Ad-hoc Research Study No.-127

Impact of Tejaswini Rural Woman Empowerment Programme on Empowerment of Rural Women through System of Rice Intensification (SRI) in Mandla and Balaghat Districts of Madhya Pradesh

Study Sponsored by
Madhya Pradesh Woman Finance and Development Corporation
(Government of Madhya Pradesh)

AGRO- ECONOMIC RESEARCH CENTRE
FOR MADHYA PRADESH AND CHHATTISGARH
Jawaharlal Nehru Krishi Vishwa Vidyalaya,
Jabalpur - 482 004 (M.P.)

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PROJECT TEAM

Data collection

Dr. Ravi Singh Chouhan
Mr. Sateyendra Singh Thakur
Mr. Rajendra Singh Bareliya
Mr. Pradeep Kumar Patidar

Tabulation & Compilation of Data

Dr. Ravi Singh Chouhan
Dr. Hemant Kumar Niranjan

Interpretation and Report Writing

Dr. S. B. Nahatkar
Dr. Hari Om Sharma
Dr. Deepak Rathi

Study conducted by

Agro- Economic Research Centre For Madhya Pradesh & Chhattisgarh
Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur (M.P.)

PREFACE

The present study entitled "Impact of Tejaswini Rural Woman Empowerment Programme on Empowerment of Rural Women through SRI in Mandla and Balaghat Districts of Madhya Pradesh" has been sponsored by Madhya Pradesh Woman Finance and Development Corporation, Bhopal, Government of Madhya Pradesh.

The study confined to 120 respondents comprises of 60 beneficiaries and 60 non-beneficiaries of Mandla and Balaghat Districts of Madhya Pradesh. It is observed from the study that Cost incurred and return obtained in production of rice through SRI on beneficiaries farm was found to be identical when compared with recommended packages of practices this indicate SRI method of rice cultivation empowering rural woman of the study area

The present study was conducted by Dr. S. B. Nahatkar, Dr. H. O. Sharma and Dr. Deepak Rathi of this University. They have done field investigation, tabulation, analysis, interpretation and drafting of the report. I wish to express my deep sense of gratitude to team members namely; Mr. S.K. Upadhye, Dr. Ravi Singh Chouhan, Dr. Hemant Kumar Niranjan, Mr. S.S. Thakur, Mr. Rajendra Singh Bareliya, Mr. P.R. Pandey, Mr. Akhilesh Kuril and Mr. P. K. Patidar for their untiring efforts in bringing this innovative study to its perfect shape with in 3 month from the inception of the project.

On behalf of the Centre, I express deep sense of gratitude to Dr. P. K. Bisen, Hon'ble Vice-Chancellor and Chairman Advisory Body of AERC, Jabalpur, Smt. Sonali Ponkshe Vayangankar, Managing Director, Shri A. S. Bhal, Deputy Programme Director, Madhya Pradesh Woman Finance and Development Corporation, Dr. P.K. Mishra, Dean Faculty of Agriculture, Dr. Dhirendra Khare, Director Research Services, Dr. S. D. Upadhyay, Director Instruction, Dr. (Smt.) Om Gupta, Director of Extension and Dr. R. M. Sahu, Dean, College of Agriculture, Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur for providing the valuable guidance and all facilities during various stages in successful completion of this study of high importance.

I express sincere thanks to Shri. Ajay Modi and Shri Prakash Dhaulakhandi, District Project Manager Tejaswani Programme of Mandla and Balaghat districts respectively and their field staff for providing not only secondary data but also extending great assistance in collection of field data from the selected beneficiaries and non beneficiaries respondents.

I hope the findings and suggestions made in the study will be useful for policy makers of the State and other organizations.

Date: 24. 09.2018
Place: Jabalpur

(Hari Om Sharma)
Prof. & Director /
Nodal Officer

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Chapter-I

INTRODUCTION

1.1 Background

System of Rice Intensification (SRI) emerged in the 1980's as a synthesis of locally advantageous rice production practices encountered in Madagascar by Fr Henri de Laulanie, a Jesuit Priest who had been working there since 1961. But, it is Dr. Norman Uphoff from Cornell International Institute for Food and Agriculture, Ithaca, USA, who had brought this method to the notice of outside world in the late 1990s. The new set of practices greatly improved the growing environment for rice plants, evoking more productive phenotypes from all rice genotypes with a host of improved practices under specific recommendations viz., minimum water use, single transplantation of young seedling in a square pattern of spacing (25 cm x 25 cm) through efficient soil and nutrient management rather than use of new or purchased external inputs. It is being observed that System of Rice Intensification practices result in a sharp decrease in inputs such as seeds, chemical fertilizers and water supply which directly affect (Ram 2018) profitability. Its different way of cultivating rice crop though the fundamental practices remain more or less same as adopted in the conventional method; it just emphasizes altering of certain agronomic practices of the conventional way of rice cultivation. All these new practices are together known as SRI. SRI is not a fixed package of technical specifications, but a system of production with four main components, viz., soil fertility management, planting method, weed control and water (irrigation) management. Today SRI is being adopted in many States in India and the response from farmers has been overwhelming seeing the benefits of the method, not with standing the constraints.

Asian Rice *(Oryza sativa)* is one of the most widely and leading cultivated cereal in the world, second to wheat in its annual contribution to food consumption. It is a strategic crop for many Asian countries and is sometimes referred to as the "wonder cereal", commanding respect and recognition because of being a staple food for more than half of the ethnic groups around the world. Rice is also a superior food commodity to mankind, ranked as life, culture, tradition, and means of livelihood for millions of people.

The traditional rice cultivation practices also had undergone many changes with the development of civilization, the cumbersome labour oriented practices were replaced by mechanical interventions. The interest of the farmers in cultivating rice by using traditional method has decreased as large numbers of farmers were using fertilizers and pesticides in the method of traditional rice cultivation to increase the production of rice which not only enhance the cost of production of rice but resulted in many health related issues. It was noticed that, farmers adopting conventional methods could increase their

production only by using expensive inputs such as chemical fertilizers, pesticides and hybrid seed. It is becoming increasingly difficult for the community to afford these costlier inputs. The SRI is a management practice for increasing the yield of rice under different production systems. This technology is a civil society innovation occurred outside the formal research system develop accidentally than combined field observations of rice plant performance with a series of experiments over a decade (Laulanié, 1993).

The SRI is gaining popularity around the world in large part due to its impact on time, cost, and input saving along with women friendly practice of management. Looking to its multidimensional benefits many NGOs are promoting this as a best practice of rice cultivation. They create village self-help groups and develop women friendly training programs. Women are trained as farmer's leaders for gaining confidence and enhancing socio-economic status in the family and community.It also helps in reducing drudgery of women labour due to introduction of mechanical hand weeder. A study in Andhra Pradesh, India shows that mechanical weeders reduced women's labor time for weeding by 76%, also reducing physical discomfort from this work (Mrunalini and Ganesh, 2008). A study conducted in Tamil Nadu, India shows that share of male labor in rice cultivation was increased by 60% due to mechanical weeding by women labour. There is gain of 115% in net income per hectare (Thiyagarajan, 2004) due to adoption of SRI. In developing countries, NGOs have used SRI to raise farm income and food security to reduce the incidence of human trafficking (Rehman, 2010).Much of the grassroots leadership for the dissemination of SRI technique has come from women groups who, on their own, have spread the SRI, and who have actively promoted SRI at grass root level. One woman SRI farmer/trainer/ activist in Bihar state of India, coming from one of the lowest and poorest social groups in her society, has been elected as a member of that state's Legislative Assembly (http://timesofindia.indiatimes.com/, 2012). In West Bengal, women are starting to exert their influence in political arenas for policies that support sustainable farming (Menon, 2014). SRI's multiple benefits for families and women prompted a march of 5,600 women in Madhya Pradesh, India, in 2012 to demand access to more resources for improving their farming operations, including training on SRI (Philipose, 2012).

International Fund for Agricultural Development (IFAD) financially assisted Tejaswini Rural Woman Empowerment Programme is being implemented by the Madhya Pradesh Women Finance and Development Corporation in the six districts of Madhya Pradesh namely Balaghat, Dindori, Mandla, Panna, Chhatarpur and Tikamgarh. The criteria for selecting these districts are mainly based on poverty, gender imbalances

and tribal dominance. The project started in the year 2007 and is to be completed during financial year 2018-19. Under the project, 206850 rural women through 16498 women SHGs were mobilized in six districts. It may be noted that the beneficiaries selected for this program are belong to poorest of the poor section of the society. The selection was made on the basis of household survey/wealth ranking survey conducted for the program. These group members were provided with different empowerment inputs/trainings, namely group management and accounting, decision making and prioritizing their needs, conflict management, gender sensitization, income enhancement inputs, legal awareness, health and hygiene and management of the group funds for improving their livelihood.

The District Programme Management Unit (DPMU) was assisted by different NGOs to implement the project through mobilizing the different groups under the project. NGOs also assess the training needs of stakeholder's in project area and develop women friendly training modules. Initially, the hand holding was essential for developing confidence for self-dependent, now they have understood the concept, and the groups and their members have become independent, 60 Federation of the Women Self-Help-Groups (SHGs) have been formed under MP Society Registration Act 1973. At present the focus is on livelihoods, micro-enterprises and marketing linkages. Legal obstacles were removed; subsidies were given so that SHGs could take loans from banks for distribution among their members and invest in micro enterprises or meet out their contingency expenditures. The rate of interest is decided by SHGs in accordance with their own rules for loan distribution (usually 2–3%/ month).Savings of SHGs are assigned to a group deposit account in a bank, against which the SHGs borrow at about 12%/annum (Basu and Srivastava, 2005) so both group savings and joint liability act as collateral. NABARD provides refinance facilities to banks for such lending. The demand for refinance has declined and therefore banks now find it attractive to lend to SHGs, given the low default rate (less than 1%) compared with 11-12% on their regular portfolio (Dasgupta, 2005).

The economic analysis of traditional versus SRI method of paddy cultivation shows that there is marginal increase in cost of cultivation due to requirement of higher human labour but increase in net returns is about double over traditional method along with higher cost-benefit ratio (2.29).This shows that additional operational cost was compensated through yield advantage of SRI method of rice. The major reasons for practicing SRI method by sample farmers were less water requirement and higher yield levels (Shelke et al. 2017).The system of rice intensification uses lower external inputs, less water, and less seed than the traditional paddy production system. Reviews indicate that SRI can increase farmers' current rice yield two-fold or three-fold. SRI is a

relevant innovation, which increases production, reduces yield gap and ensures the household food security for the vulnerable section of small and marginal farmers. Many farmers have started to adopt this innovative method to increase the paddy yield in India in recent years (Murugavel 2016). This practice not only save inputs but also helps in increasing input use efficiency, and due to reduction in growing period land use efficiency enhanced many times (Zotoglo, 2011; Chapagain, et, al. 2011; Amod, et al., 2014).

In the light of this conceptual view many reviews on "Empowerment of women through SHGs" have been surveyed to examine the impact of Self Help Groups on empowerment of women. The last half of the 20th century has witnessed some improvements in gender equality, but gender disparities still persist in most of the developing countries. In almost all developing countries, women do not possess the same legal, social and economic rights as do men. Similarly, gender gaps are widespread in access to and control over resources, in economic opportunities, in power and political voice (World Bank, 2001). Despite considerable efforts made in this direction, many countries in the world have not been able to reduce the gender gaps. In fact, with the background of the patriarchal system of society, women need special attention to ensure their development and participation in the decision making process at household level, in the community and governance. Efforts were

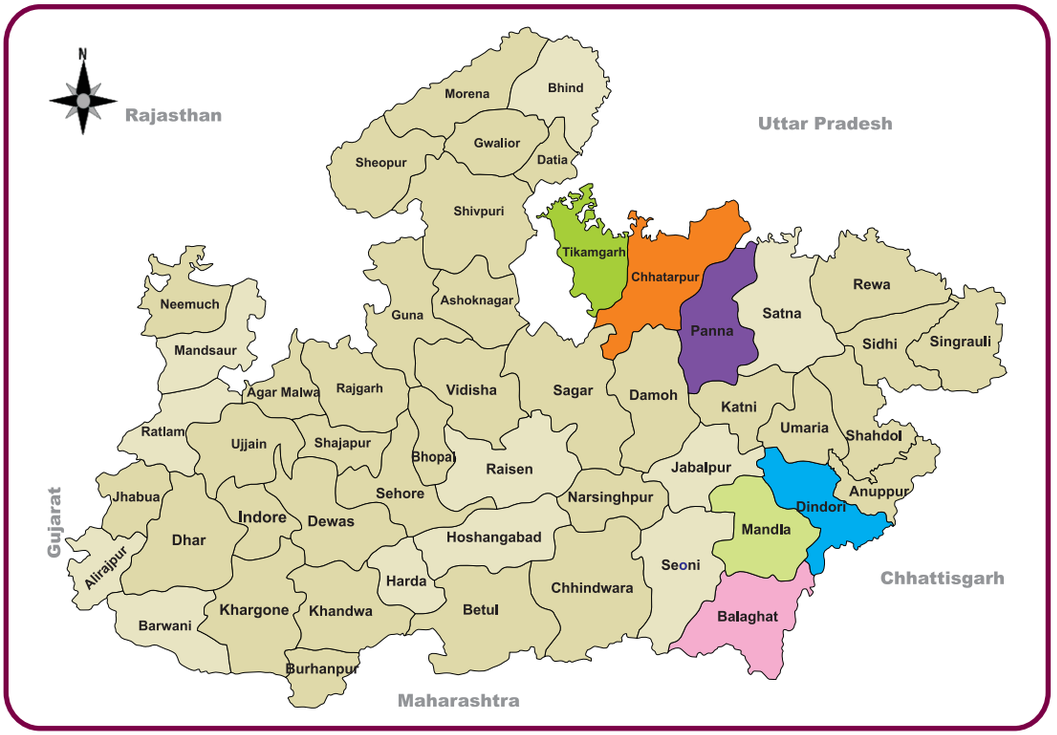

Fig. 1.1 : Selected district in Madhya Pradesh under Tejaswini Programme

made to bring economic and social development of women and improving their status in the community development activities in many programs. SHGs thrift and credit groups are mostly informal groups whose members' pool savings re-lend within the group on rotational or need basis (Minimol and Makesh, 2012). The groups have a common perception of need and impulse toward collective action. Women self-help groups, formed exclusively for rural women, being an effective means for community involvement in developmental activities, can be a powerful tool for elevating rural poverty through the empowerment of women, by freeing themselves from the clutches of usuries moneylenders.

The positive impact of the SHGs' (especially micro level programmes) was found on economic and social empowerment of the rural poor and women (Puhazhendhi & Satya Sai 2000; Cheston and Kuhn 2002; Anand 2002; Malathi and Vijayarani 2012). Micro-finance programmes were successful to diversify the economic activities in rural areas and increased income of the individual as well as household and also empowered women economically, socially, psychologically and politically as reported by Basargekar (2009), Kusakabe (2010), Thangamani and Muthuselvi (2013) and Longkumer and Jha (2014), The participation of women in National Rural Livelihoods Mission (NRLM) also showed a significant impact on their empowerment both in social and economic aspect (Samuel *et al* 2011; Jagadeeswari, 2015). The significant difference in economic empowerment of the SHG members in post-SHG situation when it is compared with pre-SHG situation was also reported by Krishnan (2008) and Malathi and Vijayarani (2012).

Thus, Self-help groups (SHG) engaged in development activities have the potential to empower their members through the provision of knowledge, skills, motivation, and competencies that underpin sustainable agriculture. Women empowerment brings equitable social and economic empowerment which increase women's access to economic resources and development opportunities for jobs, financial services, property, other productive assets, skill development and market information. Empowerment of women is essentially the process of upliftment of economic, social and political status of women in the society. It involves the building up of a society wherein women can breathe without the fear of oppression, exploitation, apprehension, discrimination, and the general feeling of persecution which goes with being a woman in a traditionally male-dominated structure. One major therapy prescribed by woman empowerment advocates is empowering women through legislation for ensuring participation in political decision making (Moorthy, 2016)

Most of the SHGs in identified districts are involved in rice production since these districts are confined to rice growing agro-climatic zones and therefore very negligible area is allocated to other crops. The existing

methods of rice production are either transplanting in lowland areas or broadcasting in upland area. SRI is a combination of several practices those include changes in nursery management, time of transplanting, water and weed management.

Women's empowerment became a critical pre requisite of the socio-economic development of any community. Fostering the female participation in the nation building became a major concern of many governments all over the world. As micro finance is the most important component of the program of women empowerment start with opening of bank account for developing linkages to access micro finance. Regular contacts with bankers are maintained through organizing meetings at district level and at block level apart from individual contacts with Deputy District Manager (DDM), National Bank for Agriculture and Rural Development (NABARD), Lead District Manager (LDM) and branch managers of District Planning & Monitoring Unit (DPMU) and Field level Non-Government Organizations (FNGOs) staff. Micro finance programs are treated as a key strategy in addressing the development issues across nations since the last three decades. Micro-finance has also gained huge prominence worldwide in the arena of economic development. The vision of micro financial systems worldwide is to serve the impoverished majority, help them to lift out of poverty, and make them able for participanting in country's social and economic development (Otero, 2005). As an efficient socio-economic financial mechanism, micro-credit enables various agencies, both governmental and non-governmental, to realize their targets, among them in the Millennium Development Goals (Hussain and Knight,2008). Micro-finance is the provision of broad range of financial service such as deposits, loans, payments, money transfers and insurance to the low income households and their micro enterprises to break out of their impoverishment (Lazer, 2008). In India microfinance has become an important tool of economic development. (Tiwari and Thakur, 2007). The present study is an attempt to assess the role of self-help groups in improving the socio economic status of the rural women through SRI method of rice cultivation with following specific objectives:-

1.2 Objectives of the Study

1. To analyze the key features of the initiative and role of different institutions /partners in dissemination of SRI technology.
2. To analyze the impact of SRI over traditional method of rice production on empowerment of women and reduction in drudgery.
3. To identify bottlenecks in adoption of SRI and suggests way and means to overcome these constraints.

1.3 Data and Methodology

The study is based on both primary & secondary data. Primary data were collected from the selected farm women respondents

cultivating rice using SRI and traditional method. A list of all the beneficiaries (13115) of different districts of project area viz. Dindori (7425) Mandla (4380) and Balaghat (1310) were provided by the office of the Mahila Vitta Vikas Nigam (MVVN), Bhopal, Madhya Pradesh out of project area two districts, Mandla and Balaghat were selected purposively for the study. One percent of beneficiaries were selected from villages of the districts (60) and equal numbers of non-beneficiaries (60) from same villages having identical size of holding and socio economic status were selected. Thus, the total sampling frame is comprised of 120 respondents (Table 1.1).

Both primary and secondary data were collected for the study. The primary data were collected from the selected respondents on various parameters viz. socio economic status, land use pattern, cropping pattern, cost effectiveness, resource saving, house hold consumption pattern etc. The reference period of the data was 2018-19. The following analytical tools are used to draw conclusions.

Table 1.1: Number of women beneficiaries selected from the study area

Selected District	Beneficiaries	Non-Beneficiaries	Total Respondents
Mandla	45	45	90
Balaghat	15	15	30
Total	**60**	**60**	**120**

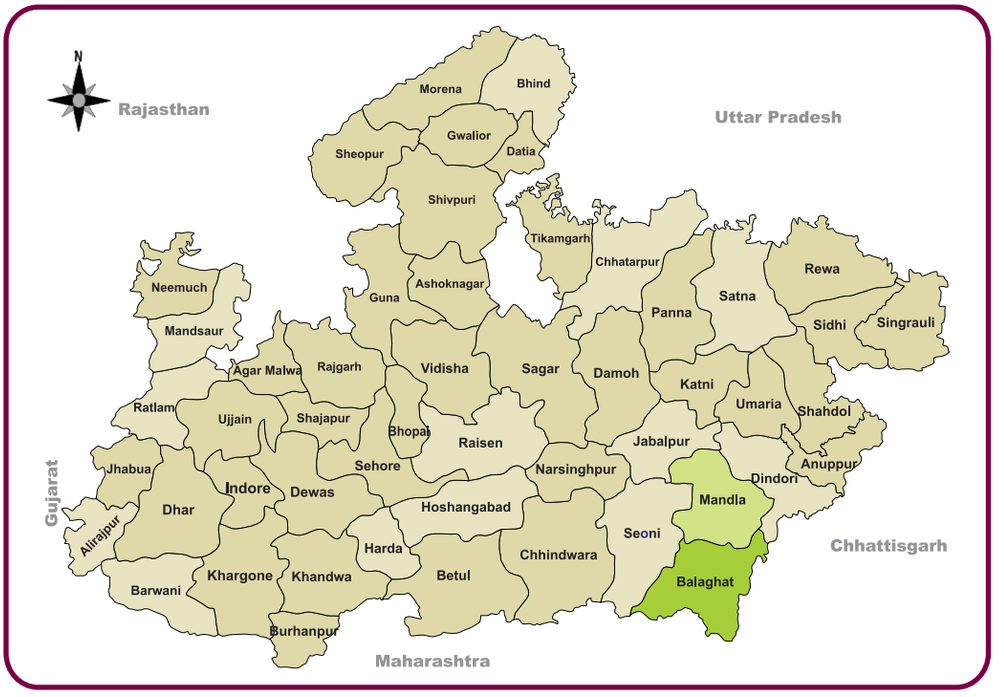

Fig. 1.2 : Selected districts for the study of SRI

1. **Percentage Change over Non-Beneficiaries**

Percentage Change =(Yn–Yo)/Yo *100

Yn=Beneficiaries–Yo=Non- Beneficiaries

2. **Mean**

The average of the variables used for the study.

$$X = \sum x/n$$

Where,

X= Mean of the variables

∑x=sum of score (observation) of variables

n=Total number of respondents

3. **Interest of working Capital**@10 per cent of variable inputs
4. **Rental Value of owned land**@1/6 of gross income
5. **Interest on fixed capital**@10 per cent of total capital assets (excluding land).
6. **Managerial Cost**@10 per cent of total cost to account for managerial input.
7. **Cost of cultivation (per acre)=** Operational Cost+Input Cost+Fixed Cost+Manageria Cost
8. **Net Income=** Gross Income-Total Cost of Cultivation.
9. **Cost of production (per q) =** (Total cost of cultivation –value of by product)/ Yield
10. **Benefit Cost Ratio=** Gross Income/Total Cost
11. **Cropping intensity :** It is the ratio of the total cropped area to net area sown or the number of crops cultivated in a piece of land per annum, considered as cropping intensity.

Cropping intensity (%) = (Gross cropped area/net area sown)X100

1.4 Limitations of the Study

The present study is purely based on primary data. The study pertains to the primary data collected for the Agriculture year 2018-19. Moreover, respondents provided information based on their recall memory. Thus, there is a possibility of certain memory bias to enter in the presentation of the data. Therefore, considerable care is taken while generalizing the acceptability of the results of this study.

1.5 Organization of the Study

The study is organised into 4 chapters. Chapter I cover the introductory part of the study and key features of programme: system of rice intensification (SRI) method of rice sowing is given in Chapter II, impact of system of rice intensification (SRI) is presented in chapter III and summary and conclusion are given in chapter IV.

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Chapter-II

KEY FEATURES OF PROGRAMME: SRI METHOD OF RICE PRODUCTION MANAGEMENT

This chapter deals with the development activities adopted in the operational area, features of different interventions, role of different institutions and salient features of SRI method of rice management over traditional method.

2.1 Development Activities Adopted in the Operational Area

To ensure food security of the women farmers of Mandla and Balaghat districts in rice production management through Systemic of Rice Intensification (SRI) method was started under the Tejaswini programme during the year of 2011-12. The main objective of this programme was to increase the production and improvement of the standard of living of beneficiaries. The information related to federation, VLC, Villages, SHG's and their members in Mandla and Balaghat districts is presented in table 2.1.

Table 2.1: Brief information about Federation of Mandla & Balaghat districts

Particulars	Mandla	Balaghat
Federation	10	11
Village Level Committee (VLC)	466	562
Villages	490	575
Self Help Group (SHG)	2770	3096
SHG Members	33589	36167

The number of beneficiaries selected under rice production through SRI method with the number of villages and area under cultivation covered in different locations i.e. Balaghat and Mandla districts is presented in table 2.2.

It is observed from the data that the programme was started in 2011-12 with 250 & 2785 women of 86 and 33 villages in 75 & 82 acres of cultivated land, which was found to be increased to 4457 & 1650 women of 350 & 73 villages in 3067 & 495 acres of cultivated land in Mandla and Balaghat districts, respectively in the year 2013-14. This shows 1683, 307 & 3989 per cent increase in number of women, villages and area under cultivation, respectively in Mandla district and 500, 121 & 504 per cent increase in number of women, villages and area under cultivation, respectively in Balaghat district. The productivity of rice under SRI method of sowing was found more in Mandla (18 q/acre) as compared to Balaghat (14 q/acre) district. There is gradual increase in number of villages, farmers and acreage covered.

Tejaswini signed agreement with NGO's viz., Sahara Manch, NU Seed, CARD, PRADAN, and Bhagani Nivedita Samitee for transfer of rice production management technology using SRI for SHG's of women.

Various training programmes and workshop were organized for transfer of rice production technology through SRI at village

Table 2.2: Beneficiaries selected from various villages along with their area and production in Mandla & Balaghat districts

S.No.	Years	Number of villages	Number of Farmers	Total Area (in acre)	No. of Demonstration Plots	Production (q/acre)
			Mandla			
1	2011 - 12	86	250	75	250	18
2	2012 - 13	207	2542	1863	2542	17
3	2013 - 14	350	4457	3067	4457	17.8
			Balaghat			
1	2011 - 12	33	275	82	275	14
2	2012 - 13	60	1100	330	1100	14
3	2013 - 14	73	1650	495	1650	14

level for creating awareness and ease & adoption of technology at village level under Tejaswini. Under this programme agriculture department was closely associated for providing seed and other inputs with subsidy to the beneficiaries. The federation appointed one Agriculture Extension Agent (AEA) for 50 women farmers to provide the hand holding support for adoption of SRI method of rice production management.

2.2 Features of Interventions

Manuals on System of Rice Intensification (SRI), banners, flip charts etc. were used at field level trainings to train the beneficiaries. The following techniques were adopted for women farmer through AEA.

1. Seed testing & treatment
2. Nursery rasing

a. Nursery layout

b. Proper seed rate and placement

3. Transplanting

a. Field preparation with proper drainage system

b. Lay out of the field

c. Application of recommended doses of fertilizer

d. Maintenance of proper distance between Plant to Plant and Row to Row (10”/12”)

e. Planting of only one plant per hill

Table2.3: Provision of production inputs for rice production through SRI under Tejaswini programme

S.No.	Items	Quantity (Per Farmer)
1	Seed (Kg.)	1.5
2	DAP (Kg.)	12
3	Urea (Kg.)	12
4	Potash (Kg.)	6
5	Azotobactor (Pkt.)	2
6	PSB (Pkt.)	2
7	Trichodarma (G.)	100
8	Conoweeder (For 4 farmers)	1
9	Sprayer (1for 10 farmers)	1

4. Application of fertilizer after first weeding.
5. Application of fertilizer after Second weeding
6. Information to all farmers for field training
7. Organization of field day at demonstration's site
8. Training & visit to beneficiaries.
9. Estimation of production using appropriate method
10. Cooperation in insect–pest and disease management

2.3 Role of different Institutions

Tejaswini is coordinating with Department of Agriculture Development and Farmers Welfare, Krishi Vigyan Kendra (KVK), various NGOs working in the district and district administration for successful implementation of SRI method of rice production management.

2.3.1 Department of Agriculture Development and Farmers Welfare:-

Department was found to be involved in providing quality seed of High Yielding Varieties (HYVs)of rice and other inputs at subsidized rates to the beneficiaries under different agricultural programmes/schemes.

2.3.2 Krishi Vigyan Kendra:-Subject Matter Specialist of KVK of the selected districts were found to be involved in providing training, demonstrations, field visits, field days and for providing solutions to the problems faced by the beneficiaries.

2.3.3 Non-Governmental Organizations:- Method as well as result demonstration related to SRI method were conducted at various locations of the district to convince farmers about advantages of SRI method over traditional method.

2.3.4 District Administration:-District administration is actively involved with Tejaswini for resolving various problems in implementation of the programme at various stages. The collector as well as his staff critically review the programme periodically and provide support for the betterment of the beneficiaries.

2.4 Key Advantages of SRI Method

- SRI method of sowing (3 kg/acre) requires less seed as compared to traditional method (> 20 kg/acre).
- SRI method each and every seedling gets sufficient and equal space, light, air, etc. This resulted in profuse tillering which ultimately converted into higher productivity as compared to traditional method.
- Water Use Efficiency (WUE) was found to be increased in SRI method as compared to traditional methods because it requires less water.
- SRI method of sowing is labour intensive because only one plant is to be planted on each hill with proper plant to plant and row to row distance which requires more

- number of skilled labourers. This resulted in huge demand for human labourer at the time of transplanting. This directly affecting the cost but benefitting the community in terms of additional human labour employment in the locality .

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CHAPTER-III

IMPACT OF SYSTEM OF RICE INTENSIFICATION

This chapter deals with the socio-economic characters, marketed & marketable surplus and impact on SHGs through SRI intervention. The data were analysed keeping the objectives in mind.

3.1 Socio-Economic Profile

General characteristics of both beneficiaries and non-beneficiaries households (HHs) were assess and data on same are presented in Table 3.1.

Table 3.1. : General characteristics of respondents

Particulars		Beneficiaries	Non-Beneficiaries
Average Age of respondents (Years)		40	51
Caste (% of respondents)			
	General	5.20	13.33
	Other Backward Caste	33.80	39.19
	Schedule Caste	7.67	1.08
	Schedule Tribe	53.33	46.40
Education Status of Respondent	Illitrate	37.00	28.00
	Primary	44.67	32.77
	Middle	13.33	19.05
	High School	2.00	11.18
	Higher Secondary	3.00	9.00
Religion- Hindu		100.00	100.00
Agriculture as main occupation (%)		100	100
Secondary	Ag.Labour	58.64	63.17
	Self Employment	41.36	36.83
Family Size (Number)			
	Male	2	4
	Female	3	2
	Children (<16 Years)	2	1
Persons engaged in farming		3	3
Experience in farming (Years)		22	27
Average annual income/member (Rs.)		51500	47000
	On-Farm	39500	36500
	Off-Farm	12000	10500

It is observed from the data that the average age of beneficiaries HHs was 40 years with 22 years of experience in farming and average family size of 7 members (2 male, 3 female and 2 children). Out of the 7 members of the family 3 members were found to be engage in farming. For all the beneficiaries of HHs farming is main occupation and all of them are engaged in a secondary occupation. In secondary occupation, majority of them work as agricultural labours (58.64%) followed by self-employment. In case of non-beneficiaries 63.17 per cent were found to be engaged as agricultural labour and 36.83 per cent were self employed while in case of beneficiaries, it was found to be 58.64 and 41.36 per cent, respectively. The average income per member/year was found to be more than 10 per cent in case of beneficiaries (Rs.51500/-) as compared to non-beneficiaries (Rs. 47000/-), which shows that beneficiaries are comparatively in better position as compared to non-beneficiaries as far as their socio-economic condition is concerned.

It is also observed from the data that the average age of non-beneficiaries HHs was found to be 51 years with 27 years of experience in farming and had a family of 7 members which includes 4 male, 2 female and 1 children. Out of the total member of the family 3 were found to be engaged in farming. All the beneficiaries HHs choose farming as a main occupation and all of them were found to be engaged in a secondary occupation. Majority of them work as agricultural labours (63.17%) followed by self-employment (36.83%). Majority of them were found to be literate up to primary level (32.77%) followed by middle (19.05%), high school (11.18%) and higher secondary (9.00%). Out of total respondents 28 per cent beneficiaries were found to be illiterate. On an average beneficiary HH annual income was Rs. 47000 and farming (Rs. 36500/year) was main source of income.

Hence it is concluded from the above results that there is no remarkable differences in socio economic status of beneficiaries and non-beneficiaries households (HHs) in the study area, although beneficiaries HHs were found to be more literate, more self-capable, with higher income as compared to non-beneficiaries HHs.

3.2 Present Value of Farm & Household Assets

The present value of farm and household assets of beneficiaries and non-beneficiaries households (HHs) has been analysed and presented in Table 3.2.

It is observed from the data that an average beneficiary HH (Rs.7941.59) owned 15.21 per cent more value of farm and household assets as compared to non-beneficiaries (Rs. 6892.87). On an average beneficiary HH's farms the present value of bakkhar (38.80%) was found to be more as

Table 3.2. : Present value of assets of respondents (Rs/HH)

Particulars	Beneficiaries	Non-Beneficiaries	% Difference over Non-Beneficiaries
Farm Assets			
Bakkhar	380.2 (38.8)	336.33 (39.06)	13.04
Tifan	276.87 (28.26)	216.12 (25.1)	28.11
Wooden Plough	322.93 (32.96)	308.69 (35.85)	4.61
Total	980 (100)/12.35/	861.14 (100)/12.5/	13.8
Home Assets			
Television	3600.52 (51.72)	3160.25 (52.4)	13.93
Fan	460.35 (6.62)	430.6 (7.14)	6.91
Mobile	1340.5 (19.26)	1160.22 (19.24)	15.54
Cycle	1560.22 (22.42)	1280.66 (21.24)	21.83
Total	6961.59 (100)/87.66/	6031.73 (100)/87.51/	15.42
Grand Total	**7941.59**	**6892.87**	**15.21**

Figures in parenthesis show percentage to respective total, while data in slashes show percentage to grand total

compared to wooden plough (32.96%) and tifan (28.26%) out of total value of farm assets (Rs.980.00). On an average non beneficiary HH's farm, out of total value of farm assets(Rs.861.14) the present value of bakkhar (39.06%) was also found to be more as compared to wooden plough (35.85%), and tifan (25.10%) . Total value of farm assets was found to be higher on beneficiaries as compared to non-beneficiaries HHs.

On beneficiary HH's farms the present value of TV (51.72%) was found to be more as compared to cycle (22.42%), mobile (19.26 %) and fan (6.62%) out of total household assets (Rs. 6961.59). Similarly on non-beneficiary HH's farms the present value of TV (52.40%) was found to be more as compared to cycle (21.24%), mobile (19.24 %) and fan (7.14%). An average beneficiary HHs had more value of home assets as compared to non-beneficiary

Hhs. It is also revealed that in both the categories value of farm assets was lower as compared to household assets.

3.3 Monthly Expenditure

The monthly expenditure pattern of an average beneficiary and non-beneficiary HH was estimated and data on same is presented in table 3.3.

It is observed from the data that an average beneficiary HH (Rs. 3155.00/ month)

Table 3.3. : Monthly expenditure pattern of respondents (Rs./HH)

Particulars	Beneficiaries	Non-Beneficiaries	% Difference over Non-Beneficiaries
Food material (vegetable, pulses fruits etc)	715 (22.67)	608 (23.92)	31.25
Cloth	630 (19.9)	480 (18.89)	17.6
Education (Books & School fees)	438 (13.89)	312 (12.28)	40.38
Health (Medical) Exp.	152 (4.82)	95 (3.74)	60
Animal (Grass, Grain & Medicine)	98 (3.11)	64 (2.52)	53.13
Social program	142 (4.51)	106 (4.17)	33.96
Other	980 (31.07)	877 (34.51)	11.74
Total	3155 (100)	2542 (100)	24.11

Figures in parenthesis show percentage to respective total

invested 24.11 per cent more as monthly expenditure than that of non-beneficiary HH (Rs. 2542.00/month). Amongst the different item of monthly expenses the expense on food (22.67%) was highest followed by clothing (19.90%),education of children (13.89%), medicines (4.82%) and expenses on social and religious programmes (4.51%) on beneficiaries HHs, while on non-beneficiaries HHs the percentage expenditure on food was more (23.92%) as compared to beneficiaries HHs. On the contrary the expenditure on clothing (18.89%), education of children (12.28%), medicines (3.74%) and expenses on social and religious programmes (4.17%) was lower than beneficiaries HHs. The above results revealed that as per Engel's law of family budget with increase in income of family there is proportionate reduction in expenditure on food items.

3.4 Land Use Pattern

The data on land use pattern of an average beneficiary and non-beneficiary HHs is presented in table 3.4. It is observed from the

Table 3.4 : Land use pattern of respondents (Acre/HH)

Particulars	Beneficiaries	Non-Beneficiaries	% Difference over Non-Beneficiaries
1. Total Size of Holdings	2.97 (100)	2.62 (100)	13.36
2. Un-Cultivated Land -			
A. Uncultivated & other grassing	0.09 (3.03)	0.11 (4.2)	37.50
B. Current Fallow	0.05 (1.68)	0.09 (3.44)	75.00
3. Cultivated Land	2.83 (95.29)	2.42 (92.36)	16.94
4. Leased in- Land	0.65	0.72	9.72
Net Cultivated Area (3+4)	3.48	3.14	10.83
Rental value of leased in land (Rs/acre)	5030	5080	0.98
Irrigated area	0.14 (4.02)	0.2 (6.37)	30.00

Figures in parenthesis show percentage to total size of holding

data that an average beneficiary HHs and non-beneficiary HH had 2.97 and 2.62 acres of total land respectively. Out of this 0.11 and 0.09 acres land was uncultivated and grazing land. They were also keeping land fallow in current Rabi season due to lack of irrigation. On an average very meagre area is under irrigation. Net cultivated area on beneficiary and non-beneficiary HHs was 95.28 (2.83 acre) and 92.36 per cent (2.42 acre) respectively. An average beneficiary and non-beneficiary HHs takes 0.65 and 0.72 acres of land on leased respectively.

Thus, they were found to be cultivating 3.48 and 3.14 acres of land respectively for production of different crops for their livelihood food security. This revealed that beneficiary HHs commands more cultivated land as compared to non-beneficiary HHs.

3.5 Cropping Pattern

Area allocated by beneficiary and non-beneficiary HHs to different crops in Kharif and Rabi season is presented in table 3.5.

An average beneficiary HH (193%) found to be cultivating their land 2.11 per cent more intensively than non-beneficiary HHs (189%).The HHs is utilizing land in both the seasons but cropped area during Kharif was higher as compared to Rabi. All the Beneficiaries HHs used to cultivate improved high yielding varieties of rice (MTU 1010), while majority of the non-beneficiaries HHs

Table 3.5 : Cropping pattern of respondents (Acre/farm)

Crops	Variety	Beneficiaries	Variety	Non-Beneficiaries	% Difference over Non-Beneficiaries
Kharif					
Paddy	MTU 1010 (100%)	2.73 (79.83)	IR-64 (18.73%)	2.61 (84.47)	4.6
Maize	Ganga Caveri (Hybrid-44.82%)	0.61 (17.84)	Hybrid (21.64%)	0.25 (8.1)	144
Other		0.08 (2.34)	Hybrid (17.54%)	0.23 (7.45)	-65.22
Total Kharif		3.42 (100)/51.05/		3.09 (100)/52.11/	10.68
Rabi					
Wheat	Lok-1 (73.41%)	2.81 (85.68)	Lok-1 (68.95%)	2.33 (82.05)	20.6
Lentil		0.46 (14.03)		0.38 (13.39)	21.05
Others		0.01 (0.31)		0.13 (4.58)	-92.31
Total Rabi		3.28 (100)/48.96/		2.84 (100)/47.9/	15.49
Gross Cropped Area (GCA)		6.7/100/		5.93/100/	12.98
Cropping Intensity (%)		**193**		**189**	**2.11**

Figures in parenthesis show percentage to respective total Rabi and Kharif, while data in slashes show percentage to GCA

used to grow old rice variety IR 64 (18.73%) and Hybrid varieties of rice (21.64%), remaining area was allocated to local varieties of rice (Table 3.5). In Kharif season rice and maize were found to be major crops. Beneficiaries and non-beneficiaries HHs allocating 79.83 and 17.84, and 84.47 and 8.10 per cent of total Kharif area to rice and maize respectively. In Rabi season wheat and lentil were major crops and beneficiaries and non-beneficiaries were found to be allocate 85.68 and 14.03 and 82.05 and 13.39 per cent of total Rabi area under wheat and lentil crop respectively.

This revealed that in both Kharif and Rabi season beneficiaries cultivating land more intensively as compared to non-beneficiaries.

3.6 Cost of Cultivation and Profitability

The cost incurred and returns received from the production of rice through SRI method is analysed and data on the same are presented in this subhead.

3.6.1 Cost of Cultivation of SRI Method

The data on cost of cultivation of SRI method for beneficiaries and non-beneficiaries HHs is presented in table 3.6. It is observed

Table 3.6 : Cost of cultivation of SRI (Rs/Acre)

Particulars		Beneficiaries	Non-Beneficiaries	% Difference over Non-Beneficiaries
Operational Cost				
Human labour	Family	1143.17 (33.3)	938.16 (27.35)	21.85
	Hired	912.53 (26.58)	1006.76 (29.35)	-9.36
B. Bullock labour		1378.09 (40.14)	1485.72 (43.31)	-7.24
Total Operational Cost		3433.79 (100)/43.4/	3430.64 (100)/39.61/	0.09
Material Cost				
A. Seed		882.61 (19.71)	1470.33 (28.11)	-39.97
B. Seed Treatment		35.50 (0.8)	41.25 (0.79)	-13.94
C. Manure		362.08 (8.09)	387.38 (7.41)	-6.53
D. Fertilizers		1551.24 (34.64)	1588.46 (30.37)	-2.34
E. Insecticide		872.33 (19.48)	912.67 (17.45)	-4.42
F. Weedicide		666.94 (14.89)	729.42 (13.95)	-8.57
B. Depreciation		108.44 (2.43)	101.69 (1.95)	6.64
Total Material cost		4479.14 (100)/56.61/	5231.2 (100)/60.4/	-14.38
Total Variable cost		7912.93/100/	8661.84/100/	-8.65
Fixed Cost				
A. Rental Value of own land		4987.66 (83.67)	4123.21 (82.11)	20.97
C. Revenue /tax		30.00 (0.51)	30.00 (0.6)	0
D. Interest on Fixed capital		944.12 (15.84)	868.53 (17.3)	8.7
Total Fixed Cost		5961.78 (100)	5021.74 (100)	18.72
Managerial Cost		1387.48	1368.36	1.4
Total Cost of Cultivation		15262.19	15051.94	1.4

Figures in Parenthesis show the percentage to respective total, while data in slashes show percentage to total cost of cultivation

from the data that on beneficiary HH farm the cost of cultivation is marginally differ (1.4%) from those of non-beneficiary farms and this was mainly due to higher proportion of fixed cost on beneficiaries farms. Operational cost was almost identical in both the groups. Major proportion of operational costs accounts for mechanical cost, while among the material cost items major cost attributed to cost of fertilizer in both the groups. In SRI method the cost of seed is much lower (Rs.882.61/acre) as compared to traditional method (Rs. 1470.33/acre) and this resulted in reduction of total variable cost by 8.65 percent. But still beneficiaries HH are using much higher seed rate (6 kg/acre) as compared to recommended seed rate of 3 kg/acre.

Thus there is drastic reduction in expenditure on seed due to SRI intervention and this is indirect savings of beneficiaries HHs, this also reduced the variable cost by 8.65 per cent as compare to non-beneficiaries HHs. The indirect cost (fixed cost) was higher on beneficiary HHs farms (Rs. 5960.78 /acre) as compared to non-beneficiary HHs farms (Rs.5021.74/acre) and this was mainly due to higher rental value of owned land estimated on the basis of one-sixth of gross income.

In total variable cost the share of total operational cost was lower as compared to material cost which revealed that the beneficiary as well as non-beneficiaries HHs is adopting recommended technologies partially. SRI is labour intensive technology due to which the cost incurred in human labour in case of an average beneficiary was found to be 21.85 per cent higher than the non-beneficiary. The gross income of an average beneficiary (Rs. 29925.96/acre) was found to be higher than non-beneficiary (Rs.24739.21/acre) due to which rental value of owned land was found to be 21 per cent higher in case of beneficiary as compared to non-beneficiary.

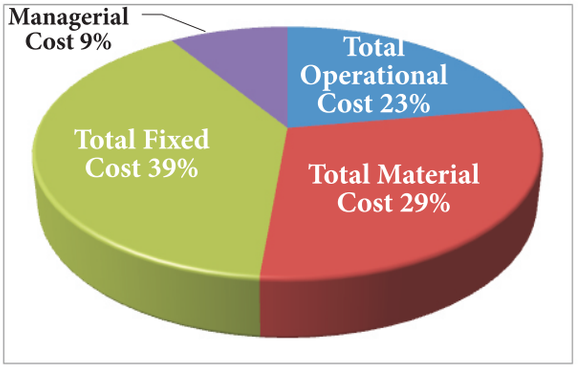

Fig. 3.1 : Contribution of different cost in cost of cultivation in SRI(Beneficiaries)

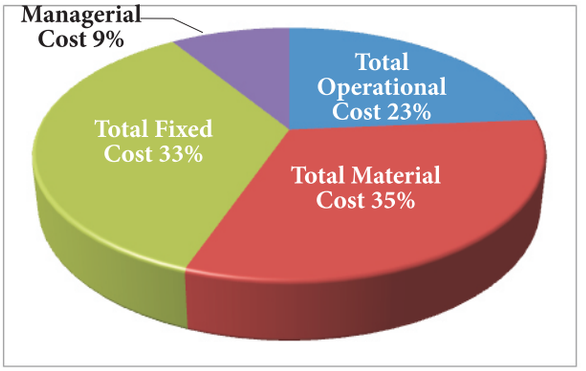

Fig. 3.2 : Contribution of different cost in cost of cultivation in SRI(Non-Beneficiaries)

3.6.2 Profitability from Production of SRI Rice

The data on productivity and profitability from SRI method of rice is analyzed and data on the same are presented in Table 3.7.

Table 3.7 : Profitability in cultivation of rice through SRI (Rs./Acre)

Particulars		Beneficiaries	Non-Beneficiaries	% Difference over Non-Beneficiaries
Yield (q/acre)		17.85	14.77	20.85
Rate/quintal (Rs.)		1550	1530	1.31
Main Product (Rs./acre)		27667.5	22598.1	22.43
By Product		2258.46	2141.11	5.48
Gross Return		29925.96	24739.21	20.97
Net Income	Over Total Cost	22013.03	16077.37	36.92
	Over Total Cost	14663.77	9687.27	51.37
Cost of production (Rs/q)	Over Variable Cost	443.3	586.45	-24.41
	Over Variable Cost	855.02	1019.09	-16.1
Return/Rs. investment	Over Variable Cost	1:3.8	1:2.9	32.52
	Over Total Cost	1:2.0	1:1.7	19.39

The data show that there was yield advantage of 20.85 per cent on beneficiaries HHs as compared to non-beneficiaries HHs due to SRI method of rice cultivation.

They also receiving marginally higher price (1.31 %) in the market due to early harvest of the produce due to SRI method. Thus, increase in gross income is higher (20.97%) as compared to increase in yield. Net income over variable and total cost was also higher on beneficiaries HHs farms as compared to non-beneficiaries HHs farms. Similarly, there is reduction in cost of production by 24.41 and 16.10 percent at variable and total cost

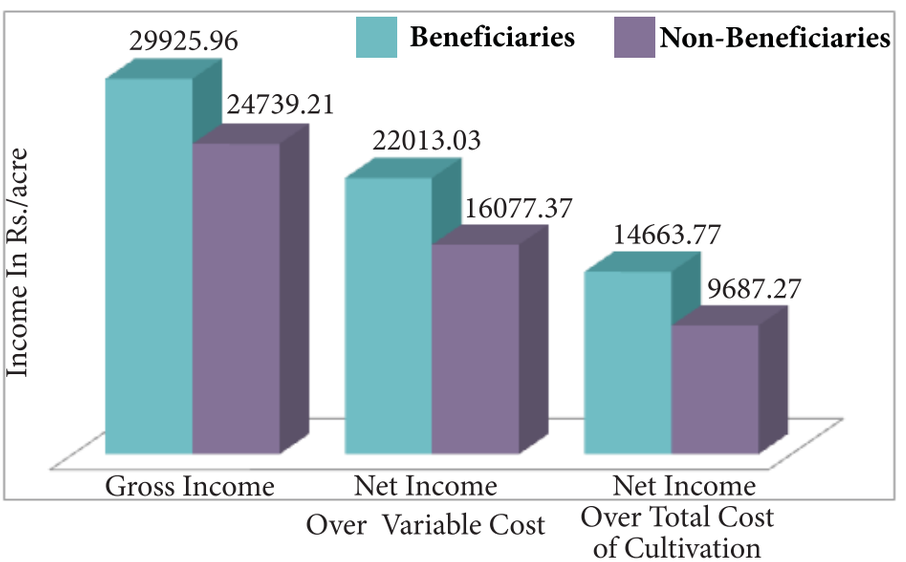

Fig. 3.3 : Income received from cultivation in SRI in beneficiaries & non-beneficiaries farms

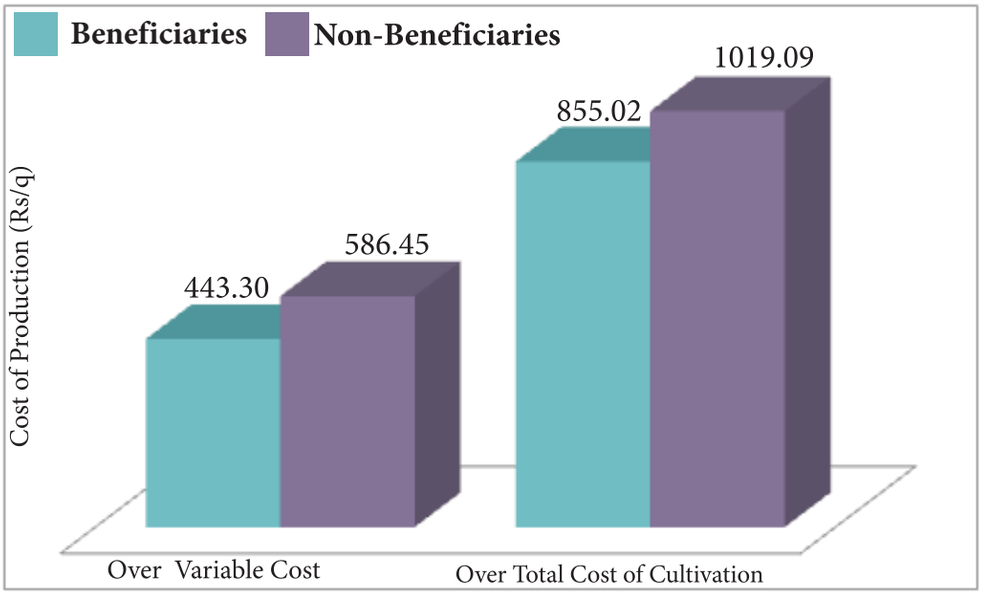

Fig. 3.4 : Cost of production of SRI in beneficiaries & non-beneficiaries farms

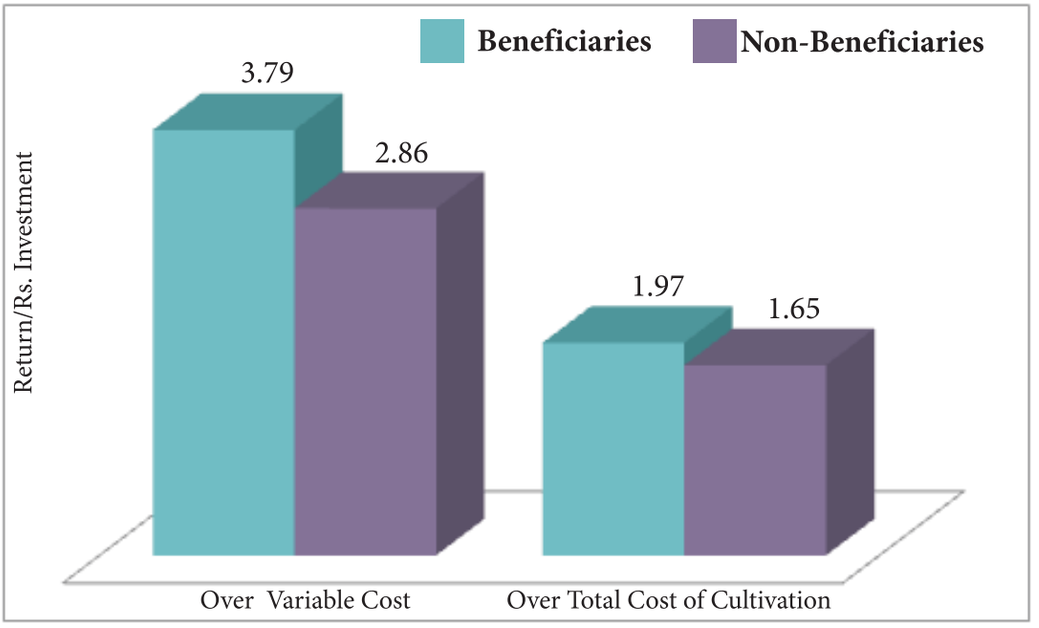

Fig. 3.5 : Return/Rs. Investment of SRI in beneficiaries & non- beneficiaries farms

respectively due to higher productivity per unit of area. The cost benefit ratio was also higher on beneficiaries HHs farms as compared to non-beneficiaries HHs farms.

This clearly revealed that due to adoption of SRI system of rice cultivation there is reduction in cost of production, enhancement in productivity, and due to early harvesting, farmers fetch higher price for their produce.

3.7 Cost of Cultivation of SRI on Beneficiaries Farms as Compared to Recommended Package of Practices (RPP)

The data on cost of cultivation of SRI on beneficiaries HHs farms as compared to cost as per recommended package of practices (RPP). The RPP for each crop in different location used to be decided/recommended by the team of scientists based on field trials/demonstrations for harnessing its full potential through utilizing resources in efficient manners. It means RPP is nothing but recommendations of scientist regarding application of different resources using various methods on different time to achieve the maximum yield/output is presented in Table 3.8.

Table 3.8 : Adoption and yield gap of SRI in beneficiaries vs RPP (Rs./acre)

Particulars		Beneficiaries	RPP	% Difference over RPP
Operational Cost				
Human labour		2055.7	2089.44	-1.61
Machinery and bullock Power		1378.09	1575	-12.5
Total Cost		3433.79	3664.44	-6.29
Material Cost				
A. Seed		882.61	800	10.33
B. Seed Treatment		35.5	46	-22.83
C. Manure		362.08	422.56	-14.31
D. Fertilizers		1551.24	1632	-4.95
E. Insecticide		872.33	950	-8.18
F. Weedicide		666.94	740	-9.87
G. Depreciation		108.44	110	-1.42
Total cost		4479.14	4700.56	-4.71
Total Variable cost		**7912.93**	**8365**	**-5.4**
Yield qtl./acre		17.85	18.5	-3.51
Rate/quintal		1550	1550	0
Return (Rs.)/acre	Main Product	27667.5	28675	-3.51
	By-Product	2258.46	2850	-20.76
Gross Return (Rs./acre)		29925.96	31525	-5.07
Net Return on Variable cost		22013.03	23160	-4.95
Return/Rs. investment		3.78	3.77	0.35

Figures in parenthesis show the percentage to respective total

The data shows that operational cost is marginally lower (6.29%) when compared with

operational cost as per recommended package of practices. Similarly material and total variable cost was lower by 4.71 and 5.40 per cent respectively. This reflected in yield reduction of 3.51 per cent only.

This revealed that at present due to efforts of SHGs there is very marginal gap in adoption of package of practices and productivity from rice. Even there are no much differences in profitability from SRI on beneficiaries HHs farms when compared with recommended package of practices of SRI system of rice cultivation. Cost-benefit ratio is just identical under both the levels of adoption showing positive impact of a project.

3.8 Marketed and Marketable Surplus

Marketed surplus of rice has been analysed both for beneficiary and non-beneficiary HHs and the data on the same are presented in table 3.9.

Table 3.9 : Marketable and Marketed surplus of SRI (q/acre)

Particulars	Beneficiaries	Non- Beneficiaries	% Difference over Non-Beneficiaries
Total Production	17.85 (100.00)	14.77 (100.00)	20.85
Stored quantity of previous year	2.2	1.05	109.52
Home Consumption	5.32 (29.80)	4.72 (31.95)	12.71
Seed requirement for next year	2.48 (13.89)	3.43 (23.22)	-27.7
Marketed Surplus	12.25 (68.62)	7.67 (51.92)	59.71

Figures in parenthesis show percentage to respective total

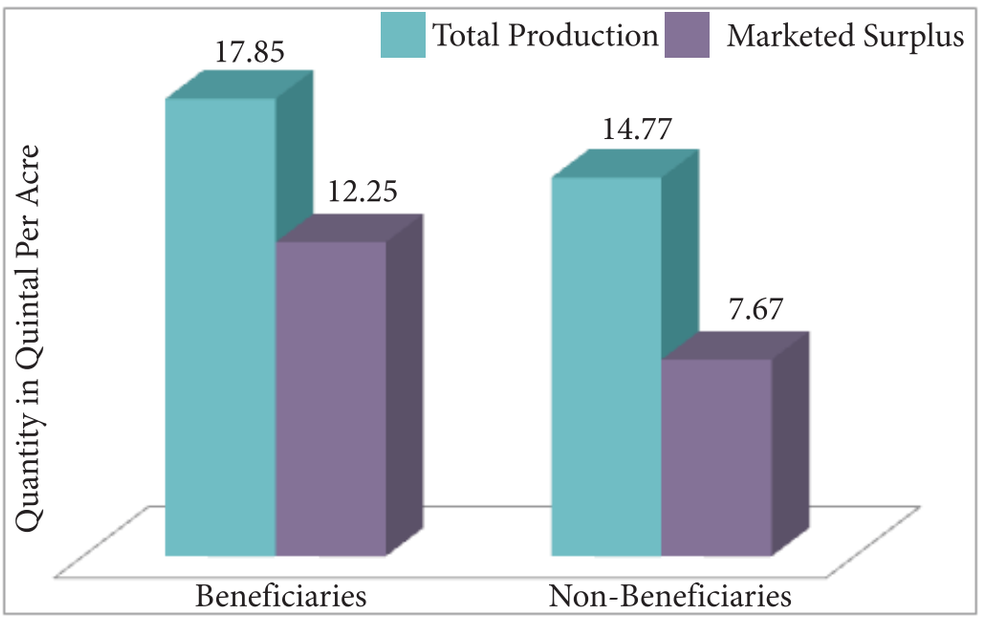

Fig. 3.11 : Marketed surplus in total production of SRI in beneficiaries and non-beneficiaries farms

It is observed from the data that beneficiary HH sales 12.25 q/acre in the market/processing plant owners, which is 59.71 per cent more as compared to non-beneficiaries HH. Out of the total availability, beneficiary HH (17.85 q/Acre) sale 68.62 per cent in the market and 29.80 and 13.89 per cent is kept for home consumption and retain for the seed for the next year. On the contrary non-beneficiary HHs keeps 31.95% quantity for home consumption. Quantity sale in the market was 51.92% and quantity retain for seed was 23.22% for the next year. Marketed surplus which is an indicator of farmers' real income is higher on beneficiary HHs as compared to non-beneficiary HHs revealing that the production actually converted in money terms was higher on beneficiary farms..

3.9 Impact of Activity on Living Status of Members

The overall impact of activity on living standard was found to be positive on beneficiaries related to SRI method of rice production management. Since the majority of beneficiaries HHs reported that their level of living standard improved(85.07%) and level of self-assessment (87.33%), educational standard of children (91.55%), participation in social activities (94.63%), expenses on maintenance of livestock (83.66%) and level of decision making capacity (92.65%) have been improved many fold after joining the SHGs.(Table 3.10).

Table 3.10 : Impact of activity on living status of beneficiaries (Percantege)

S. No.	Particulars	Neutral	Improved	Very Much Improved
	Overall Benefit			
1	Level of Self Assessment	0.00	87.33	12.67
2	Level of Living Status	5.82	85.07	9.11
3	Education of Children	1.12	91.55	7.33
4	Social Activities	0.00	94.63	5.37
5	Health Status	1.04	90.18	8.78
6	Decision Making Capacity	2.13	92.65	5.22
7	Maintenance of Animal	7.92	83.66	8.42
	Saving Habits			
1	Improvement in Saving	0.00	89.37	10.63
2	Saving Capacity	1.07	90.24	8.69
3	Control on financial Expenditure	4.2	87.45	8.35
4	Earning Income Capacity	0.00	77.88	22.12
5	Freedom from Capitalistic	1.37	81.25	17.38
	Assets Ownership and Modern Instruments			
1	Purchase of Land	0	87.33	12.67
2	Purchase of Animal	5.82	85.07	9.11
3	Adoption of Technology in Farming	1.12	91.55	7.33
4	Ability of technology utilize in Capital Services	3.43	92.2	4.36
5	Purchase of T.V., Mobile & Motorcycle etc)	3.99	94.31	1.69

The majority of them also reported that after associated with SHGs their saving habits (89.35%), saving capacity (90.24%) and control over financial expenditure (87.45%) have been improved. The ownership of assets and availing modern services was also be judged and observed that ability to adoption of modern technology in farming has been improved (91.55%), ability of technology utilized in capital services (92.20%) also improved, and purchasing power to purchase TV, mobile and motor cycle (94.31%) also improved after association with SHGs.

This clearly indicated that increase income due to SRI intervention on women SHG group helps in improving in living standard along with higher participation in social activities as social benefits. This also helps in improving savings which will ultimately resulted in higher investment in agriculture and household assets in future to improve economic status. Enhanced income also leads to avail facilities which are available in peri-urban and urban areas.

Table 3.11 : Constraints related to adoption of SRI (%)

Particulars	Percentage
High cost of input materials	66.67
High price of seed	53.33
High labour charges	70.00
Lack of training	21.67
Lack of skilled labour	41.67
Inadequate supply of electricity	23.33
Unavailability of labours at the time of cultivation practices	90.00
Lack of capital	60.00
Lack of irrigation facility	53.33
Lack of appropriate Knowledge about bed preparation for SRI	45.00

3.10 Constraints Related to Adoption of SRI

The constraints reported by the selected respondents in adoption of SRI are presented in Table 3.11. The major constraints as expressed by the majority of beneficiaries rice cultivators were unavailability of labours at the time of requirement of performing farm operations (90.00%), high labour charges (70.00%), high cost of input materials (66.67%), lack of capital (60.00%), high price of seed, lack of irrigation facility (53.33%), lack of skilled labour (41.67%), inadequate supply of electricity (23.33%) and lack of training (21.67%).

Thus there is still need to strengthen the provision of careful support or guidance during a learning process with these tribal women of SHGs specially for developing backward and forward linkages for enhancing their income and socio-economic status.

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CONCLUSIONS AND RECOMMENDATIONS

This chapter deals with the conclusions and recommendations drawn from the results of the study.

4.1 Conclusions

Following results are drawn from the results:-

4.1.1 Income of beneficiary

- Income of beneficiary HHs was found to be higher as compared to non-beneficiaries HHs revealing that due to interventions of SRI in SHG group there is significant enhancement in income. Due to intervention of SRI the value of farm, household and total assets were increased on beneficiary HHs as compared to non-beneficiary HHs and as per Engle's law of family budget with increase in income of family there is proportionate reduction in expenditure on food items on beneficiary HHs. Revealing that they are spending more on clothing and health management.

4.1.2 Intensive Cultivation of Land

- Beneficiary HHs cultivating land more intensively as compared to non-beneficiary households, this may be due to sparing some land from rice production to other crop (maize) due to increase in productivity on account of intervention. In Rabi season also beneficiary HHs proportionately allocating more area to wheat and lentil as compared to non-beneficiary HHS.

4.1.3 Reduction in cost

- Due to SRI intervention there is drastic reduction in seed cost and this is indirect savings of beneficiaries HHs, this also resulted in reduction of the variable cost. Significant enhancement in yield of rice was observed due to SRI intervention.

4.1.4 Higher productivity per unit of area

- Due to reduction of growing period on account of SRI method the beneficiary HHs received marginally higher price as compared to non-beneficiary HHs. Drastic reduction in cost of production was observed on beneficiary farms due to higher productivity per unit of area.

4.1.5 Cost and profitability

- The comparative cost and profitability of SRI method on beneficiary farms and cost and profit as per recommended package of practices revealed that the cost benefit ratio is more or less identical in both the systems. This leads to conclude that the present level of adoption of SRI method is more profitable. But still there is a scope to reduce the cost of cultivation by reduction in seed cost.

4.1.6 Higher marketed surplus

- Beneficiary HHs convert their more production in to value terms as reflected from higher marketed surplus on these farms.

4.1.7 Increased income

- It is also observed that increased income due to SRI intervention on women SHG group helps in improving living standard along with higher participation in social activities as social benefits. This also helps in improving savings which will ultimately resulted in higher investment in agriculture and household assets in future to improve economic status. Enhanced income also leads to avail facilities which are available in peri-urban and urban areas.

4.1.8 Develop strong backward linkages

- The major constraints faced by the beneficiary HHs are related to labour and supply of inputs, thus there is need to develop strong backward linkages for supply of small farm machineries on customhiring basis and quality inputs at reasonable prices.

4.2 Recommendations

Following recommendation are made a on the basis of above results:-

4.2.1 Optimization of seed rate

- Training on nursery management and planting method need to be given emphasis so that the seed rate can be optimized.

4.2.2 Formation of Farmers Producer Organizations (FPOs)

- The SHGs need to be strengthen further for developing strong backward and forward linkages for availing more benefits of large scale economy by moving to the next level by forming Farmers Producer Organization (FPO) for its self sustenance and inculcating entrepreneur skill among the members.

4.2.3 Technological management

- There is potential to enhance yield under SRI through better management of rainwater, thus training on water harvesting and moisture conservation techniques be given to these SHGs. For enhancing fertilizer use efficiency supply of quality bio-fertilizers is need to be insured.

4.2.4 Introduction of rice transplanter

- It is recommended that through development of custom hiring system for supply of farm machinery specially rice transplanter, these SHGs can be benefitted through directed seeded rice (DSR) method of rice production in the future since selected area is completely rainfed. This will also save expenditure on human labour which was found to be a major cost in cultivation of rice through SRI.

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APPENDIX

''मध्य प्रदेश में एस आर आई के द्वारा ग्रामीण महिला सशक्तिकरण
पर तेजस्विनी महिला सशक्तिकरण कार्यक्रम का प्रभाव''

साक्षात्कार अनुसूची

साक्षात्कार दिनांक..... साक्षात्कार कर्त्ता का नाम.....

स्व सहायता समूह का नाम : .....

गाँव का नाम		तहसील	
जिला			

1. सामान्य जानकारी

1. प्रतिवादी का नाम	
2. पिता / पति का नाम	
3. मोबाइल न.	
4. उम्र (वर्ष में)	
5. शैक्षणिक योग्यता	अशिक्षित-1, प्राइमरी-2, हाईस्कूल-3, हायरसेकण्ड्री-4, स्नातक-5, स्नातकोत्तर-6
6. वर्ग (अ)	सामान्य-1, अ.पि.व.-2, अ.जाति-3. अनु.जनजाति-4
7. फार्म (अ)	हिन्दू-1, मुस्लिम-2, सिख-3, इसाई-4, जैन-5, अन्य-6
8. कृषक का व्यवसाय *	मुख्य :---------- सहायक :----------
9. परिवार के कुल सदस्यों की संख्या ----	पुरुष :------ महिला:----बच्चें (<16 वर्ष):-----
10. खेती में लगे परिवार के सदस्यों की संख्या	
11. कृषि कार्य का अनुभव (वर्षों में)	
12. वार्षिक आय (रु.)	कृषि एवं संबद्ध :---------- गैर-कृषि स्त्रोतों से आय :----------

* कोड: कृषि एवं संबद्ध-1, कृषि श्रम-2, स्व-घरेलू उद्योग में कार्यरत-3, स्व सेवाओं में कार्यरत -4, गैर-कृषि आकस्मिक श्रम-5, वेतन भोगी श्रम-6, घर का कार्य -7, पेंशनभोगी-8, अन्य -9 (विशिष्ठ)

2. फार्म मशीनरी (Farm Assets)

विवरण	संख्या	वर्तमान कीमत (रुपये में)	रखरखाव
ट्रेक्टर			
ट्राली			
कल्टीवेटर			
सीडड्रिल			
बखर			
त्रिफन			
हल			
बैल गाड़ी			
अन्य			

3. घरेलू उपभोगी वस्तुऐं (Home Assets) :

विवरण	मात्रा/संख्या	वर्तमान कीमत (रुपये में)	मासिक खर्च
टेलीविजन			
पंखा			
मोबाइल			
मोटर साइकिल			
साइकिल			
अन्य पदार्थ(यदि कोई)			

4. घरेलु मासिक खर्चे (Monthly Household Expenditure Patterns)

विवरण	कीमत (रुपये में)
खाद्य सामग्री (फल,सब्जी एवं दालों आदि सहित)	
कपडे	
शिक्षा (स्कूल फीस एवं पुस्तकों सहित)	
स्वास्थ्य खर्चे	
पशुपालन (चारा दाना एवं दवाओं सहित)	
सामाजिक कार्यक्रम	
अन्य कोई (विशिष्ट)	

5. भू- उपयोग पद्धति (Land use pattern)

विवरण	सिंचित	असिंचित	कुल	सिंचाई के स्त्रोत*	सिंचाई किराया रु./एकड़
स्वयं का रकबा					
कास्तकारी भूमि					
किराये पर ली गयी भूमि					
किराये पर दी गयी भूमि					
गैर कृषि योग्य भूमि स्थायी व अन्य चारागाह					
वर्तमान पडत भूमि					
पुरानी पड़त भूमि					
किराये पर ली गयी भूमि का किराया रू/ एकड़					
किराये पर दी गयी भूमि का किराया रू/ एकड़					

* कोड: कुआं -1, ट्यूब बेल -2, नहर-3, नदी-4, तालाब,अन्य (विशिष्ट)-5

6. फसल पद्धति (Cropping pattern)

मौसम	फसल / सब्जी	किस्म	रकबा (एकड़ में)	
			सिंचित	असिंचित
खरीफ				
रबी				
जायद				

7. एस.आर.आई पद्धति में आदान लागत

विवरण	मात्रा	दर (रु.)
बीज / पौध खरीद (कि.ग्रा.)		
बीज उपचार (ग्रा.)		
जैव उर्वरक/शहरी कम्पोस्ट/नीम की खली इत्यादि		
रासायनिक उर्वरक एवं अन्य सूक्ष्म तत्व (कि.ग्रा.)		
यूरिया		
डी.ए.पी.		
एस.एस.पी.		
पोटाश		
सूक्ष्म तत्व (जिंक/जिप्सम/बोरान/अन्य)		
सिंचाई (संख्या)		
कीटनाशक (मि.ग्रा.)		
खरपतवारनाशी (मि.ग्रा.)		
अन्य		

४. एस.आर.आई की पद्धति में श्रम एवं मशीनरी लागत

विवरण	पुरुष श्रम		महिला श्रम		बक्खर		ट्रेक्टर	
	संख्या	लागत	संख्या	लागत	दिन	लागत	घंटे	लागत
गोबर खाद (कु.)								
गहरी जुताई								
पडलिंग								
बुबाई/पौघ रोपण								
बीजोपचार								
उर्वरक छिडकाव								
पौध संरक्षण								
सिंचाई								
निंदाई								
कटाई								
थ्रेशिंग								
परिवहन								
अन्य								

५. उत्पाद से आय

विवरण	मुख्य उत्पादन (कु.)		बेची गई मात्रा (कु.)		कीमत (रुपये / कु.)	
	मुख्य उत्पादन	अन्य उत्पादन	मुख्य उत्पादन	अन्य उत्पादन	मुख्य उत्पादन	अन्य उत्पादन

10. स्व-सहायता समूह का जीवन स्तर पर प्रभाव

Impact of Self Help Group on Living Status

विवरण	1	2	3	4	5
. स्वसहायता समूह का सम्पूर्ण प्रभाव (Over all benefit of SHGs)					
1 आत्म विश्वास का स्तर					
2 रहन-सहन का स्तर					
3 बच्चों कि शिक्षा					
4 सामाजिक गति विधियां					
5 स्वास्थ्य स्तर					
6 निर्णय लेने कि क्षमता					
7 पशुपालन का रखरखाव					
B. बचत आदतन (Saving Habit)					
1 बचत में सुधार					
2 बचत क्षमता					
3 वित्त/पूँजी/खर्चो पर नियंत्रण					
4 आय बढाने/कमाने की क्षमता					
5 पूँजी पतियों से स्वतंत्रता					
C-सम्पति स्वामित्त एवं आधुनिक साधन (Assets Ownership and Modern Instruments)					
1 भूमि खरीद					
2 पशु खरीद					
3 खेती में तकनीक के अंगीकरण में					
4 पूँजी सेवा में तकनीक के उपयोग की योग्यता					
5 मोबाइल, टी.वी., मोटर साइकिल की खरीद					

* code : 1= Not at all improved, 2= No improvement, 3=Neutral, 4= Improved, 5= Very much Improved

11. स्व-सहायता समूह से आपके जीवन में क्या परिवर्तन आया ।

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12. एस.आर.आई पद्धिति द्वारा धान उत्पादन एवं अंगीकरण में आने वाली समस्याएं ।

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13. एस.आर.आई पद्धिति द्वारा धान उत्पादन से सम्बंधित सुझाव ।

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14. एस.आर.आई पद्धिति द्वारा धान उत्पादन से संबंधित प्रशिक्षण की आवश्यकता ।

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15. एस.आर.आई पद्धति की जानकारी का स्त्रोत -

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16. सदस्य की टीप (यदि कोई) ।

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Agro-Economic Research Centre for Madhya Pradesh & Chattisgarh

Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur (M.P.) 482 004

Tele-fax : 0761-2680315, E-mail : aerc_jbp@yahoo.co.in, Web: www.aerc.jnkvv.org