"A Study on Utilization of Information Sources by System of Rice Intensification (SRI) Growers in Balaghat Block of District Balaghat (M.P.)"

THESIS

Submitted to the

Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur

In partial fulfilment of the requirements for
the degree of

MASTER OF SCIENCE

In

AGRICULTURE

(**AGRICULTURE EXTENSION)**

By

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CERTIFICATE - I

This is to certify that the thesis entitled, "**A study on utilization of information sources by System of Rice Intensification (SRI) growers in Balaghat block of district Balaghat (M.P.)**" submitted in partial fulfilment of the requirement for the degree of **MASTER OF SCIENCE IN AGRICULTURE (AGRICULTURE EXTENSION)** of the Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur is a record of the bonafide research work carried out by **Ms. Meenakshi Gabhane** under my guidance and supervision. The subject of the thesis has been approved by the Student's Advisory Committee and the Director of Instructions.

All the assistance and help received during the course of the investigation has been acknowledged by her.

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CERTIFICATE - I I

This is to certify that the thesis entitled, "**A study on utilization of information sources by System of Rice Intensification (SRI) growers in Balaghat block of district Balaghat (M.P.)**" submitted by **Ms. Meenakhsi Gabhane** to the J.N. Krishi Vishwa Vidyalaya, Jabalpur, in partial fulfilment of the requirements for the degree of **MASTER OF SCIENCE IN AGRICULTURE (AGRICULTURE EXTENSION)** in the **Department of Extension Education**, has been, after evaluation, approved by the External Examiner and by the Student's Advisory Committee after an oral examination of the same.

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Place: Jabalpur

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CURRICULUM VITAE

The author of this thesis Meenakshi Gabhane D/o Shri Radheshyam Gabhane, was born on 22th August, 1990 at Balaghat (M.P.). She passed the High School Examination in the year 2005 from Shri Dadawadi Jain School, Balaghat and passed the Higher Secondary School Examination from School of Excellence, Balaghat (M.P.) in the year 2007.

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* * *

DECLARATION AND UNDERTAKING BY THE CANDIDATE

I, Meenakshi Gabhane, D/o Shri Radheshyam Gabhane, certify that the work embodied in thesis entitled, “A study on utilization of information sources by System of Rice Intensification (SRI) growers in Balghat block of district Blaghat (M.P.)” is my own first hand bonafide work carried out by me under the guidance of Dr. M.K. Dubey at Department of Extension Education, College of Agriculture, JNKVV, Jabalpur during 2014.

The matter embodied in the thesis has not been submitted for the award of any other degree / diploma. Due credit has been made to all the assistance and help.

I undertake the complete responsibility that any act of misinterpretation, mistakes, errors of fact are entirely of my own.

I also abide myself with the decision taken by my advisor for the publication of material extracted from the thesis work and subsequent improvement, on mutually beneficial basis, provided the due credit is given, thereof.

(Meenakshi Gabhane)

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INTRODUCTION

The present era is the time of communication. Effective communication from different sources and channels are the essence of extension, which provides knowledge and information for rural people to modify their behaviour in the ways that provide sustainable benefits to them and to the society (Gunawardana*, et.al., 2005*). These communication technologies serve both as direct information channels to farmers and as indirect channels improving extension agents, agribusinesses and other intermediaries access to information resources. Most extension programmes have yet to effectively integrate information communication technology into systems for supporting extension staff and making information available to clients at the earliest *(*Galindo*,* 1994).

Normally the farmers receive the information through individual, group and mass approaches, which are always uses by maximum number of extension personnel in our country. In this way the extension personnel establish contact by visiting the fields or at the homes of the farmers for salving their problems. We can include in individual approach various methods viz., farm and home visit, result demonstration, official visit, telephone call, mobile call, personal or individual letter and agricultural clinics etc.

People with common interests and objectives and assembled at one place are called group. It is very difficult for the extension personnel to contact all the people individually so for his convenience sake, he meets the group by using method demonstration, tour, lecture, group discussion, seminar, symposium etc. are the group methods.

When any information is to be conveyed to a large number of people within short period of time there is need to contact the masses, it is called mass approach. In mass method the extension worker should speak and do those things for which there is least objection and for this contact should be made with the renowned farmer in advance. Extension literature,

circular letters, news papers, Radio, Doordarshan, farmer fairs and exhibitions are the different mass approaches methods.

The recent break-through in rice cultivation known as System of Rice Intensification (S.R.I.) method is one in such cases which may be considered as disembodied technology. The disembodied type of technical change is mainly due to improved management methods for increasing rice productivity with a comprehensive package of practices involving less requirement of seed, water, chemical fertilizers and pesticides.

The rapid dissemination of this system lies in the fact that it increases rice yields dramatically without requiring extra seeds, chemical, fertilizers or other external inputs. The SRI efficiency uses scarce land, labour, capital and water resources. Protects soil and groundwater from chemical pollution and is accessible to poor farmers.

The information source plays a key role in ensuring food security and sustainable agriculture. The radio, television, telephone, mass media, cinema, news paper, journals, magazines, group meeting, village level extension worker etc. are main source of information by creating socio information support system to identify the problem of the farmers so that the need based information through information sources may be provided and also to establish its utility among the farmers.

The present agricultural extension system, which is highly compartmentalized, has several inherent weaknesses. To meet the needs of “Information Hungry” farmers and educated women and youths mostly engaged in farming. The information is also a critical input and as important as other key inputs such as credit, seeds, fertilizers and water. Different sources and channels of agriculture information can play to meet out this requirement.

For keeping in view the factual position, the present study was undertaken with the following specific objective:

Objectives:

1. To know the profile of SRI growers.

2. To study the utilization pattern of different sources and channels of agriculture information used by SRI growers.
3. To assess the relationship between the profile of selected SRI growers with their utilization pattern of sources and channels.
4. To find out the problems faced by the paddy grower in adoption of SRI method and suggestions to overcome them.

Significance of the study:

The present investigation is an effort to know the utilization of information sources by SRI growers. Information plays an important role in the field of agricultural development by informing the farmers about new techniques in agriculture. They help to narrow the gap between research result and their application by the farmers. Farmers need latest information regarding the current researches. Latest varieties evolved, methods of fertilizer application, methods of seed treatment and seed inoculation, new technique of irrigation and new plant protection techniques etc.

Thus the study will explore the new way to reach out among the farming community through dissemination of useful information. This will also help to policy maker to make appropriate plans and policies for strengthening the farmers community with latest technology. The study would be useful to extension workers, administrators, communication experts, researchers and planners who are engaged in generating and disseminating improved SRI technology among paddy growers, looking to the effectiveness of SRI method of paddy cultivation.

Limitations of the study:

1. The study was only confined to the Balaghat district of Madhya Pradesh.
2. Due to lack of time and resources, it was not possible to cover large area in the study. Therefore, the data were based on the sample of 120 respondents.
3. Due to limited time and resources, the variables age, socio-economic status, economic motivation, scientific orientation, market

orientation, knowledge level, adoption level, attitude towards SRI method, irrigation status, annual income, production and utilization of information sources were measured by putting direct questions to each respondents.

4. The study was carried on limited number of respondents (SRI growers). Hence the findings may not be generalized and the results may be applicable to the research area only.

Organization of the study:

The study is organized into six chapters. The first chapter of the study deals with introduction, objectives, significance and limitation of the study. Review of literature has been discussed in second chapter. The third chapter describes the research methodology and concepts, sample, data collection. The fourth chapter deals with analysis and interpretation of data. The findings along with discussions are discussed in chapter five and chapter six summarizes the findings and implications of the study.

*** * ***

REVIEW OF LITERATURE

This chapter presents the findings of the past research works related to the present problem by going through the professional research journals, articles, documents, approved thesis, books and magazines in order to keep up-to-date information which are presented in following sub heads:

2.1 Profile of SRI growers.

2.2 Utilization pattern of different sources and channels of agriculture information used by SRI growers.

2.3 Relationship between the profile of selected SRI growers with their utilization pattern of sources and channels.

2.4 Problems faced by the paddy growers in adoption of SRI method and suggestions to overcome them.

2.1 Profile of SRI growers:

1. Socio-personal and economic profile of SRI growers:

2.1.1. Age:

Singh (2000) revealed that forty per cent (40%) of the paddy growers belonged to the middle age group.

Chandra *et al*. (2002) observed that more than fifty per cent (50%) of the farmers growing paddy belonged to the middle age group.

Verma and Jana (2004) found that half of the paddy growers belonged to the middle age group.

Riyajuddin (2005) in his study revealed that 43 per cent online service users were belonged to middle age group.

Adhikari (2007) revealed that majority of rice growers were from middle age group.

2.1.2 socio-economic status:

Sen (2008) observed independence between socio-economic status level and extent of knowledge regarding to agriculture information technological programme broadcasted through AIR.

Shivhare (2008) reported in his study a significant association between socio economic status and effect on different communication channels on awareness.

Patidar (2010) reported that socio-economic status of paddy growers had positive and significant association with their utility perception tends to lead the rejection of null hypothesis that there is no association between socio-economic status of the paddy growers and their utility perception regarding ICT sources.

2.1.3 Economic motivation:

Khan (2004) concluded in his study of communication gap that highest number of respondents had medium economic motivation.

Verma (2009) reported that majority of the cotton growers (50.83%) had medium economic motivation.

2.1.4 Scientific orientation:

Patel (2000) found that scientific orientation had significant and positive relationship with adoption of improved paddy production technology.

Nagaraja (2002) in his study stated that majority (67.08%) of the respondents had medium level of scientific orientation respect of improved package of agricultural practices. The high level of scientific orientation was seen in 22.08 per cent of the respondents, whereas only 10.83 per cent of the respondents had low level scientific orientation.

Maraddi (2006) concluded that 46.11 per cent were found in medium scientific orientation category, followed by 35.56 per cent in low category and only 18.33 per cent were in high category.

Chauhan (2012) reported that the high level of scientific orientation was observed with 85 per cent of sugarcane growers followed by 15 per cent had medium scientific orientation.

2.1.5. Market orientation:

Mandloi (2007) found that higher percentage of respondents belonged to low market orientation.

Jain (2008) found that higher percentage of respondents belonged to medium market orientation.

Dhakad (2009) revealed that higher percentage of respondents belong to low market orientation.

Samdariya (2011) concluded that the maximum farm women had medium market orientation.

2.1.6. Knowledge level:

Ratnakar and Reddy (1991) reported that more than half (53.1%) of the tribal farmers had low level of knowledge about recommended practices of paddy.

Chand (1994) found that the knowledge of farmers regarding seed treatments, green manuring and plant protection measures were very low knowledge regarding rice varieties both indigenous and high yielding varieties was good (54.9%), majority of the farmers (66%) had good knowledge about the recommended dose of fertilizers, weedicides, insecticides and various chemicals to control the important diseases of rice.

Ramesh *et al.* (1997) reported that more than half (57%) of the numbers of farmers had correct knowledge about seed rate, 58 per cent had knowledge about sowing time of nursery, 76 per cent had knowledge about chemical weed control, 79 per cent had knowledge about insects and 80 per cent had correct knowledge about disease control.

Kalyan and Singh (1999) concluded that 11.15 per cent of the small farmers had appropriate knowledge of recommended rice cultivation technology, 50 per cent in case of the medium farmers and 23.10 per cent in case of the large farmers.

Barman and Pathak (2000) reported that the majority of the farmers had adequate knowledge on production recommendation of paddy and that more than 50 per cent of the production recommendation of paddy was known to them. The knowledge on practices like seed treatment, weed control, diseases and insect pest management were much on the higher side.

Rahangdale (2011) founded that the knowledge level in the most of respondents (42.50%) had low knowledge level of SRI method of paddy cultivation.

2.1.7 Adoption level:

Lakpale and Kirar (1999) concluded that the adoption of scientific rice production technology in Balaghat was low. About 95 per cent of farmers in the district were not using improved varieties, 89 per cent of the farmers were not practicing seed treatment, 67 per cent of the farmers were transplanting rice in the late season (in August), 88 per cent of the farmers had adopted the transplanting method of rice cultivation, 41 per cent of the farmers had cited lack of resources as the main reason for non-adoption of improved production technology.

Jana (2000) reported that majority (63%) of the respondents had high level of adoption on cultivation of resistant varieties against insect pest

and diseases. They had medium level of adoption on diseases control after transplanting. It was found to be poor on wet seed treatment.

Ganesan and Seethalakshami (2002) revealed that majority of the paddy growers had highly adopted the recommended practices of IPM in paddy.

Tyagi *et al.* (2003) revealed that more than 50 per cent of paddy growers were poor to medium adoption of new improved practices of cultivating paddy like recommended varieties (59.29%), seed treatment (57.68%), chemical fertilizers (56.06%), weed control (55.59%), insects control (55.00%) and diseases control (54.29%).

Uphoff (2002) reported that the SRI system has been adopted in china and now various countries are also operating their rice cultivation under SRI system as the production has increased from 14 to 20 per cent over traditional system of cultivation across various countries from china to Gambia.

Bhatt (2005) concluded that majority of the farmers (69.69%) growing paddy had adopted the recommended varieties, 71.07 per cent adopted methods to control seed born diseases, but majority of the farmers did not adopt the recommended dose of fertilizers (67%), chemicals to control weeds (74.29%), insects control (76.48%) and diseases control (78.89%).

Singh *et al.* (2005) concluded that majority (85.6%) of the demonstration farmers were observed to have high adoption of the recommended practices of the improved paddy cultivation technology viz., the recommended indigenous and high yielding varieties (67%), seed treatment (72%), fertilizers application (60%), weed control (59%), insects control (71%) and diseases control (74%).

2.1.8 Attitude towards SRI method:

Singh *et al.* (2005) found that 94 per cent of the demonstration farmers and 25 per cent of the non demonstration farmers of the paddy growers had high level of attitude towards the recommended rice cultivation practices.

Karami *et al*. (2008) revealed that women rice growers' attitudes were more positive towards sustainability. A model was developed to explain farmers' attitudes and behaviour towards environment sustainability. Finally the determinates of sustainable agriculture attitude and behaviour are discussed.

Sadati *et al.* (2010) concluded that participation in extension courses, access to extension communication channels and level of literacy and land holding were the effective factor on farmers' attitude towards organic farming that explained 42 per cent of variances in the attitude index.

Singh *et al. (*2013) reported that level of attitude of wheat farmer was positively and significantly related with use of personal cosmopolite as well as localite communication channels.

2.1.9 Irrigation status:

Naik and Pradhan (2005) reported that the resource use efficiency on irrigate rice farms of Orissa particularly in respect to irrigation, fertilizer and area under high-yielding varieties and their impact on productivity. That the productivity of rice and food grains have declined by 6.97 per cent and 5.77 per cent during 1991-94 to 2001-04 in spite of 21 per cent increases in area under irrigation 89 per cent increases in application of fertilizer and 23 per cent increase in area under high-yielding paddy during the period.

Urmiladevi (2008) revealed that storage and harvesting were found that most needed and interested training areas by farm women with the highest rank of 2.58 and 2.34 mean square respectively while lowest rank of 1.50 average square was found for land preparation and irrigation.

Ravindra *et al.* (2011) reported that as opportunity to enhance to irrigation base for raising food production in the country are dwindling. India needs a more concerted effort to increases the efficiency andproductivity of its Irrigation system. This study based on an analysis of experience from the state of Andhra Pradesh, addresses the potential of

the SRI to contribute to systemic correction in present paddy cultivation both with regard to agronomic production and irrigation water use efficiency.

2.1.10 Annual income:

Gogai and Phukan (2000) found significant association with the extent of adoption. The highest percentage of non adoption belonged to middle and low income group respectively.

Chaudhary *et al.* (2001) found that annual income had highly significant and positive correlation with extent of adoption regarding improved rice technology.

Chauhan (2009) revealed in his study that majority (52.50%) of the respondents belonged to medium annual income.

Mawase (2010) reported that the net income increases with the increase in size of land holding in both SRI and non-SRI method of paddy cultivation. She further reported that there was marginal difference in educational level of SRI and non SRI method of sample respondents which shows that illiteracy may not considered as a constraints in adoption of SRI method of paddy cultivation.

Rahangdale (2011) reported that the maximum percentage (46.67%) of SRI growers had low income.

2.1.11 Production:

Stoop *et al.* (2002) reported that SRI works to improve the growth and function of rice plants root system and enhance the numbers and diversity of soil biota that contribute to the plant heaith and productivity.

Nissanka Bandara (2004) evaluated the productivity of System of Rice Intensification (SRI) method with conventional rice farming system in Sri Lanka. An experiment was carried out in the dry zone region during 2002 (Oct) to 2003(March) Maha season and a popular rice variety B.G.

358 (3.5 months duration) was used. Overall results suggested that the higher grain yield production in the SRI farming system may be attributed to the vigorous and healthy growth, development of more productive tillers and leaves ensuring greater resource utilization in SRI compared to conventional transplanting and broadcasting systems. Therefore, SRI farming systems could be introduced to small-scale rice farmers in Sri Lanka as a sustainable farming system.

Uprety (2004) reported that the average rice yield with SRI is 8t/Hac, whereas the yield is 3 t/ha under conventional paddy.

Udaykumar (2005) SRI method has recorded significantly higher seed yield/ha (2.94 t/ha) as compared to traditional method (2.37 t/ha). The per cent increase in seed yield per ha under SRI method was 20.25 over traditional method.

Johnson *et al.* (2011) concluded that the diffusion study of SRI at macro level revealed that unlike other states, the acceptance and spread of SRI was rapid in Tamil Nadu and Andhra Pradesh states of India. Majority of farmers felt SRI is a low cost and high yielding technology in rice production. Hence, it can be a sustainable alternative to conventional paddy production and can address the global issues like food security and poverty.

Rahangdale (2011) concluded that majority (51.67%) of SRI practicing farmers had medium production level. It might be due to the lack of knowledge of SRI method of paddy cultivation.

Chen song zheng (2013) revealed that the impacts of the SRI and conventional management on grain yield. Yield components and tillering capacity were examined under 4 rice establishment methods transplanting (TP), seedling castings (SC), mechanical transplanting (MT) and direct

seedling (DS). SRI produced significantly higher grain yield than CM under TP and MT but not under DS or SC.

2.2 Utilization pattern of different sources and channels of agriculture information used by SRI growers:

Galindo (1994) concluded that most extension programmes have yet to effectively integrate information communication technology into system for supporting extension staff and making information available to clients at the earliest.

Rathore (2000) reported that majority of the farmers (78.91%) were in the moderately information need category followed by the low information needed category (11.33%) and information needed (9.76%).

Kumar (2004) concluded that computers can play an important role in raising the agricultural production and productivity to a new level at minimum cost. Generally computers are believed to be used in the metropolitan cities only, however people in rural sector can benefit equally from the use of computers system and softwere for Indian languages. It is no more necessary to have English as only medium of interaction.

Gunawardana *et al.* (2005) reported that effective communication from different sources and channels are the essence of extension, which provides knowledge and information for rural people.

Sharma *et al.* (2007) assessed the impact of programme 'Farm school on AIR' broadcasted by All India Radio. The study was conducted on farmers who have registered to the study. It was found that the education level of the respondents affected the knowledge level of respondents.

Sen (2008) concluded that the majority of the respondents (46.67%) had medium level of usefulness regarding to ITC in agriculture 36.67 per cent low and 16.66 per cent if then high level of usefulness of ITC in agriculture. Hence, it may be concluded that the level of respondents about usefulness of ITC was medium to low.

Patidar (2010) revealed that majority of paddy growers using mobile regularly for receiving information followed by radio, television and Kisan call center.

Satish *et al.* (2012) founded that the extension contact and extension participation of the respondents was found to be medium majority of respondents belonged to low utilization group with respect to news paper and radio and high in television utilization. More than half of the respondents grew paddy alone in kharif. High percentage of respondents were practicing SRI method in an area of up to 0.51 acre.

Sidam *et al.* (2013) concluded that the lecture+ video show + flash card treatment was the most effective over five other communication treatments in terms of knowledge gain about raisin making technology by grape growers (n=120) in Latur district, Maharashtra, India.

Siddharth *et al.* (2001) revealed that large farmers received highest amount of farm information followed by small farmers and marginal farmers in decreasing order of information reception. Large farmers as they are in better off situation their access to different information channels were much higher in contrast to other categories of farmers. Moreover, as they were having large land holding with higher investment capacity seek more farm information in comparison to other categories of farmers.

Singh *et al.* (2013) reported that the agriculture supervisors, KVK scientists, progressive farmers and friends comes under personal localite channels. Radio and film show and print media comes under impersonal cosmopolite channels. It was also revealed in the study that adoption of seed technology, nitrogenous fertilizers and weedicides in wheat production was positively and significantly related with the communication behaviour of farmers.

2.3 Relationship between the profile of selected SRI growers with their utilization pattern of sources and channels:

Bhatt (2005) found that more than 50 per cent of the paddy farmers had regular discussion with extension agencies. He concluded that majority (67%) of them belonged to small farmers category.

Sivanagaraju (2006) reported that the average age of traditional paddy farmers and SRI paddy farmers was 41 to 37 years. This implied that relatively young farmers were involved in SRI method of paddy cultivation.

Kiradiya (2008) reported that age was found significantly correlated with their level of utility perception.

Krishna *et al*. (2008) conducted an investigation to evaluate the influence of SRI on seed yield and quality in rice was conducted at Agriculture Research Station (Paddy), Sirsi during rabi 2004-05. SRI method of paddy cultivation, application of FYM and RDF significantly increased the number of tillers. The application of FYM and RDF under SRI cultivation produces seed with better quality.

Sen (2008) reported highly significant association between age of respondent and extent of knowledge regarding Agriculture information Technological proggramme broadcasted through AIR.

Shivhare (2008) concluded in his study that size of land holding of banana growers was found significantly association with effect on different communication channels on awareness.

Chauhan (2009) reported that annual income of the viewers had non-significant correlation (r=0.146) with perception of viewers regarding Krishi Darshan programme of Doordarshan.

Patidar (2010) found that there was non significant association between size of family and utility perception of paddy growers in respect ICT.

Uikey *et al*. (2010) reported that age had non significant correlation with adoption of rice cultivation. He also revealed that socio-economic status had significant correlation with adoption.

Khan *et al*. (2013) found that characteristics of farmers such as age, education, farm size, contact with block supervisor, mass contact, cosmopoliteness, organizational participation and attitude towards Binasail had significant and positive relationship with their adoption of Binasail rice.

2.4 Problem faced by the paddy growers in adoption of SRI method and suggestions to overcome them:

Jana (2000) reported that high cost of plant protection chemicals (56%) followed by lack of technical guidance (53%) and adulteration in chemicals (18%) were the main problems in the adoption of recommended rice production technologies.

Tyagi *et al.* (2003) revealed that maximum paddy farmers had constraints regarding availability of good quality of seed, fertilizers, weedicides and pesticides in adoption of rice farming practices.

Ranikumar *et al*. (2004) reported that the constraints faced by the paddy growers were lack of proper guidance due to untrained staff, severe competition from neighboring states of the produce, lack of knowledge regarding pest and diseases control mechanism and lack of market information network.

Verma and Jana (2004) reported that more than 50 per cent of the paddy growers had constraints in seed treatment due to high cost of chemical and technical guidance, followed by felt-danger in handling of chemicals of insect-pests and diseases control.

Bhatt (2005) concluded that the constraints of the farmers growing paddy were no contact by extension agents (89.10%), no technical assistance (79.20%), no field trips (70.29%), lack of crop related training (54.40%) and non-availability of agricultural literature (49.50%).

Sivanagaraju (2006) reported that high labour requirement was observed to be the major constraints for SRI method than weed infestation was the second next constraint for practicing SRI method.

Rahangdale (2011) reported that inadequate supply of electricity, labours, are not available at the time of transplanting as major constraints in adoption of SRI method of paddy cultivation.

Suggestions:

Meshram (2009) found that the majority of rice growers suggest that the comprehensive demonstration of improved variety, maximum personal contact with agricultural functionaries, improved seed should be provided in time and sufficient quantity knowledge of rice production technology should be provided by the extension workers.

Rahangdale (2011) found that the paddy growers for adoption of SRI method of paddy cultivation were that to follow the guideline of extension workers and agriculture department, maximum personal contact with agriculture functionaries, demonstration should be conducted on farmers field by agriculture department, regular listening radio programme, visit of RAEO's should be regular, training camps for providing technological knowledge should be organized in time to time.

* * *

MATERIAL AND METHODS

This chapter deals with the methods and procedures designed for planning and conducting the research enquiry. It consists of following sub-parts:-

3.1 Sampling techniques used:

(a) Location of the study

(b) Selection of the block

(c) Selection of villages

(d) Selection of respondents

3.2 Research design

3.3 Variables, their operationalization and measurement

3.4 Instrument and method of data collection

3.5 Processing and statistical analysis of data

3.6 Validity and reliability of instrument

3.7 Derivation of hypotheses.

3.1 Sampling techniques used:

a) Location of the study:

The study was carried out in Balaghat district of M.P. The district is situated in the South-East corner of Jabalpur division. The district lies between latitude 21˚ 19' to 22˚ 24' North and longitude 79˚ 39' to 81˚ 3' East, on the North is bound by Mandla district, the East by Rajnandgaon district, and the South by Bhandara district of Maharashtra state and on the West by Seoni district.

Table 3.1: General features of agriculture in Balaghat block of Balaghat district

S. No.	Particulars	
1.	Geographical area (ha)	122219
2.	Total population of Balaghat district	740749
3.	No. of Gram Panchayat	77
4.	No. of villages	149
5.	Soil type	Clay loam, sandy loam
6.	Forest land (ha)	79731
7.	Net sown area (ha)	27090
8.	Total cropped area (ha)	34629
9.	Crop intensity (%)	128
10.	Area not available for cultivation (ha)	2154
11.	Average rainfall (mm)	1412
12.	Area under Kharif crop (ha)	26909
13.	Area under Rabi crop (ha)	7720
14.	Total irrigated area (ha)	14573
15.	Double cropped area (ha)	7539
16.	Area under irrigated paddy crop (ha)	13478
17.	Area under un-irrigated paddy crop (ha)	13433
18.	Total area under paddy crop (ha)	250000
19.	Total Area under SRI (ha)	60900
20.	Irrigation sources :-	
a.	Canals	8
b.	Wells	3960
c.	Dam	1
d.	Ponds	321

Source - Office of the Deputy Director, Kisan Kalyan Evam Krishi Vikas Deptt. of District Balaghat (M.P.), 2012-13.

b) Selection of block:

The Balaghat district comprises of 10 blocks, out of which the Balaghat block was selected purposively because it has the second position of the SRI method of paddy cultivation in area-wise. Therefore, Balaghat block was selected for the study.

Table 3.2 : Block-wise distribution of paddy area under SRI method

Blocks in Balaghat district	Area under paddy crop (in ha)	Area under SRI (in ha)	Productivity under SRI (kg)
Waraseoni	28000	5670	7000
Katangi	27000	7000	6000
Khairlanji	24600	3742	5000
Lalbarra	29100	6126	5000
Kirnapur	25900	5300	5200
Lanji	28000	6000	5000
Baihar	17000	7262	5000
Birsa	20900	6000	5000
Paraswada	20500	6800	5200
Balaghat	29000	7000	6000

Source - Office of the Deputy Director, Kisan Kalyan Evam Krishi Vikas Deptt. of District Balaghat (M.P.), 2012-13.

c) Selection of villages:

The Balaghat block comprises 149 villages, out of which 10 villages were selected on the basis of having maximum SRI growers. Thus, 120 farmers from each selected villages were included for the study.

d) Selection of respondents:

A list of SRI growers from each selected villages was prepared with the help of RAEOs. To make sample of 120 respondents for the present study the 28.00 per cent SRI growers from the total SRI growers in selected villages of Balaghat block through proportionate random sampling method.

Table 3.3: Selected villages and number of selected farmers of Balaghat block of Balaghat district (study area).

S. No.	Name of villages	Total SRI growers	No. of selected SRI growers
1.	Boda	30	8
2.	Naitra	25	7
3.	Tavejhari	35	10
4.	Khursodi	45	13
5.	Kolhwa	43	12
6.	Kumhari	60	17
7.	Kosmi	45	13
8.	Bagdarra	33	9
9.	Budbuda	50	14
10.	Pauniya	60	17
	Total	426	120

3.2 Research design:

The design of research is the most important and crucial aspect of research methodology. It is the entire process of planning and carrying out the research. To seek the answer of the research question, a descriptive research design was used in the investigation because it is a sort of fact-finding operation with adequate interpretation and states clearly the characteristics of a particular situation or group or individual.

Data collection method:

Data were collected by the researcher personally using pre-structured interview schedule.

3.3 Variables, their operationalization and measurement:

S. No.	Variables	Instrument of measurement
I	**Independent variables**	
(A)	**Socio-personal and economic variables :**	
1.	Age	Actual chronological age
2.	Socio-economic status	Scale of Trivedi and Pareek, 1963)
	a) Area under SRI	-do-
	b) Education	-do-
	c) Number of house/ House type	-do-
	d) Occupation	-do-
	e) Caste	-do-
	f) Farm power	-do-
	g) Material possession	-do-
	h) Family type and size	-do-
	i) Social participation	-do-
3.	Economic motivation	Scale of Supe and Singh (1969)
4.	Scientific orientation	-do-
5.	Market orientation	Self-scoring
6.	Knowledge level	Self-scoring
7.	Adoption level	Self-scoring
8.	Attitude towards SRI method	Self-scoring
9.	Irrigation status	Self-scoring
10.	Annual income	In Rupees
11.	Production	Kg/ha.
II	**Dependent variable :**	
	Utilization of information sources	Self Index Developed

Operational definition of variables:

A) Independent Variables:

1) Age:

It refers to the number of years an individual has completed at the time of investigation and was measured as per actual chronological age of the respondents. The category formulated were –

$$\text{Age category} = \frac{\text{Maximum age} - \text{Minimum age}}{\text{Number of categories}}$$

S. No.	Categories	Score
1.	Young age group (Up to 36 years)	1
2.	Middle age group (37 - 55 years)	2
3.	Old age group (56 years and above)	3

2) Socio-economic status:

It refers to the position of individual in society and it determined by various social and economic variables like area under SRI, education, house number/type, occupation, caste, farm power, material possession, family size/type and social participation. It was measured with the help of scale developed by Trivedi and Pareek (1963) with some slight modifications. On the basis of minimum and maximum scores obtained by individual SRI growers, the categories were formulated such as –

S. No.	Categories	Range
1.	Low	16- 40
2.	Medium	41- 64
3.	High	65 and above

Different socio-economic attributes:

(a) Area under SRI growers:

It refers to the size of land owned or lease-based cultivated by the respondents in hectares. Accordingly, the respondents were categorized as small, medium and large farmers.

S. No.	Categories	Range
1.	Small area	Below 2 ha
2.	Medium area	2-5 ha
3.	Large area	Above 5 ha

b) Education:

It refers to the ability or inability to read and write and the formal education obtained by the respondents, and the categories formulated were as follows:-

S No.	Categories	Scores
1.	Illiterate	1
2.	Up to Primary	2
3.	Up to Middle	3
4.	Up to High School	4
5.	Up to Higher Secondary	5
6.	Up to College	6

c) Number of House / House type:

(i) Number of House :

It refers to the number of houses owned by the respondent at the time of interview. Accordingly, the respondents were categorized as follows:-

S. No.	Categories	Scores
1.	One house	1
2.	Two houses	2
3.	More than two houses	3

(ii) House type:

House type refers to the structure and material used to construct the house, i.e. Kaccha, Mixed or Pacca. The scoring procedure was done on the basis of SES scale developed by Trivedi and Pareek (1963) and were given 1, 2 or 3 scores, respectively.

S. No.	Categories	Scores
1.	Kaccha	1
2.	Mixed	2
3.	Pacca	3

d) Occupation:

Occupation means the kind of work done by the respondents for earning their livelihood, i.e. the kind of work was taken through which the respondents earned their livelihood. Accordingly, the respondents were grouped into following categories :-

S. No.	Categories	Scores
1.	Cultivation	1
2.	Cultivation + labour	2
3.	Cultivation + business	3
4.	Cultivation + services	4

e) Caste:

It is the social category in which the members are assigned a permanent status with a given social hierarchy. The respondents were categorized on the following ways.

S. No.	Categories	Scores
1.	General	4
2.	Other backward classes	3
3.	Schedules Castes	2
4.	Schedules Tribes	1

f) Farm Power:

Farm power refers to the numbers of implements and farm power possessed by an individual and used in the farming. According to farm power, the respondents were grouped into three categories.

S. No.	Categories	Range
1.	Low farm power	2
2.	Medium farm power	4 – 6
3.	High farm power	6 and Above

g) Material possession:

It refers to the possession of household materials as possessed by the respondents. This is related to the economic status of the respondents. A list of item was prepared and the respondents were asked to mention the household assets possessed such as Bullock cart, cycle, radio, chairs, improved agriculture implements etc. On the basis of range of scores, the respondents were categorized into three groups, as follows :-

S. No.	Categories	Range
1.	Low	Up to 3
2.	Medium	4 – 5
3.	High	6 and above

h) Family type / Size:

(i) Family type:

Type of family included whether it is a joint or a nuclear family. It was measured with the help of scale developed by Trivedi and Pareek (1963), as follows :-

Nuclear family: This include families limited to husband, wife and their children.

Joint family : This include the families having great number of members living together and where individual earning and common mode of cooking were pooled together to run the family by family head. The categories were :-

S. No.	Categories	Scores
1.	Nuclear family	1
2.	Joint family	2

(ii) Family size:

It refers to the number of family members living together under one roof and having common mode of cooking and eating. According to the size of family, the respondents were categorized into three groups :-

S. No.	Categories	Range
1.	Small family size	Up to 4
2.	Medium family size	5 to 8
3.	Large family size	Above 8

i) Social participation:

For the purpose of study, the social participation was defined as the volume sharing in person to group relation beyond immediate household. The social participation was measured with the help of scale developed by Trivedi and Pareek (1963).

S. No.	Categories	Range
1.	Low	2 to 4
2.	Medium	5 to 6
3.	High	6 and above

3) Economic motivation:

It refers to occupational success in terms of profit maximization and the relative value on individual places on economic and it was measured with the help of "Economic Motivation scale" developed by Supe and Singh (1969). The scale consisted of six items, of which statement number six was negatively keyed. Responses were recorded on five point continuum as strongly agree, agree, undecided, disagree and strongly disagree and were given 7, 5, 4, 3 and 1 scores, respectively. The reverse scoring was used for negative statements. The total scores explains the degree of economic motivation of an individual. On the basis of minimum and maximum scores obtained by individual SRI growers, the categories were formulated as follows:-

S. No.	Categories	Range
1.	Low economic motivation	6 – 18
2.	Medium economic motivation	19 – 30
3.	High economic motivation	31 – 42

4) Scientific orientation:

It was operationalized as the degree to which a farmer was oriented to the use of scientific methods in decision making on farming and also

indicates the attitude of a respondent towards science. It was measured with the help of scale developed by Supe and Singh (1969). The scale consisted of six items, of which statement number six was negatively keyed. Responses were recorded on five point continuum as strongly agree, agree, undecided, disagree and strongly disagree and were given 7, 5, 4, 3 and 1 scores, respectively. The reverse scoring was used for negative statements. The total scores explains the degree of scientific orientation of an individual. On the basis minimum and maximum scores obtained by individual SRI growers, the categories were formulated as follows:-

S. No.	Categories	Range
1.	Low scientific orientation	6 – 18
2.	Medium scientific orientation	19 – 30
3.	High scientific orientation	31 – 42

5) Market orientation:

Market orientation refers to the SRI growers knowledge about marketing conditions, prices, expected demand, mode of transportation, grading etc. This variable was measured by an index comprised of six statements and answers obtained as Yes or No. Yes had two scores and No had one score. Maximum possible score was twelve and minimum was six. On the basis of minimum and maximum scores obtained by individual SRI growers, the categories were formulated such as -

S. No.	Categories	Range
1.	Low market orientation	6 – 8
2.	Medium market orientation	9 – 10
3.	High market orientation	11 – 12

6) Knowledge level:

It refers to the acquisition of information relating to the recommended technology of SRI in paddy cultivation by the respondents. It was measured in terms of scores and the responses were recorded on three –point continuum as completed, partial and nil knowledge. Scores were assigned to each question and were given 2, 1, and 0 scores, respectively. On the basis of range of scores, the respondents were categorized into low, medium, and high groups.

S. No.	Categories	Range
1.	Low knowledge	0 – 27
2.	Medium knowledge	28 – 53
3.	High knowledge	54 – 80

7) Level of Adoption:

It was operationalised as the extent to which an individual had actually used the recommended components of production practices. The components of each selected practices were also made comprehensively with the consultation of agricultural scientists. The responses were recorded on three-point continuum as complete, partial and nil adoption, and were given scores of 2, 1 and 0, respectively. The theoretical range of scores was from 0 to 80 in which the minimum possible score was worked out and it was assumed that a respondents could obtained a minimum score of 0. The obtained total scores indicate the degree of adoption of SRI practices. On the basis of minimum and maximum scores obtained by individual SRI growers, the categories were formulated such as -

S. No.	Categories	Range
1.	Low adoption	0 – 27
2.	Medium adoption	28 – 53
3.	High adoption	54 – 80

8) Attitude towards SRI method:

Attitude has been defined as the degree of positive or negative effect associated with some psychological object. Attitude in this study refers to the feeling and reaction of the farmers towards SRI method of paddy cultivation. The attitude of the farmers were measured with the help of scale developed by Singh (1990). The scores were given to statements for agree – 3, disagree – 2 and No thought – 1. On the basis of minimum and maximum scores obtained by individual SRI growers, the categories were formulated such as -

S. No.	Categories	Range
1.	Poor	18 – 30
2.	Moderate	31 – 42
3.	High	43 – 54

9) Irrigation status:

It refers to the source of irrigation available for farming such as well, tube well, canal, etc. to the SRI growers. It was measured as follows:-

S. No.	Categories	Score
1.	No source	0
2.	River	1
3.	Well/ tube well	2
4.	Canal	3

10) Annual income:

It refers to the annual income of the SRI growers in rupees earned through all the sources of occupation. On the basis of annual income, the respondents were classified into following three categories:

S. No.	Categories	Range
1.	Low annual income	Rs. 50000 – 200000/-
2.	Medium annual income	Rs. 200001 – 450000/-
3.	High annual income	Rs. 450001 - 700000/-

11) Production level:

It refers to the production level of paddy crop after using SRI method by an individual. It was operationalized as the yield of paddy per unit area of an individual grower and was measured in quintals per hectare. The categories were formulated on the basis of range of yield per hectares obtained by growers and average yield of size of land holdings. On the basis of production level scores, the respondents were placed in three categories:-

S. No.	Categories	Range
1.	Low production level	40 - 60 q.
2.	Medium production level	61 - 80 q.
3.	High production level	81 - 100 q.

B. Dependent variable:

Utilization of information sources:

It is operationally defined as different information sources used by the SRI growers for obtaining information regarding paddy cultivation. In the present study information sources, Friends, Neighbours, Relatives, etc. and group contact information sources, demonstration, meetings, group discussions, farmers day, etc. and mass contact information sources radio, television, internet, film shows, magazines, exhibitions, etc. were considered. For this measure a teacher-made scale was developed and it was measured on three point continuum as always, sometime and never

and scores 2, 1 and 0 were assigned, respectively. On the basis of actual score obtained by an individual, respondents were further categorized as follows-

S. No.	Categories	Range
1.	Low	0 – 18
2.	Medium	19 – 36
3.	High	37 – 54

3.4 Source, instrument, methods of data collection:

1) Source of data collection:

1.1 Primary data:

The respondents of the selected villages were the primary source of data collection. The primary data were collected personally by the researcher by interviewing the selected respondents with the help of structured and pre-tested interview schedule.

1.2 Secondary data:

The secondary data were collected from various government offices like District agriculture office, Tehsil office, Block Development Office, magazines and publications etc.

2) Instrument of data collection:

The primary data were collected with the help of interview schedule, which was prepared on the basis of objectives of the study. For the convenience of data collection, the interview schedule was prepared in Hindi. The interview schedule was pre-tested to a sample of 10 farmers in non-sampled area before the actual collection of the data.

The secondary data were obtained from Department of Agriculture, Balaghat and published journals and books.

3) Method of data collection:

The data were collected through a well-structured and pre- tested interview schedule. The researcher personally met the respondents and explained to them about the purpose of this study. The data were collected and recorded in the interview schedule.

3.5 Processing and statistical analysis of data:

Data collected were both qualitative as well as quantitative. The quantitative data has been interpreted in the form of degree of achievement like low, medium and high etc. and quantitative data were tabulated on the basis of approved categorization method as described earlier. The following statistical techniques were used in the study:-

1) Percentage
2) Mean
3) Standard deviation
4) Correlation of coefficient

1) Percentage:

The term 'percentage' means a fraction whose denomination is 100 and the numeration of the fraction is called percentage. For calculating percentage, frequency was multiplied by 100 and divided by total respondents.

$$P = \frac{X}{N} \times 100$$

Where,

P = Percentage

X = Frequency of respondents

N = Total number of respondents

2) Mean:

Mean was obtained by dividing the sum of the scores by the total number of respondents, according to the following formula –

$$\overline{X} = \frac{\sum_{i=1}^{n} Xi}{n} [i = 1,2,3,\ldots\ldots\ldots\ldots\ldots\ldots n]$$

Where,

$\overline{X}$ = Mean

$\sum Xi$ = Sum of all the pairs in a distribution

n = Total number of items involved.

3) Standard deviation:

Standard deviation is calculated by squaring the deviation of each observation from the mean, adding the squares, dividing by the number of observations and extracting the square root according the formula –

$$\pm = \sqrt{\frac{\sum (X_i^2) - (\overline{X})^2}{n}}$$

Where,

± = Standard deviation

n = number of cases

$\sum Xi$ = Sum of score mean

$\overline{X}$ = Arithmetic mean

4) Pearson's Product Movement Correlation Coefficient (r):

The correlation (r) is a measure of degree of closeness of the liner relationship between two variables. The statistics ' r ' has been used to find out the relationship between both independent and dependent variables and also among themselves (inter-relations). To calculate ' r ' following formula has been used :-

$$rxy = \frac{\sum xy - \frac{(\sum x)(\sum y)}{n}}{\sqrt{[\sum x^2 \frac{(\sum x^2)}{n}][\sum y^2 \frac{(\sum y)^2}{n}]}}$$

Where,

n = Number of respondents

x = Independent variables

y = Dependent variable

r = Correlation coefficient

$\sum xy$ = Sum of the product of x and y

$\sum x$ = Sum of independent variable

$\sum y$ = Sum of dependent variable

$\sum x^2$ = Sum of square independent variable

$\sum y^2$ = Sum of square dependent variable

$(\sum x)^2$ = Square of the summation of the independent variable

$(\sum y)^2$ = Square of the summation of the dependent variable.

3.6 Validity and reliability of the tool:

Validity refers to whether the data collection instrument measure what is supposed to measure. Validity of interview schedule for this study was maximized by taking the following steps:-

1. The interview schedule was thoroughly discussed with the members of the authority, advisory committee and their suggestions were incorporated.
2. Pre-testing of the interview schedule provided on additional check for improving the instrument.
3. The relevance of each question in terms of the objectives was checked carefully.

Reliability of an interview schedule refers to its consistency. It has been observed properly that the interview had reliability, before it was used as a data collection instrument.

3.7 Hypotheses of the study:

On the basis of objectives and variables taken into account, following null hypotheses were formulated for the study:-

1. There is no relationship between age of SRI growers and utilization of information sources.
2. There is no relationship between socio-economic status of SRI growers and utilization of information sources.
3. There is no relationship between economic motivation of SRI growers and utilization of information sources.
4. There is no relationship between scientific orientation of SRI growers and utilization of information sources.
5. There is no relationship between market orientation of SRI growers and utilization of information sources.
6. There is no relationship between knowledge level of SRI growers and utilization of information sources.
7. There is no relationship between adoption level of SRI growers and utilization of information sources.
8. There is no relationship between attitude towards SRI method and utilization of information sources.
9. There is no relationship between irrigation status of SRI growers and utilization of information sources.
10. There is no relationship between annual income of SRI growers and utilization of information sources.
11. There is no relationship between production level of SRI growers and utilization of information sources.

* * *

R E S U L T S

This chapter deals with the analysis and interpretation of collected data, which were collected from the sample of 120 SRI growers with reference to utilization of information sources through the presented structured schedule. Calculation was made on percentage basis. Mean, standard deviation and correlation were also applied. The data were processed keeping in view of the objectives of the study.

This chapter has been divided into the following sub-heads:-

(I) Profile of SRI growers.

(II) Utilization of different sources and channels of agriculture information used by SRI growers.

(III) Relationship between the profile of selected SRI growers with their utilization pattern of sources and channels.

(IV) Problem faced by the paddy growers in adoption of SRI method and suggestions to overcome them.

(I) Profile of SRI growers:

The profile of SRI growers of Balaghat district of Madhya Pradesh has been studied in terms of Socio- personal and economic variables.

Socio- personal and economic variables:

1. Age:

Table 4.1: Distribution of SRI growers according to their age

S. No.	Categories	Frequency	Percentage
1.	Young age group (Up to 36 years)	28	23.33
2.	Middle age group (37 – 55 years)	66	55.00
3.	Old age group (56 and above)	26	21.67
Total		120	100.00

The data presented in Table 4.1 indicate that out of the total SRI growers, 55.00 per cent belonged to middle age group, 23.33 per cent belonged to young age group and 21.67 per cent belonged to old age group.

Thus, it can be concluded that majority (55.00%) of SRI growers were middle age group (37 – 55 years age).

2. Socio- economic attributes:

Table 4.2: Distribution of SRI growers according to their socio- economic attributes

S. No.	Attributes	Categories	Frequency	Percentage
2.1	**Education**	1. Illiterate	10	8.33
		2. Up to Primary	28	23.33
		3. Up to Middle	21	17.50
		4. High School	27	22.50
		5. Higher Secondary	20	16.67
		6. College Level	14	11.67
		Total	**120**	**100.00**
2.2	**Caste**	1. General	22	18.33
		2. Other backward classes	50	41.67
		3. Scheduled Castes	31	25.83
		4.Scheduled Tribes	17	14.17
		Total	**120**	**100.00**
2.3	**Family type and size :**			
	Family type	1. Nuclear family	95	79.17
		2. Joint family	25	20.83
		Total	**120**	**100.00**

	Family size	1. Small	40	33.34
		2. Medium	55	45.83
		3. Large	25	20.83
		Total	**120**	**100.00**
2.4	**Type and number of house :**			
	House type	1. Kacha	72	60.00
		2. Mixed	38	31.67
		3. Puccka	10	8.33
		Total	**120**	**100.00**
	House No.	1. One	78	65.00
		2. Two	32	26.67
		3. More than Two	10	8.33
		Total	**120**	**100.00**
2.5	**Area under SRI**	1. Small	68	56.67
		2. Medium	42	35.00
		3. Large	10	8.33
		Total	**120**	**100.00**
2.6	**Occupation**	1. Cultivation	90	75.00
		2. Cultivation + labour	12	10.00
		3.Cultivation+business	10	8.40
		4.Cultivation+ services	08	6.60
		Total	**120**	**100.00**
2.7	**Farm power**	1. Low	75	62.50
		2. Medium	32	26.70
		3. High	13	10.80
		Total	**120**	**100.00**

2.8	**Material possession**	1. Low	40	33.30
		2. Medium	57	47.50
		3. High	23	19.20
		Total	**120**	**100.00**
2.9	**Social participation**	1. Low	48	40.00
		2. Medium	52	43.30
		3. High	20	16.67
		Total	**120**	**100.00**

The data in the Table 4.2 reveals that out of the total SRI growers, 8.33 per cent were illiterate, 23.33 per cent were up to primary, 17.5 per cent received up to middle, 22.50 per cent received education high school, 16.67 per cent were higher secondary level and 11.67 per cent were found educated up to college level. The data also revealed that out of the total SRI growers, 18.33 per cent belonged to general caste, 41.67 per cent were from other backward classes, 25.83 per cent were scheduled castes and 14.17 per cent were found from scheduled tribes category. Out of the total SRI growers, 79.15 per cent belonged to nuclear family type and 20.83 per cent respondents were from joint family. Out of the total SRI growers, 33.34 per cent were having small family size, whereas 45.83 per cent were having medium family size and 20.83 per cent were having large family size. The data in Table 4.2 also shows that out of the total SRI growers, 60 per cent were having kaccha house type, 31.67 per cent were having mixed house type and 8.33 per cent were having pacca house type. In case of number of houses, 65 per cent SRI growers were having one house, 26.67 per cent were having two houses and 8.33 per cent were having more than two houses. Out of the total SRI growers, 56.67 per cent were having small area under SRI, 55.00 per cent were having medium area under SRI and 8.33 per cent were having large area under SRI. In case of occupation, 75.00 per cent SRI growers were having cultivation as

their main occupation, 10.00 per cent had cultivation with labour, 8.40 per cent had cultivation with business, 6.60 per cent had cultivation with service. Out of total SRI growers, 62.50 per cent had low farm power, 26.70 per cent had medium farm power and 10.80 per cent had high farm power. In case of material possession, 33.30 per cent had low material possession, 47.50 per cent had medium and 19.20 per cent had high material possession. Out of the total SRI growers, 40.00 per cent had low social participation, 43.30 per cent had medium and 16.70 per cent had high social participation.

Thus, it may be inferred from the data that the higher percentage (23.33%) of SRI growers were having education up to primary level, higher percentage (41.67%) of SRI growers belonged to other backward classes, majority (79.15%) were having nuclear family type and higher percentage (45.83%) of SRI growers were having medium family size. It may be also concluded that majority (60%) of SRI growers had kaccha house type and 65 per cent were having one house. Majority (56.67%) of respondents were having small area under SRI, majority of SRI growers (75%) were following cultivation as their main occupation, and 62.50 per cent SRI growers had low farm power. It may be also concluded that higher percentage (47.50%) of respondents had medium material possession and maximum percentage (43.30%) of SRI growers had medium social participation.

3. Socio- economic status:

Table 4.3: Distribution of SRI growers according to their socio-economic status

S. No.	Categories	Frequency	Percentage
1.	Low (16 to 40 scores)	38	31.70
2.	Medium (41 to 64 scores)	60	50.00
3.	High (65 and above)	22	18.30
	Total	120	100.00

The data presented in table 4.3 that out of the total SRI growers, 50.00 per cent had medium socio-economic status, 31.70 per cent had low socio-economic status, whereas 18.30 per cent had high socio-economic status.

Thus, it may be concluded from the data that highest percentage (50.00%) of SRI growers had medium socio-economic status.

4. Economic motivation:

Table4.4:Distribution of SRI growers according to their economic motivation

S. No.	Categories	Frequency	Percentage
1.	Low (6 – 18 scores)	18	15.00
2.	Medium (19 – 30 scores)	69	57.50
3.	High (31 - 42 scores)	33	27.50
	Total	120	100.00

The data presented in table 4.4 revealed that out of the total SRI growers, 57.50 per cent had medium economic motivation, 27.50 per cent had high economic motivation and only 15.00 per cent had low economic motivation.

Thus, it may be concluded from the data that maximum (57.50%) of the SRI growers had medium economic motivation.

5. Scientific orientation:

Table 4.5:Distribution of SRI growers according to their scientific orientation

S. No.	Categories	Frequency	Percentage
1.	Low (6 – 18 scores)	25	20.84
2.	Medium (19 – 30 scores)	58	48.33
3.	High (31 – 42 scores)	37	30.83
	Total	120	100.00

The data presented in table 4.5 revealed that out of the total SRI growers, 48.33 per cent belonged to medium level of scientific orientation, 30.83 per cent had high scientific orientation and 20.84 per cent had low scientific orientation.

Thus, it may be concluded from the data that higher percentage (48.33%) of SRI growers had medium scientific orientation.

6. Market orientation:

Table 4.6: Distribution of SRI growers according to their market orientation

S. No.	Categories	Frequency	Percentage
1.	Low (6 – 8 scores)	17	14.17
2.	Medium (9 – 10 scores)	81	67.50
3.	High (11- 12 scores)	22	18.33
	Total	120	100.00

The data of table 4.6 indicate that out of the total SRI growers, 67.50 per cent had medium market orientation, 18.33 per cent had high market orientation and 14.17 per cent had low market orientation.

Therefore, it can be concluded that majority of SRI growers (67.50%) had medium market orientation.

7. Knowledge level:

Table 4.7: mean score of knowledge among SRI practicing farmers

S. No.	Technological components	Mean score	Rank
1.	Field management	11.79	II
2.	Fertilizer management	4.63	VI
3.	Seed and sowing management	20.02	I
4.	Irrigation management	3.98	VII
5.	Weed management	3.67	VIII
6.	Plant protection management	7.35	V
7.	Harvesting and threshing	10.50	IV
8.	Storage	11.45	III
	Overall mean $(\overline{X})$	9.17	

Table 4.7 indicates the mean scores obtained regarding knowledge level of respondents. It is obvious from the table that mean scores of various technological components of improved rice production was ranged from 20.02 to 3.67. This indicates that seed and sowing management and field management components were more important than other technological components to the SRI growers.

The technological components of rice production technology in which the SRI growers were having mean score higher than the overall mean were seed and sowing management as it had received first rank, followed by field management, storage and harvesting and threshing management. The technological components which have lower mean score than the overall mean were plant protection management which received fifth rank, followed by fertilizer management, irrigation management and weed management. Thus, it can be concluded that important technological components to the SRI growers were :

- ❖ Seed and sowing management
- ❖ Field management
- ❖ Storage
- ❖ Harvesting and threshing.

While the less important technological components to the respondents were-

- ➢ Plant protection management
- ➢ Fertilizer management
- ➢ Irrigation management
- ➢ Weed management

Table 4.8 : Distribution of SRI growers according to their knowledge level

S. No.	Categories	Frequency	Percentage
1.	Low (0 – 27 scores)	11	9.17
2.	Medium (28 -53 scores)	53	44.17
3.	High (54 – 80 scores)	56	46.66
	Total	120	100.00

The data presented in table 4.8 reveals that out of total SRI growers, 46.66 per cent had high knowledge level of SRI method of paddy cultivation, whereas 44.17 per cent had medium knowledge level and 9.17 per cent had low knowledge level of SRI method.

Thus it may be concluded that out of the total, maximum percentage (46.66%) had high knowledge level of SRI method of paddy cultivation.

8. Adoption level:

Table 4.9 : mean score of adoption among SRI practicing farmers

S. No.	Technological components	Mean score	Rank
1.	Field management	11.73	II
2.	Fertilizer management	4.44	VI
3.	Seed and sowing management	19.88	I
4.	Irrigation management	3.98	VII
5.	Weed management	3.49	VIII
6.	Plant protection management	6.99	V
7.	Harvesting and threshing management	9.56	IV
8.	Storage	10.34	III
	Overall mean $(\overline{X})$	8.80	

Table 4.9 shows the mean scores obtained regarding adoption level of SRI growers. It is clearly depicted in the table that the mean score of various technological components of improved rice production was ranged from 19.88 to 3.49. This indicates that seed and sowing management and field management were more important than other technological components to the SRI growers. The technological components of rice production technology in which the SRI growers having mean score higher than the overall mean were seed and sowing management as it had received first rank, followed by field management, storage and harvesting and threshing management. The technological components which have lower mean score than the overall mean were plant protection management which received fifth rank, followed by fertilizer management, irrigation management and weed management. Thus, it can be concluded that important technological components to the SRI growers were -

- ❖ Seed and sowing management
- ❖ Field management
- ❖ Storage
- ❖ Harvesting and threshing.

While the less important technological components to the respondents were-

- ➢ Plant protection management
- ➢ Fertilizer management
- ➢ Irrigation management
- ➢ Weed management.

Table 4.10 : Distribution of SRI growers according to their adoption level

S. No.	Categories	Frequency	Percentage
1.	Low (0 – 27 scores)	17	14.16
2.	Medium (28 – 53 scores)	49	40.84
3.	High (54 – 80 scores)	54	45.00
	Total	120	100.00

The data of table 4.10 revealed that out of the total SRI growers, 45 per cent had high adoption level of SRI method, while 40.84 per cent had medium adoption level, and 14.16 per cent had low adoption level.

Thus, it may be concluded that higher percentage (45.00%) of SRI growers had high adoption level of SRI method.

9. Attitude towards SRI method:

Table 4.11 : Distribution of SRI growers according to their attitude towards SRI method

S. No.	Categories	Frequency	Percentage
1.	Poor (18-30 scores)	23	19.17
2.	Moderate (31-42 scores)	24	20.00
3.	High (43-54 scores)	73	60.83
	Total	120	100.00

The data presented in table 4.11 revealed that out of the total SRI growers, 60.83 per cent belonged to high attitude towards SRI, 20.00 per cent had moderate attitude and 19.17 per cent had low attitude towards SRI method.

Thus, it may be concluded from the data that majority (60.83%) of SRI growers had high attitude towards SRI method.

10. Irrigation status:

Table 4.12 : Distribution of SRI growers according to their irrigation status

S. No.	Categories	Frequency	Percentage
1.	No source	0	0.00
2.	River	25	20.83
3.	Well / tube well	19	15.83
4.	Canal	76	63.34
	Total	120	100.00

The data presented in table 4.12 revealed that out of the total SRI growers, 63.34 per cent had canal for irrigation, 20.83 per cent had river for irrigation and, 15.83 per cent had well / tube well for irrigation.

Thus, it may be concluded that majority (63.34%) SRI growers had canal as a main source of irrigation.

11. Annual income:

Table 4.13 : Distribution of SRI growers according to their annual income

S. No.	Categories	Frequency	Percentage
1.	Low (Rs. 50000 – 200000)	72	60.00
2.	Medium (Rs. 200001 – 450000)	36	30.00
3.	High (Rs. 450001 – 700000)	12	10.00
	Total	120	100.00

The data presented in table 4.13 indicate that out of the total SRI growers, 60.00 per cent were found in low income group, 30.00 per cent were found in medium income group and 12.00 per cent were in high income group.

Thus, it can be concluded that the maximum SRI growers i.e. 60.00 % had low income (Rs. 50000-200000) from SRI method of paddy cultivation.

12. Production:

Table 4.14 : Distribution of SRI growers according to their production

S. No.	Categories	Frequency	Percentage
1.	Low (40 – 60 q)	14	11.67
2.	Medium (61 – 80 q)	66	55.00
3.	High (81 – 100 q)	40	33.33
	Total	120	100.00

The data of Table 4.14 revealed that out of total SRI growers, 55.00 per cent had medium production, while 33.33 per cent had high production and 11.67 per cent had low production of SRI method.

Thus, it may be concluded that majority (55.00%) SRI growers had medium production among SRI technology practicing farmers (61-80 q.).

II. Utilization of Information sources:

Table 4.15 : Distribution of SRI growers according to their utilization of information sources.

S. No.	Categories	Frequency	Percentage
1.	Low (0 – 18 scores)	20	16.67
2.	Medium (19– 36 scores)	36	30
3.	High (37 – 54 scores)	64	53.33
	Total	120	100.00

The data presented in Table 4.15 indicates the distribution of SRI growers according to their utilization of information sources with reference to SRI method. It has been revealed that out of total SRI growers, only 16.67 per cent had low utilization of information sources, followed by 30.00 per cent had medium and 53.33 per cent SRI growers had high utilization of information sources regarding SRI method.

Thus, it can be concluded that majority (53.33%) SRI growers had high utilization of information sources regarding SRI method of paddy cultivation.

Table 4.16 : Mean score of utilization of information sources with reference to SRI method

S. No.	Information source	Mean	Rank
A.	**Individual method**		
1.	Friends	1.73	II
2.	Relatives	1.43	V
3.	Neighbours	1.43	V
4.	Progressive farmers	1.50	IV
5.	Extension workers	1.73	II
6.	Local leader/ Gram Panchayat leader	1.50	IV
7.	Telephone call	0.33	XI
8.	Letters	0.33	XI
9.	Agril. Scientists	1.85	I
	Overall mean $(\overline{X})$	**1.31**	
B.	**Group method**		
10.	Demonstrations	1.85	I
11.	Meetings	1.31	VI
12.	Group discussions	1.27	VII
13.	Field days	1.31	VI
14.	Conferences	1.27	VII
15.	Field tours	1.18	VIII
16.	Trainings	1.68	III
17.	Lectures	1.68	III
18.	Seminars	1.43	V
	Overall mean $(\overline{X})$	**1.44**	

C.	**Mass method**		
19.	Radio	1.50	IV
20.	Television	1.68	III
21.	Newspaper	1.18	VIII
22.	Agril. Magazines	1.18	VIII
23.	Exhibitions/ farmers fair	0.88	IX
24.	Campaigns	0.88	IX
25.	Internet	0.33	XI
26.	Mobile	0.65	X
27.	Chart- posters	0.65	X
	Overall mean $(\overline{X})$	**0.99**	

Table 4.16 shows the mean scores obtained utilization of information sources with reference to SRI method. It is clearly depicted that the mean scores of various information sources were ranged from 1.85 to 0.33. This indicates that demonstrations and agricultural scientists were more important than other information sources to the SRI growers. The information sources of SRI technology which were having higher mean score than the overall mean were demonstrations and agricultural scientists (1.85) as they have received first rank, followed by friends and extension workers (1.73) as they received second rank, trainings, lectures and television (1.68) as they received third rank, whereas progressive farmers, radio and Gram Panchayat leader (1.50) received fourth rank. The information sources which have less mean scores than the overall mean were relatives, neighbors and seminars (1.43) as they received fifth rank, followed by meetings and field days (1.31) as they received sixth rank, whereas group discussion and conference (1.27) received seventh rank. Field tours, newspaper and agricultural magazines (1.18) as they have received eight rank. The very less important information sources which have lowest mean score than overall mean scores were exhibitions,

campaigns (0.88) which received ninth rank, whereas mobile and chart-posters received tenth rank. The information sources which received last rank were internet, telephone calls and letters.

Thus, it can be concluded that the most important information sources used by SRI growers were as follows :-

- ❖ Demonstrations
- ❖ Agricultural scientists
- ❖ Friends
- ❖ Extension workers
- ❖ Trainings
- ❖ Lectures
- ❖ Television
- ❖ Radio
- ❖ Progressive farmers
- ❖ Gram Panchayat leader

While less important information sources used by the respondents were :-

- ➢ Relatives
- ➢ Neighbors
- ➢ Seminars
- ➢ Meetings
- ➢ Field days
- ➢ Group discussion
- ➢ Conferences
- ➢ News papers
- ➢ Field tour
- ➢ Agricultural magazines.

Whereas the very less important information sources used by SRI growers were:-

- Exhibitions
- Campaigns
- Mobile
- Chart-posters
- Internet
- Telephone calls
- Letters.

Table 4.16 also shows that the overall mean score obtained from the individual method was 1.31, whereas overall mean score obtained from the group method was 1.44 and in the mass method it was found that the overall mean score was 0.99.

Thus, it can be concluded that most important method for the utilization of information sources which was highly utilized by SRI growers were as follows:-

1) Group method
2) Individual method
3) Mass method.

III. Relationship of SRI growers with their utilization of information sources:

Zero order correlation coefficient between 11 different variables and the utilization of information sources are given in Table 4.17.

Table 4.17: Relationship between profile of SRI growers and their utilization of information sources

S. No.	Independent variables (X)	Dependent variable (Y)
1.	Age	-0.056 ^{NS}
2.	Socio-economic status	0.322**
3.	Economic motivation	0.331**
4.	Scientific orientation	-0.003^{NS}
5.	Market orientation	0.097^{NS}
6.	Knowledge level	0.385**
7.	Adoption level	0.399**
8.	Attitude towards SRI	0.224*
9.	Irrigation status	0.129^{NS}
10.	Annual income	0.484**
11.	Production	0.276**

NS = Non- significant
*Significant at 0.05 level of probability
**Significant at 0.01 level of probability.

Zero order correlation coefficient between 11 different variables and the utilization of information sources (Table 4.17) revealed that the utilization of information sources with reference to SRI had positive and significant relationship with attitude towards SRI (X_8) at 0.05 level of probability.

In case of socio-economic status (X_2), economic motivation (X_3), knowledge level (X_6), adoption level (X_7), annual income (X_{10}) and production (X_{11}) of SRI growers were found to have positive and significant correlation with utilization of information sources at 0.01 level of probability.

Zero order correlation coefficient between 11 variables and utilization of information sources with reference to SRI indicate that the utilization of

information sources (Y) had positive and non-significant relationship with market orientation (X_5) and irrigation status (X_9), whereas age (X_1) and scientific orientation (X_4) showed negative and non-significant correlation with utilization of information sources with reference to SRI.

IV. Problems faced by paddy growers in adoption of SRI method and suggestions to overcome them.

Problems faced by paddy growers in adoption of SRI method:

Table 4.18:Problems reported by paddy growers in adoption of SRI method

S. No.	Problems	Frequency	Percentage	Rank
1.	Lack of complete knowledge about SRI method	76	63.33	X
2.	Inadequate supply of electricity	115	95.83	II
3.	Lack of co-operative societies in the village	95	79.16	VI
4.	High wedges of labour	70	58.33	XII
5.	High cost of weedicide	90	75.00	VII
6.	Labours are not available at the time of transplanting	120	100.00	I
7.	Irregular visit of RAEO's	80	66.66	IX
8.	Lack of fund to purchase agricultural input	75	65.50	XI
9.	Lack of irrigation resources	87	72.50	VIII
10.	Lack of appropriate knowledge about land preparation	98	81.66	V
11.	Lack of knowledge about improved seed	104	86.66	IV
12.	Lack of knowledge about insect and disease	105	87.50	III

The problems reported by the respondents in adoption of improved paddy production technology (SRI) are presented in table 4.18. It is evident from the data that the major problems as expressed by the paddy growers were high intervention of labour are not available at the time of transplanting (100%), followed by the inadequate supply of electricity (95.83%), lack of knowledge about insect and seed (87.50%), lack of knowledge about improved seed (86.66%), lack of appropriate knowledge about land preparation (81.66%), lack of co-operative societies in the village (79.16%), high cost of weedicides (75%), lack of irrigation resources (72.50%), irregular visit of RAEOs (66.66%), lack of complete knowledge about SRI method of paddy cultivation (63.33%), lack of fund to purchase agricultural input (62.50%) and high labour charges (58.33%).

Thus, overall respondents were reported the problems which they faced in adoption of SRI in paddy cultivation viz., labour are not available at the time of transplanting, electricity problem, lack of knowledge about insects and diseases, lack of appropriate knowledge about land preparation, lack of co-operative societies in the village, irregular visit of RAEOs, lack of knowledge about SRI method which minimize the adoption of SRI method and other improved production technology, whereas lack of awareness about interest and need were not much affected the adoption of improved rice production technology.

Suggestions:

The paddy growers reported the following suggestions in adoption of improved paddy production technology (SRI).

Table 4.19: Suggestions reported by paddy growers in adoption of SRI method of paddy cultivation

S. No.	Suggestions	Frequency	Percentage	Rank
1.	Knowledge of SRI should be provided by the extension workers	84	70.00%	V
2.	To follow the guideline of extension workers and agriculture department	120	100.00	I(a)
3.	Maximum personal contact with agricultural functionaries	120	100.00	I(b)
4.	Training camps for providing technological knowledge should be organized time to time	100	83.33	IV
5.	Visit of RAEOs should be regular	103	85.83	III
6.	Demonstration should be conducted on farmers field by agriculture department	120	100.00	I(c)
7.	Regular listening of radio programme/ TV programme	105	87.50	II
8.	Produce should be sold by government policy or cooperative societies to avoid the intervention of middlemen in the market	61	50.83	VII
9.	Field visit should be taken by ADOs at two times in a months	70	58.33	VI

The table 4.19 shows the suggestions offered by the paddy growers for the adoption of SRI method of paddy cultivation. Out of the total paddy growers, 100 per cent suggested to follow the guideline of extension workers and agriculture department, maximum personal contact with agriculture functionaries, demonstration should be conducted on farmers' field by agriculture department, 87.50 per cent suggested regular listening of radio programme, 85.83 per cent suggested that visit of RAEOs should

be regular, 83.33 per cent suggested training camps Training camps for providing technological knowledge should be organized time to time, 70.00 per cent suggested that knowledge of SRI should be provided by the extension workers, 58.33 per cent suggested that field visits should be taken by ADO at two times in a months and 50.83 per cent suggested produce should be sold by government policy or co-operative societies to avoid the intervention of middlemen in the market.

* * *

DISCUSSION

The findings of the present study, along with discussion are presented here for drawing out generalization in the following manner :-

5.1 Profile of SRI growers.

5.2 Utilization pattern of different sources and channels of agriculture information used by SRI growers.

5.3 The relationship between the profile of selected SRI growers with their utilization pattern of source and channels.

5.4 The problem faced by paddy growers in adoption of SRI method and suggestions to overcome them.

5.1 Profile of SRI growers:

The results of the present study showed that majority of SRI growers (55.00%) belonged to middle age group (37 to 55 years). The finding found support with the work of Singh (2000).

In case the socio-economic status of SRI growers, 50.00 per cent belonged to medium socio-economic status.

The study further depicted that the majority (57.50%) of SRI growers had medium economic motivation. This finding is similar to that of Khan (2004) Patidar (2005).

In case of scientific orientation, the study revealed that higher percentage of SRI growers (48.33%) had medium scientific orientation. This might be due to lack of proper reasoning about the scientific recommendation of production technology and other issues related to modern development related to rural environment. This finding is supported by Nagaraja (2002) and Maraddi (2006).

As regards the market orientation of SRI growers, majority (67.50%) belonged to medium market orientation. The findings of Jain (2008) and Samdariya (2011) support the present findings.

More than forty per cent (46.66%) SRI growers obtained high scores on knowledge of SRI practices and remaining percentage of growers had medium and low scores on knowledge. This might be due to low communicational contact that the farmers were in irregular touch with extension agencies and mass media exposure. The other possible reason might be low level of education.

The higher percentage of SRI growers (45.00%) obtained high adoption of SRI method of paddy cultivation. The present investigation confirmed the findings of Jana (2000).

In case of attitude towards SRI, majority (60.83%) of paddy growers had high attitude towards SRI. The work of Singh *et al*. (2005) is in support of the present finding.

The study depicted that in the case of irrigation source, the majority (63.33%) of SRI growers had only canal as the main source of irrigation.

As regard annual income, majority (60.00%) of respondents were having low annual income (Rs. 50000/- to Rs. 200000/-). The findings supported by Gogai and Phukan (2000).

In case of production the study revealed that majority (55.00%) of SRI growers had medium production (61 – 80 q.). It might be due to the lack of knowledge of SRI method of paddy cultivation. The present investigation confirmed the finding of Rahangdale (2011).

5.2 Utilization pattern of different sources and channels of agriculture information used by SRI growers:

In the present study, the utilization of information sources by SRI growers was measured on three-point continuum as always, sometimes and never.

The study concluded that the majority (53.33%) of SRI growers had high utilization of information sources, 30.00 per cent had medium utilization of information sources and 16.67 per cent had low utilization of information sources. This finding find support with the work of Satish *et al*. (2012).

5.3. Relationship between dependent and independent variables:

The variables like age, market orientation, scientific orientation and irrigation status were found to have non-significant relationship with utilization of information sources. Socio-economic status, economic motivation, attitude towards SRI, annual income, production, knowledge level and adoption level were found to have significant relationship with utilization of information sources.

The age of the respondents showed no significant relationship with utilization of information sources. Hence, the hypothesis Ho- 1 is accepted. The work of Uikey *et al.* (2010) confirm the present finding.

The study indicates that the socio-economic status had significant relationship with utilization of information sources. Hence, the hypothesis is Ho-2 is rejected. This finding finds support from the work of Uikey *et al.* (2010).

The economic motivation of respondents showed significant relationship with utilization of information sources. Hence, the hypothesis Ho-3 is rejected. The work of Rahangdale (2011) confirms the present finding.

The relationship between scientific orientation and utilization of information sources by SRI growers was found to be non-significant. Hence, the hypothesis Ho-4 is accepted.

The market orientation of SRI growers had non-significant relationship with utilization of information sources. Hence, the hypothesis Ho-5 is accepted.

The knowledge level of the respondents showed significant relationship with utilization of information sources. Thus, the hypothesis Ho-6 is rejected. This finding is supported by Rahangdale (2011).

The adoption level of the respondents showed significant relationship with the utilization of information sources. Thus, the hypothesis Ho-7 is rejected. This finding is supported by Rahangdale (2011).

The study indicates that the attitude towards SRI had significant relationship with utilization of information sources. Hence, the hypothesis Ho-8 is rejected. This finding finds support from the work of Khan *et al.* (2013).

The relationship between irrigation status and utilization of information sources by SRI growers found to be non-significant relationship. Hence, the hypothesis Ho-9 is accepted.

The study indicates that the annual income had significant relationship with utilization of information sources. Hence, the hypothesis Ho-10 is rejected. The finding finds support from the work of Chaudhary *et al.* (2001).

The production of SRI growers had significant relationship with utilization of information sources. Hence, the hypothesis Ho-11 is rejected.

5.4 Problems faced by paddy growers in adoption of SRI method and suggestions to overcome them:

1. Problems:

Majority of the paddy growers reported labours are not available at the time of transplanting as major problem in adoption of SRI method of paddy cultivation which received rank I, followed by inadequate supply of electricity, lack of knowledge about insect and disease, lack of knowledge about improved seeds, lack of appropriate knowledge about land preparation, lack of co-operative societies in village, high cost of weedicides, lack of irrigation sources, irregular visit of RAEOs, lack of complete knowledge about SRI method of paddy cultivation, lack of fund to purchase agricultural input and high labour charges. The work of Jana (2004) and Kohade (2004) confirm this finding.

2. Suggestions given by paddy growers in adoption of SRI technology:

The main suggestions given by paddy growers for adoption of SRI method of paddy cultivation were that to follow the guideline of extension

workers and agriculture department, maximum personal contact with agriculture functionaries, demonstration should be conducted on farmers field by agriculture department, regular listening of radio programme, visit of RAEOs should be regular, training camps for providing technological knowledge should be organized time to time, proper knowledge of SRI should be provided by extension workers, field visit should be taken by ADOs at two times in a month and produce should be sold by government policy or co-operative societies to avoid the intervention of middlemen in the market. The work of Meshram (2009) supports this finding.

* * *

SUMMARY, CONCLUSIONS AND SUGGESTIONS FOR FURTHER WORK

6.1. Summary:

The information sources play a key role in ensuring food security and sustainable agriculture. The demonstrations, agricultural scientists, friends, extension workers, trainings, television, radio, relatives etc. are the main sources of information by creating socio information support system to identify the problem of the farmers so that the need based information through information sources may be provided and also to established its utility among farmers there by resulting.

Rice is one of the most important and largest growing crop through out the country as a food grain. The ultimate success of any developmental programme depends on the extent to which the farmers adopt the new ideas and practices. The new system of rice cultivation (SRI) came in India in the year of 2003-04 in Andhra Pradesh at first. Due to adoption of this technology farmers are getting 25 – 50 per cent higher yield than traditional methods of paddy cultivation in the area. Hence, it becomes popular among the paddy cultivators in Andhra Pradesh. Balaghat division of M.P. is one of the important paddy growing region of Madhya Pradesh with a view to enhance economic benefit from paddy cultivation with the adoption of System of Rice Intensification method of paddy cultivation, the scientist of K.V.K. and all agriculture departments demonstrated this technology on the field of farmers. The present study “A study on utilization of information sources by System of Rice Intensification (SRI) growers in Balaghat block of District Balaghat (M.P.)” has been undertaken with the following specific objectives :-

1. To know the profile of SRI growers.
2. To study the utilization pattern of different sources and channels of agriculture information used by SRI growers.
3. To assess the relationship between the profile of selected SRI growers with their utilization pattern of sources and channels.

4. To find out the problems faced by the paddy growers in adoption of SRI method and suggestions to overcome them.

Brief methodology:

For fulfillment of these objectives, the study was conducted in Balaghat district. Out of ten blocks of district, Balaghat was purposively selected for study. The study was conducted in ten villages where the SRI method of paddy cultivation has been popularized among the paddy growers by KVK, Balaghat, through demonstration, trials, trainings and other extension activities. After the selection of villages, a village wise list of such farmers who were benefited from transfer of technology programmes of KVK concerned with SRI system of paddy cultivation was formulated and 12 paddy growers were selected with proportionate random sampling method to make a sample of 120 farmers who adopted the SRI method of paddy cultivation. The data were collected using survey method through a pre-tested interview schedule and responses were recorded. Collected data were then tabulated and analyzed using percentage, mean, rank order, correlation and standard deviation.

6.2 Conclusions:

The conclusions of the present study are presented here on the basis of objectives:

1. Profile of SRI growers:

As regards the profile of SRI growers are concerned, the finding of study can be summarized that majority of SRI growers (55.00%) belonged to middle age group (37-55 year).

In case of socio-personal and economic attributes, most of the respondents (50.00%) belonged to middle level of socio-economic status. More than 55 per cent of SRI growers had medium economic motivation and medium level of scientific orientation, above 60.00 per cent of SRI growers had medium market orientation.

More than 45 per cent of the SRI growers secured high knowledge level and high percentage of adoption level. More than 60 per cent of SRI

growers were having high attitude towards SRI method, nearly three-fourth (70.00%) of SRI growers were having medium irrigation status, 60.00 per cent of the respondents were having low annual income (Rs.50000/- to 200000/-). In relation to the production level of SRI growers, it was found that the majority of the SRI growers had medium production level (61 to 80 q.).

2. Utilization pattern of different sources and channels of agricultural information used by SRI growers:

In relation to the utilization of information sources by SRI growers it was found that majority of SRI growers were having high utilization of information sources.

3. Relationship between the profile of selected SRI growers with their utilization pattern of sources and channels:

Relationship between socio-economic status, economic motivation, attitude towards SRI, annual income, production, knowledge level and adoption level of SRI growers had significant relationship with utilization of information sources, while age, scientific orientation, market orientation and irrigation status of SRI growers were found to be non-significant relationship with utilization of information sources.

4. Problems faced by paddy growers in adoption of SRI method and suggestions to overcome them :

The major problems reported by the paddy growers were labours are not available at the time of transplanting as major problem in adoption of SRI method of paddy cultivation which received rank I, followed by inadequate supply of electricity, lack of knowledge about insect and disease, lack of knowledge about improved seed and lack of appropriate knowledge about land preparation.

Similarly, the main suggestions given by paddy growers for adoption of SRI method of paddy cultivation were that to follow the guideline of extension workers and agriculture department, maximum personal contact with agriculture functionaries, demonstration should be conducted on farmers' field by agriculture department, regular listening of radio programme, visit of RAEOs should be regular.

6.3 Suggestions for further research work:

The following suggestions are proposed for further research work:

Similar studies may be conducted in the paddy zone area to verify the present findings by considering following points –

1. A separate study on assessment to knowledge and adoption components of SRI system of paddy cultivation should be conducted.
2. Assessment of adoption gap of paddy growers.
3. Assessment of problems in adoption of recommended components of SRI system.
4. The further study should be planned according to situational and infrastructure variables.
5. The investigator should collect the data after establishing the rapport with the SRI growers and must verify from the needed secondary data of office record from the concerned departments, cooperative societies and input dealers.

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5	भााला विकास समिति	
6	स्व सहायता समूह	
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dekd	dFku	lk.kr% lger	lger	vfuf'pr	vlger	lk.kr% vlger
1	किसान को धान की खेती मे मेडागास्कर विधी को अपनाना चाहिऐ जिससे अधिक से अधिक लाभ व उत्पादन मिले ।					
2	किसान को आर्थिक लाभ देने वाली धान की प्रजाति फसल उगाना चाहिए बजाये घरेलू उपयोग मे आने वाली फसल के ।					
3	किसान को धान की खेती मे ऐसा काम करना चाहिऐ जिससे अधिक से अधिक उत्पादन मिले					
4	एक सफल किसान वही है जो धान की फसल से अधिकतम लाभ प्राप्त करता है।					
5	किसान को अधिक लाभ के लिये धान की फसल मे कोई भी नये कृषि विचारो के साथ –साथ मेडागास्कर पद्धति का उपयोग ज्यादा से ज्यादा करना चाहिए।					
6	किसान नि चित रूप से जीविकोपार्जन के लिये कमाये किंतु जीवन को मात्र आर्थिक बातो तक सीमित नही किया जा सकता है।					

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dekd	dFku	Ik.krk% lger	lger	vfuf'pr	vlger	Ik.kr% vlger
1	धान की पुरानी विधिओ की अपेक्षा धान की मेडागास्कर विधि से अच्छे परिणाम प्राप्त होते है।					
2	किसान के पास अधिक अनुभव होने पर ही उसे नई कृषि विधिओ का उपयोग करना चाहिए।					
3	यदि नई विधि सीखने मे समय लगता है तो उसे उसके लिये प्रयास करना चाहिए।					
4	एक अच्छा किसान नई विधिओ को प्रयोग कृषि मे करता है					
5	किसान के जीवन स्तर मे सुधार के लिये खेती की विधिओ मे परिवर्तन करना आव यक है					
6	किस विधि से किसान के पूर्वज खेती करते थें वह आज की अपेक्षा अच्छी थी।					

5 ckt kj fnXn"kZu

dekd	dFku	gk	ugh
1	क्या आपको धान बेचने के लिये पास मे बाजार उपलब्ध है		
2	क्या आप धान के बाजार भावो को ध्यान मे रखकर धान उत्पादन करते हैं		
3	क्या आपके पास समुचित भंडारन सुविधा उपलब्ध हैं		
4	क्या आपके पास धान को बाजार ले जाने हेतु समुचित परिवहन व्यवस्था ळें		
5	क्या आपको धान के सही मूल्यो की जानकारी रहती है		
6	क्या आप श्रेणी मुक्त उत्पादन बाजार में ले जाते है		

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	ugh	vkaf'kd	iw.kZ	ugh	vkaf'kd	iw.kZ
कृपया बताइये क्या आप जानते है कि धान की मेडागास्कर पद्धति से धान लगाने के लिये अच्छी जल निकासवाली भूमि का उपयोग करना चाहिए ।						
क्या आप जानते है कि धान की अधिक पैदावार लेने के लिये भूमि की 2 से 3 बार जुताई करना चाहिए ।						
क्या आप जानते है कि गर्मियो मे खेत की गहरी जुताई करनी चाहिए						
क्या आप जानते है कि मेडागास्कर पद्धति मे मृदा समतल होना चाहिए।						
क्या आप जानते है कि धान की मेडागास्कर पद्धति को अपनाकर मृदा उर्वरक शक्ति को बनाये रख सकते है यदि हम इसमे कार्बनिक पदार्थ का प्रयोग करेंगे।						
क्या आप जानते है कि मृदा की हल से जुताई करने के बाद उसे बख्खर से समतल कर लेना चाहिए ।						

[kkn·; i:c/ku						
कृपया बताइये कि धान की खेती के लिये गोबर की खाद का उपयोग करना चाहिए ।						
कृपया बताइये कि मेडागास्कर पद्धति से धान उगाने पर भी हरी खाद का उपयोग कर सकते हैं						
क्या आप जानते है कि धान मे 80.: 50: 30 अंक के अनुपात मे एन.पी.के. रसायनिक खाद का उपयोग करना चाहिए।						
बीज एवं बुआई तथा पौध रोपण प्रबंधन						
मेडागास्कर पद्धति से धान उगाने के लिये अलग से नर्सरी तैयार करते है ।						
कृपया बताइये कि आप नर्सरी को मुख्य खेत के पास बनाते है						
क्या आप जानते है कि एक एकड़ के लिये नर्सरी का आकार 400 वर्गफुट होता है ।						
कृपया बताईये कि एक एकड़ मे धान लगाने के लिये 2 किग्रा बीज पर्याप्त है।						
क्या आप जानते है बीज को नर्सरी मे बोने कि लिये उसे 12 घंटे तक पानी मे भिगोने के बाद ही बोना चाहिए।						
क्या आप जानते है कि बीज को नर्सरी मे बोने के बाद उस पर पतली परत अच्छी तरह से सड़ी हुयी गोबर की खाद डालना चाहिए।						
क्या आप जानते है कि नर्सरी मे सुबह शाम दोनो समय पानी देते रहना चाहिए।						
क्या आप जानते है कि धान की पौधे नर्सरी 8–12 दिन की हो जाये तो उसे मुख्य खेत मे लगा देना चाहिए।						
क्या आप जानते है कि पौधे–पौधे एवं कतार–कतार की दूरी 25– 25 सेमी रखते है।						
क्या आप जानते है कि पौध को नर्सरी से निकालने के 15 से 30 मिनिट के अंदर ही उसे मुख्य खेत मे लगा देना चाहिए।						
क्या आप जानते है कि मुख्य खेत मे एक स्थान पर एक ही पौध लगाना चाहिए।						
क्या आप जानते है कि पौध को खेत मे 1 से 2 सेमी की गहराई पर लगाना चाहिए।						
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क्या आप जानते कि मेडागास्कर पद्धति से धान की रोपाई करने पर इसमे कम पानी की आवश्यकता होती है।						
क्या आप जानते है कि धान मे फली फूटने के बाद 1 इंच पानी भर कर रखना चाहिए।						

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क्या आप जानते है कि धान की फसल मे नींदा नियंत्रण हाथ से निंदाई, खुरपी या निंदा नाशको आदि विधियो द्वारा करते है।						
क्या आप जानते है कि धान की फसल मे खरपतवार नियंत्रण के लिये 2, 4 डी 500 से 750 ग्राम प्रति हेक्टे. रोपाई के 20 से 25 दिन बाद फिनाक्सप्राप ईथाईल 60 ग्राम प्रति हेक्टे रोपाई के 25 से 30 दिन बाद प्रयोग करना चाहिए।						
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क्या आप जानते है कि अधिक दूरी और कार्बनिक खाद का उपयोग करने से कीड़ो और बीमारियो का प्रकोप कम होता है।						
क्या आपको धान की फसल मे लगने वाले प्रमुख कीट तना छेदक, पत्ती लपेटक,गंधी कीट आदि की जानकारी है।						
क्या आपको धान की फसल मे एकीकृत कीट नियंत्रण शस्य क्रियाये प्रकाश प्रपंच, जैविक नियंत्रण, रसायनिक नियंत्रण, फेरोमन आदि का उपयोग करके कीट नियंत्रण की जानकारी है।						
क्या आप जानते है कि धान मे जैविक कीट नियंत्रण करते है, एनपीवी वायरस, ट्राईकोडरमा आदि का उपयोग करके।						
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क्या आप जानते है धान की फसल मे पकने का अनुमानित समय बालियो की 80 प्रति ात परिपक्वता होता है ।						
क्या आप जानते है कि धान की फसल मे कटाई हाथ से हसिया द्वारा की जा सकती है।						
क्या आप जानते है कि धान की फसल मे कटाई कम्बाईन हार्वेसटर द्वारा की जा सकती है।						
क्या आप जानते कि धान की फसल मे गहाई निम्न यंत्र से कर सकते है– थ्रेसर द्वारा बैल द्वारा हाथो से पटक कर						
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क्या आप जानते है कि धान की फसल मे भंडारण की निम्न विधि प्रयोग करते है– टीन की कोठी में प्लासटिक के बैग में जूट के बैग में जमीन के अंदर कोठी बनाकर						
क्या आप जानते है कि धान की फसल को भंडारित करते समय बीज मे नमी की मात्रा कितने प्रतिशत होनी चाहिए। 15 प्रतिशत 20 प्रतिशत 10 प्रतिशत						
क्या आप जानते है कि धान की फसल की अनुमानित उपज कितनी होती है। 20 –25 कि/हेक्टे. 30–35 कि /हेक्टे. 40–55 कि /हेक्टे.						

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	धान की मेडागास्कर पद्धति से धान लगाने के लिये अच्छी जल निकास वाली भूमि का प्रयोग होना चहिए।			
	धान की अधिक पैदावार लेने के लिये भूमि को 2–3 बार जुताई नही करना चाहिए।			
	गर्मियो मे खेत की गहरी जुताई करना चाहिए।			
	मेडागास्कर पद्धति मे मृदा समतल नही होना चाहिए।			
	धान की खेती कि लिये गोबर की खाद का उपयोग करना चाहिए।			
	मेडागास्कर पद्धति से धान उगाने के लिये अलग से नर्सरी तैयार नही करना चाहिए।			
	एक एकड़ मे धान मे लगाने के लिये 2 किग्रा बीज पर्याप्त होते है।			
	नर्सरी मे सुबह भाम पानी नही देते रहना चाहिए।			
	पौधे से पौधे और कतार से कतार 25– 25 सेमी रखना चाहिए			
	मुख्य खेत मे एक स्थान पर एक ही पौघ नही लगाना चाहिए।			
	मेडागास्कर पद्धति मे धान की रोपाई करने पर इसमे कम पानी की आवश्यकता होती है।			
	धान की फली फूटने के बाद 1 इंच पानी भर कर नहीं रखना चाहिए।			
	अधिक दूरी और कार्बनिक खाद का उपयोग करने से कीड़ो और बीमारीओ का प्रकोप कम होता है।			
	धान की फसल मे लगने वाले प्रमुख कीट तना छेदक, पत्ती लपेटक, गंधीकीट आदि की जानकारी नही होनी चाहिए।			
	धान की फसल मे कटाई, हाथ से हसियॉ द्वारा कि जा सकती है			
	धान की फसल मे कम्बाईन हारवेस्टर द्वारा नही की जा सकती है।			
	धान की फसल को भंडारित करते समय बीज मे नमी की मात्रा 20 प्रतिशत होनी चाहिए।			
	धान की फसल की अनुमानित उपज 40 से 55 कि/हेक्टे.			

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अ. कोई साधन नहीं ब. नदी

स. कुॅआ–ट्यूबवेल द. नहर

9 okf"kd vk;

fofHkUu L=kr l vkidh okf"kd vk; fdruh g

Dekd	L=kr	vkenuh ¼:½
1	कृषि द्वारा	
2	मजदूरी द्वारा	
3	जातिगत धंधा	
4	स्वतंत्र व्यवसाय	
5	सरकारी नौकरी द्वारा	

10 mRiknu

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कमांक	जानकारी स्त्रोत	हमेशा	कभी–कभी	कभी नही
अ.	व्यक्तिगत संपर्क			
1.	मित्र			
2.	संबंधी			
3.	पड़ोसी			
4.	उन्नत कृषक			
5.	ग्राम पंचायत के सदस्य			
6.	स्थानीय नेता			
7.	दूरभाष			
8.	पत्र			
9.	कृषि वैज्ञानिक			
ब.	समूह संपर्क			
1.	प्रद नि			
2.	सभायें			
3.	समूह चर्चा			
4.	प्रक्षेत्र दिवस			
5.	सभा			
6.	प्रक्षेत्र भ्रमण			
7.	प्र िक्षण			
8.	भाषण			
9.	संगोश्ठी			
स.	वृहत संपर्क			
1	रेडियो			
2.	टेलीवीजन/फिल्म प्रदर्शन			
3.	स्माचार पत्र			
4.	कृषि मैग्जीन			
5.	प्रद नी			
6.	अभियान			
7.	इंटरनेट/ईमेल			
8.	मोबाईल			
9.	चार्ट/पोस्टर			

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1.	Title of the thesis	:	"**A study on utilization of information sources by System Rice Intensification (SRI) growers of Balaghat block of district Balaghat (M.P.)**"
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ABSTRACT

The information sources play a key role in ensuring food security and sustainable agriculture. The demonstrations, agricultural scientists, friends, extension workers, trainings, television, radio, relatives etc. are the main sources of information by creating socio information support system to identify the problem of the farmers so that the need based information through information sources may be provided and also to established its utility among farmers there by resulting.

Rice is one of the most important and largest growing crop through out the country as a food grain. The ultimate success of any developmental programme depends on the extent to which the farmers adopt the new ideas and practices. The new system of rice cultivation (SRI) came in India in the year of 2003-04 in Andhra Pradesh at first. Balaghat division of M.P. is one of the important paddy growing region of Madhya Pradesh with a view to enhance economic benefit from paddy cultivation with the adoption of System of Rice Intensification method of paddy cultivation, the scientist of K.V.K. and all agriculture departments demonstrated this technology on the field of farmers. The present study “A study on utilization of information sources by System of Rice Intensification (SRI) growers in Balaghat block of District Balaghat (M.P.)” has been undertaken with the following specific objectives :-

1. To know the profile of SRI growers.
2. To study the utilization pattern of different sources and channels of agriculture information used by SRI growers.
3. To assess the relationship between the profile of selected SRI growers with their utilization pattern of sources and channels.
4. To find out the problems faced by the paddy growers in adoption of SRI method and suggestions to overcome them.

Methodology:

For fulfillment of these objectives, the study was conducted in ten randomly selected villages of Balaghat block of Balaghat district where the

SRI method of paddy cultivation has been popularized among the paddy growers by KVK, Balaghat. The data were collected using survey method through a pre-tested interview schedule and responses were recorded. Collected data were then tabulated and analyzed using percentage, mean, rank order, correlation and standard deviation.

Conclusions:

1. Profile of SRI growers:

As regards the profile of SRI growers are concerned, the finding of study can be summarized that majority of SRI growers (55.00%) belonged to middle age group (37-55 year). In case of socio-personal and economic attributes, most of the respondents (50.00%) belonged to middle level of socio-economic status. More than 55 per cent of SRI growers had medium economic motivation and medium level of scientific orientation, above 60.00 per cent of SRI growers had medium market orientation. More than 45 per cent of the SRI growers secured high knowledge level and high percentage of adoption level. More than 60 per cent of SRI growers were having high attitude towards SRI method, nearly three-fourth (70.00%) of SRI growers were having medium irrigation status, 60.00 per cent of the respondents were having low annual income (Rs.50000/- to 200000/-). In relation to the production level of SRI growers, it was found that the majority of the SRI growers had medium production level (61 to 80 q.).

2. Utilization pattern of different sources and channels of agricultural information used by SRI growers:

In relation to the utilization of information sources by SRI growers it was found that majority of SRI growers were having high utilization of information sources.

3. Relationship between the profile of selected SRI growers with their utilization pattern of sources and channels:

Relationship between socio-economic status, economic motivation, attitude towards SRI, annual income, production, knowledge level and adoption level of SRI growers had significant relationship with utilization of information sources, while age, scientific orientation, market orientation and

irrigation status of SRI growers were found to be non-significant relationship with utilization of information sources.

4. Problems faced by paddy growers in adoption of SRI method and suggestions to overcome them :

The major problems reported by the paddy growers were labours are not available at the time of transplanting as major problem in adoption of SRI method of paddy cultivation which received rank I, followed by inadequate supply of electricity, lack of knowledge about insect and disease, lack of knowledge about improved seed and lack of appropriate knowledge about land preparation. Similarly, the main suggestions given by paddy growers for adoption of SRI method of paddy cultivation were that to follow the guideline of extension workers and agriculture department, maximum personal contact with agriculture functionaries, demonstration should be conducted on farmers' field by agriculture department, regular listening of radio programme, visit of RAEOs should be regular.

Suggestions for further research work:

The following suggestions are proposed for further research work :

Similar studies may be conducted in the paddy zone area to verify the present findings by considering following points –

1. A separate study on assessment to knowledge and adoption components of SRI system of paddy cultivation should be conducted.
2. Assessment of adoption gap of paddy growers.
3. Assessment of problems in adoption of recommended components of SRI system.
4. The further study should be planned according to situational and infrastructure variables.
5. The investigator should collect the data after establishing the rapport with the SRI growers and must verify from the needed secondary data of office record from the concerned departments, cooperative societies and input dealers.

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