

Factors Affecting on SRI System of Paddy Cultivation in Balaghat Ddistrict of Madhya Pradesh

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ABSTRACT

The study was conducted in Balaghat district of Madhya Pradesh during the year 2009 to 2010. Total 120 respondents were selected on random basis. The selected paddy growers were grouped into different categories according to their extent of adoption by using adoption index of SRI system of paddy cultivation developed by Sharma et.al. (2003). By using of this adoption index the sample respondents were classified (mean \pm 1 standard deviation) according to their levels of adoption. There was an average adoption gap at 35.40 per cent was existed in paddy production SRI technology in the area under study, which showed decreasing trend with the level of adoption low (38.23%), to high(31.08%) (Table-1). There was gap from 7.33 per cent (field preparation) to 100 per cent (micronutrients and disease control) in various recommended practices.

Key words: Respondents; Factor; SRI technology

Rice is the staple food crop of India, providing 43 per cent of caloric requirement for more than 73 per cent of Indian population. India ranks first in world in area (45 m ha) and second to China in production (89.5 m.ton) among all the rice growing countries. During the last five decades, the rice production trend has steadily grown to 1.8 million tons during 2001. Indian crossed Vietnam during 2002 by exporting 5.5 million tons to occupy second position next only to Thailand. (Rice–research in India, B. Mishra,2001). The average annual population growth rate of 1.5 per cent and per capita consumption estimate of about 400g of rice per day, demand for rice is expected to be 100 million tons during 2010 and 140 million tons by 2025. The demand can only be met by maintaining the increase in productivity under decreasing trend of land availability and total factor productivity and has to meet the demands for sustainability and preservation of environment quality.

Assembly of the practices that culminated in SRI began in the 1960s based on Fr. de Laulanie’s observation of ‘positive-deviant’ farmer practices, starting with planting single seedlings instead of multiple seedlings in a clump, and not keeping irrigated paddy fields flooded during the rice plants’ vegetative growth stage. Keeping this in view the study was designed to find out the extent of adoption of recommended practices of SRI technology of paddy cultivation and

relationship of the characteristics of paddy growers with their level of adoption. The specific objectives of the study are:

1. To determine the factors affecting adoption gap at different levels of adoption.
2. To determine the factors affecting adoption of SRI system of paddy cultivation.

METHODOLOGY

The study was conducted in Balaghat district of Madhya Pradesh during the year 2009 to 2010. Total 120 respondents were selected on random basis. The selected paddy growers were grouped into different categories according to their extent of adoption by using adoption index of SRI system of paddy cultivation developed by *Sharma et.al. (2003)*. By using of this adoption index the sample respondents were classified (mean \pm 1 standard deviation) according to their levels of adoption. The data were collected with the help of pre tested interview schedule. Factors which affect adoption of SRI system of paddy cultivation were identified and their affects were assess by using multiples regression analysis of following form:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6$$

Where,

The yield gap I, yield gap II, and yield gap III where analyzed as;

$$\text{Yield gap (i) (\%)} = \frac{\text{Potential Yield} - \text{Maximum farm yield}}{\text{Potential Yield}} \times 100$$

$$\text{Yield gap (ii) (\%)} = \frac{\text{Maximum Farm Yield} - \text{Average farm yield}}{\text{Maximum Farm Yield}} \times 100$$

$$\text{Yield gap (iii) (\%)} = \frac{\text{Potential Yield} - \text{Average farm yield}}{\text{Potential Yield}} \times 100$$

y= Adoption (%) (Dependent variable)

X1 = Age (years)

X2 = Education (years of schooling)

X3 = size of land holding (ha)

X4 = Irrigated area (ha)

X5 = Cropping intensity (%)

X6 = Expenses on farm assets (Rs/ha)

X1 to X6 = Independent variable

b1 to b6 = Regression coefficient

RESULTS AND DISCUSSION

The total expenditure incurred in paddy cultivation by SRI technology at full package of recommended practices was observed Rs. 18740 per ha. The average cultivator invested only Rs. 12105 per ha for cultivation of paddy in their field. The expenditure incurred by adopter was more as compared to low adopters. There was an average adoption gap at 35.40 per cent was existed in paddy production SRI technology in the area under study, which showed decreasing trend with the level of adoption low (38.23%), to high (31.08%) (Table-1). There was gap from 7.33 per cent (field preparation) to 100 per cent (micronutrients and disease control) in various recommended practices. Maximum (cent per cent gap) with recommended package of practices was observed for micronutrient and disease control technologies followed by 67.5 per cent, 52.93 per cent, 29.72 per cent, 25.83 per cent, 24.67 per cent, 14.67 per cent, 9.81 per cent and 7.33 per cent respectively in biofertilizers, seed treatment, integrated pest management, weed management, transplanting, fertilizer and manures, harvesting, high yielding variety seed, and field preparation increases with level of adoption, while rest of all practices gap decreases with level of adoption. *Factors affecting adoption Pattern:* To evaluate the factor, which affects adoption pattern of SRI technology of paddy growers like age, education, size of land holding, irrigated area, farm assets and cropping intensity were considered (Table 2). Out of these, age, education, cropping intensity showed positive and highly significant

Table 1 : Adoption gap in various practices of SRI technology in paddy cultivation at different levels of adoption (Rs/ha)

Particulars	Expenditure at			Levels of adoption	
	RPP	Low	Moderate	High	Average
Field preparation	1000 (100)	950 50 (5)	930 70 (7)	900 100 (10)	926.67 73.33 (7.33)
HYV seed	900	750 150 (16.67)	825 75 (8.33)	860 40 (4.44)	811.67 88.33 (9.81)
Transplanting	4000 (100)	3000 1000 (25)	2800 1200 (30)	3100 900 (22.5)	2966.67 1033.34 (25.83)
Bio fertilizer	80 (100)	20 60 (75)	30 50 (62.5)	28 52 (65)	26 54 (67.5)
Fertilizer & manure	2345 (100)	1500 845 (36.03)	1800 545 (23.24)	2000 345 (14.71)	1766.67 578.33 (24.67)
Seed treatment	90 (100)	35 65 (72.22)	31 69 (76.67)	27 63 (70)	31 59 (65.56)
Weed management	3225 (100)	2200 1025 (31.78)	2500 775 (24.03)	2700 525 (16.28)	2266.67 958.33 (29.72)
IPM	2500 (100)	1230 1270 (50.8)	1300 1200 (48)	1000 1500 (60)	1176.67 1323.33 (52.93)
Harvesting	2500 (100)	1900 600 (24)	2200 300 (12)	2300 200 (8)	2133.33 366.67 (14.67)
Use of micronutrient	600 (100)	0.00 600 (100)	0.00 600 (100)	0.00 600 (100)	0.00 600
Disease control	1500 (100)	0.00 1500 (100)	0.00 1500 (100)	0.00 1500 (100)	0.00 1500 (100)
Total cost	18740 (100)	11585 7165 (38.23)	12416 6384 (31.08)	12915 5825 (35.40)	12105 6634.66

(Figures in parenthesis show the percentage adoption gap & figures *Italic and bold* shows adoption gap)

(RPP = Recommended Package of Practices)

response over adoption pattern, while size of holding and irrigated area showed negative but non-significant response over adoption. The flitted Cobb-Doglous production function explained 37% affects from these variables revealed that remaining was the affects of other unknown variables, which were not considered in this function. It is concluded from the above discussion

that for increasing level of adoption of SRI technology of paddy cultivation efforts should be taken by conducting demonstration on experienced farmer's (old age) field, increased area under irrigation, coupled with providing managerial skill for management of uneconomic (large) size of holding, were the level of adoption was low.

Table 2: Factors affecting adoption pattern

Variable	"r"	"b"	t value of b	S.E.
Constant (a)	1.00	57.28	6.274	9.13
<i>Adoption Variables</i>				
Age of head	0.05	5.27	1.04	5.09
Education of head	0.32	4.35*	2.25	1.93
Size of holding	0.35	-0.35	-0.34	1.01
Irrigated area	0.21	-0.007	-0.01	0.73
Farm assets	0.22	0.60	0.1	6.02
Cropping intensity	0.57	6.55	4.60	1.42
R ² (%)	36			

(- Significant at the 1 per cent level, *Significant at the 5 per cent level)

CONCLUSION

There was an average adoption gap at 35.40 per cent was existed in paddy production SRI technology in the area under study, which showed decreasing trend with the level of adoption low (38.23%), to high (31.08%) (Table-1). There was gap from 7.33 per cent (field preparation) to 100 per cent (micronutrients and disease control) in various recommended practices. Cultivators also reported that they were adopting transplanting method in rice production but they were not have sufficient knowledge about SRI technology (Plant to plant and r-r distance, nursery bad preparation etc). From the above conclusion it is suggested that for increasing the adoption of SRI technology of paddy cultivation it is necessary there should be an effective channel of transfer of technology from research station to farmers field so that the package of practices of SRI technology of paddy cultivation can transfer effectively at farmers field. Efforts should also be made for increasing level of education, membership of co-operative society irrigated area by creating self-help group in the area.

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