attempt to see such type of catalylistic provision if any available to the potential rice growers from government side. The data so collected during the study is presented in table 2 given below:

Table 2: Government policy hindering adoption of SRI method

(N=100)

Sl. No.	System	Very High		High		Low	
		F	%	F	%	F	%
1	Lack of Incentives	12	12	38	38	50	50
2	Lack of Insurance	28	28	54	54	18	18
3	Lack of Subsidy	22	22	36	36	42	42
4	Problem of Procurement	8	8	53	53	39	39
5	Lack of Remunerative Price	15	15	43	43	42	42

It is quite encouraging to observe from above table, that some of the motivating package in form of incentive, insurance, subsidy, procurement guarantee and assurance for remunerative price are extended to all those rice growers adopting SRI method of rice cultivation. The data in the above table revealed that lack of incentive is responsible for adoption of SRI method of rice cultivation about 50% of sample respondent acknowledge it as a least responsible factor. Similarly majority of the respondent i.e. about 54% too acknowledge that lack of insurance is highly responsible for adoption of SRI method. On the other hand when lack of subsidy was taken into consideration about 42% are said that it is least responsible to motivate farmer for adopting SRI method of rice cultivation. In case of two packages like assure procurement and ensure remunerative price adopter vied it, highly responsible by 53% and 43% respondents respectively.

3.3 Input supply

For getting output supply of related input is a precondition everywhere irrespective of nature, time and subject and context in which the action is being taken. Input in the form of supply of quality of seed of choice able varieties, FYM, irrigation, herbicides, labour force and credit facilities are essential and item wise acknowledge as by the concern adopters as responsible factor presented in the following table (3)

Table 3: Input Supply hindering adoption of SRI method

(N=100)

Sl. No.	Input	Very High		High		Low	
		F	%	F	%	F	%
1	Input supply	18	18	24	24	58	58
2	Choice able variety	13	13	24	24	63	63
3	FYM	0	0	15	15	85	85
4	Manure / Compost	0	0	15	15	85	85
5	Irrigation	09	09	18	18	73	73
6	Herbicides	02	02	08	08	90	90
7	Labour force	68	68	21	21	11	11
8	Credit facility	12	12	75	75	13	13

From the above table, the most significant information embedded with the statistical data is reflected in the table. Speak about labour force as a very highly responsible factor by 68% of respondents and credit facility as highly responsible 75% of the respondent. However other significant data which draw our attention includes 85% of respondent who didn't consider FYM, manure/ compost, irrigation and herbicides are responsible factors and 73% and 90% respondent also did not consider input supply and choice able varieties as a factor responsible for adoption of SRI method of rice cultivation.

3.4 Social constraints

The social constraints are the constraints arise due to the present in the society. It depends on the people living in the society with whom the farmer has contact with. It matters in changing the mentality of the farmer towards the technology he adopts. Different social constraints and the frequency and percentage are given below.

Table 4: Social Constraints hindering adoption of SRI

(N=100)

Sl. No.	Statement	Very High		High		Low	
		F	%	F	%	F	%
1	Lack of awareness	11	11	24	24	75	75
2	Traditionally adopted practices	0	0	17	17	83	83
3	Labour requirement for SRI method	52	52	42	42	6	6
4	Low adoption by people	4	4	16	16	80	80
5	Hesitation of family members	0	0	2	2	98	98

The data in the above table revealed that lack of awareness in least responsible factor for adoption SRI method of rice cultivation about 75% of sample respondent. Similarly, 83% of respondents also consider as least responsible for their traditionally adopted practices to adopt the SRI method. Labour requirement for SRI method is highly responsible for adoption in SRI method rice cultivation i.e. 42%. In case of two packages like low adoption by people and hesitation of family vied it, least and partially by 80.0% and 98% respondents respectively.

3.5 Organisational constraints

The farmers depend on different organisations for cultivating rice in SRI method; the farmers depend for technology, different inputs and facilities for carrying cultivation in proper manner. These factors are needed to be proper for avoiding the constraints to the farmers. The organisational constraints faced by the farmers are shown in the table and frequency and percentage of the problem are mentioned.

Table 5: Organisational Constraints hindering adoption of SRI

(N=100)

Sl. No.	Statement	Very High		High		Low	
		F	%	F	%	F	%
1	Poor coordination and cooperation among farmers	0	0	8	8	92	92
2	Lack of proper market for produce	6	6	42	42	52	52
3	Lack of effective supervision by extension worker	32	32	44	44	34	34
4	Less supply of seed to the farmers	2	2	36	36	62	62
5	Not giving proper quality of seed notation to the farmers	13	13	56	56	31	31
6	Non-availability of production inputs in time	12	12	32	32	56	56

Here in the above table the data revealed that poor coordination and cooperation among farmers (92%) and lack of proper market produce (52%) with organizations are respectively least responsible in adoption of SRI method of rice cultivation. As speak about less supply of seed to the farmers and non-availability of production inputs in time are least responsible factor by (62%) and by (56%). However other significant data which draw our attention includes (44%) of respondents who consider lack of effective supervision by extension worker as highly responsible factors and (56%) respondents also considered not giving proper quality of seed notation to the farmers as a factor highly responsible for adoption of SRI method of rice cultivation.

3.6 Technological constraints

The technology holds an important role in rice production by SRI method. The proper technology needs to be available by the farmers cultivating rice by SRI method. The farmers need to have proper information of the technology by training, demonstration and different follow services. Different constraints, frequency and percentage are shown in the under table which has been observed from study area.

Table 6: Technological Constraints hindering adoption of SRI

(N=100)

Sl. No.	Input	Very High		High		Low	
		F	%	F	%	F	%
1	Inadequate training to farmers	28	28	34	34	38	38
2	Inadequate demonstration of SRI method with recommended technology	23	23	46	46	31	31
3	Inadequate follow services	25	25	36	36	39	39
4	Deficiency in technical knowledge about SRI with farmers	12	12	59	59	29	29
5	Lack of soil testing facility	40	40	34	34	36	36
6	Irregular contact of mass sources of information at village level	12	12	43	43	45	45
7	Lack of market intelligence	08	08	54	54	38	38
8	Less skilled labour about transplanting of SRI method	23	23	46	46	31	31

The data in the above table revealed that lack of soil testing facility ii responsible for adoption of SRI method of rice cultivation about 40% of sample respondent acknowledge it as a very highly responsible factor. Similarly, majority of the respondents i.e. about 46% too acknowledge that inadequate demonstration of SRI method with recommended technology is highly responsible for adoption of SRI method. On the other hand, when Inadequate training to farmers, Inadequate follow services, deficiency in technical knowledge about SRI with farmers, irregular contact of mass sources of information at village level, lack of market intelligence and less skilled labour about transplanting of SRI method were taken into consideration about 38%, 39%, 59%, 45%, 54% and 46% respectively are opined that these are partially responsible for adoption of SRI method of rice cultivation in the study area.

4. Summary and Conclusion

In this study various constraints are also taken into consideration and also, we tried to find out how these constraints hinder the adoption of SRI method of rice cultivation in study area.

The ecological constraints for adoption of SRI method were found to be minimal and among which inadequate rainfall and poor soil condition perceived high constraints by 35% and 13% respectively by the farmers. The major constraints of the farmers regarding government policies were lack of insurance and lack of subsidy which was notified as very high constraints by 28% and 22% farmers. For the constraints due to input supply the labour force problem is the highest i.e. 68% very high constraint. Others are fewer constraints.

In the social constraints the farmers perceived that the hesitation of family members to adopt new technology and traditionally adopted practice are low constraints i.e. 98% and 83% respectively. Among organizational constraints lack of effective supervision by extension worker is perceived as very high constraint by 32% farmers.35% of the farmers were having very high constraints in lack of crop insurance in rice cultivation from the economic factors. In the technological factors, 40% and 28% farmers of the study area perceived that lack of soil testing facility and inadequate training to farmers are very high constraints.

5. Acknowledgement

I owe my indebtedness and virtual veneration towards the Chairman of my advisory committee, respected Dr. SAGAR MONDAL, Prof. Department of Agricultural Extension, Faculty of Agriculture, B.C.K.V., Mohanpur for his constant inspiration and versed advice, sustained interest, constant encouragement, co-operative attitude, valuable guidance and constructive criticism. My working experience under him will always remain as unforgettable experience of my life. My thanks go in particular to Pragyan Paramita Jena and Aditya Kumar Malla with whom I started this work and many rounds of discussion on my work with them helped me a lot. I extended my heartfelt gratitude to my godly parents and family members for their endurance, constant encouragement and everlasting blessing throughout my course of study which acted as inspiration to my success and helped me in realizing my goal.

5. References

1. Agarwal PK, Kumar A. A socioeconomic study on pros and cons of SRI method of paddy cultivation in Ormanjhi block of Ranchi district, Jharkhand, India. Indian J Agric. Res. 2017;51(1):74-77.
2. Basavaraja H. Yield gaps and constraints in cotton production in Karnataka: An economic analysis. Ph. D. Thesis, University of Agricultural Sciences, Dharwad, 1988.
3. Devi K, Sita, Ponnarasi T. An Economic Analysis of Modern Rice Production Technology and Its Adoption Behaviour in Tamil Nadu. Agric. Econ. Res. Review. 2009;22:341-347.
4. Gundurao DS, Bisaliah S, Krishnaswamy HS. Technical change and efficiency gain in dryland agriculture: An economic study. Margin NCAER; c1985. p. 37-38.
5. Karki, Keshav Bahadur. Productivity and economic viability of rice under different planting pattern and age of seedlings through System of Rice Intensification (SRI). Tribhuvan University, Nepal; c2009. p. 107.
6. Meera S. E-Learning for SRI: Open and distance learning modules, powerpointe presentation for 2nd National SRI Symposium, Agartala, from Directorate of Rice Research, Indian Council for Agricultural Research, Hyderabad; c2007.
7. Minten B, Zeller M. eds. Beyond Market Liberalization: Welfare, Income Generation and Environmental Sustainability in Rural Madagascar. Burlington, VT: Ashgate; c2000.
8. Rajesh V, Thanunathan K. Effect of seedling age, number and spacing on yield and nutrient uptake of traditional Kambamchamba rice. Madras hric. J. 2003;90(1-3):47-49.
9. Rama Rao IVY. Estimation of Efficiency, Sustainability and Constraints in SRI (System of Rice Intensification) vis-a-vis Traditional Methods of Paddy Cultivation in North Coastal Zone of Andhra Pradesh. Agric. Econ. Res. Review. 2011;24:325-331.
10. Uphoff N. System of Rice Intensification (SRI) for enhancing the productivity of land labour and water. Agriculture Resource management. 2002;1(1):43-49.