

## **Factors Favour the adoption of SRI System of Paddy Cultivation and Problems in its adoption in Gumla district of Jharkhand.**

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**Abstract:-** The study was conducted in two development blocks i.e. Bishunpur and Ghaghra of Gumla district, Jharkhand. This study was carried out to find the most significant factor which favours SRI and main constraint in adoption of SRI system of paddy cultivation. Total sixty respondents were selected out of which thirty were cultivated paddy with SRI and thirty were cultivated with conventional method. Garrett's ranking method was used to fulfill this objective. According to this, factors high yield, low seed rate, less water requirement, low weeding cost were rank I, II, III, IV respectively, which favours adoption of SRI. Constraints lack of skilled labour, lack of awareness, lack of resources, absence of risk bearing ability, lack of training were rank I, II, III, IV, V respectively.

**Keywords:** SRI, Garrett's ranking, Factors.

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### **I. INTRODUCTION**

Rice is an important ingredient of household food basket. India is one of the leading rice producing countries of the world with cultivated area of 43.95 Mha and production of 106.54 Mt in 2013-14. The leading states in rice production are: West Bengal, Uttar Pradesh, Andhra Pradesh, Punjab, and Orissa. Jharkhand ranked fourteenth with cultivated area of 1.22 Mha and production of 2.74 Mt 2013-14 (GOI, 2014). Rice is a main crop of Jharkhand. Mainly kharif rice is grown in the state whereas boro or summer rice is being cultivated in some areas. Rice is cultivated as conventional transplanting, SRI (system of rice intensification) and broadcast under wet land Condition (Hassan *et al.* 2015). The innovative paddy management system that can reduce water requirements and the costs of cultivation while boosting yields was introduced in Jharkhand, known as, System of Rice Intensification (SRI). It is promoted among poor tribal and non tribal farmers in Jharkhand by NGOs like CINI, PRADAN (Professional Assistance for Development Action) etc. System of Rice Intensification (SRI) is a new system of rice cultivation for increasing rice productivity with a comprehensive package of practices involving less seed, water, chemical fertilizers and pesticides (Devi *et al.* 2009). The specific objectives of this study are:

- To know the most significant factor which favours adoption of SRI and
- The most important constraint which hinders the adoption of SRI.

### **II. METHOD AND MATERIALS**

To find out the most significant factor which favours the respondent to adopt SRI and constraints in adoption of SRI Garrett's ranking technique was used. As per this method, respondents have been asked to assign the rank for all factors and the outcomes of such ranking have been converted into score value with the help of the following formula:

$$\text{Percent position} = 100 (R_{ij} - 0.5) / N_j$$

Where,

$R_{ij}$  = Rank given for the  $i$ th variable by  $j$ th respondents

$N_j$  = Number of variable ranked by  $j$ th respondents

With the help of Garrett's Table, the percent position estimated is converted into scores. Then for each factor, the scores of each individual are added and then total value of scores and mean values of score is calculated. The factors having highest mean value is considered to be the most important factor.

### **III. RESULT AND DISCUSSION**

To know the most significant factors that influence the adoption of SRI, the Garrett's ranking technique has been used. The calculated percentage positions for the ranks 1, 2, 3 and 4 and their corresponding Garrett's table values are given in Table 1.1. Table 1.1 shows the percentage positions for the ranks 1, 2, 3 and 4 and their

corresponding Garrets table values. For Rank1, the calculated percentage position was 12.5 and the table value is 73. This value is given in the Garrets ranking table for the percentage 12.04, which was very near to 12.5. As like for all the calculated percentage positions, the table values are referred from Garrett’s ranking table.

**Table 1.1: Percentage positions and their corresponding Garetts Table values**

Rank	Percent Position		Garret’s table value
1	100 (1-0.5) / 4	12.5	73
2	100(2-0.5) / 4	37.5	56
3	100 (3-0.5) / 4	62.5	44
4	100 (4-0.5) / 4	87.5	27

Table 1.2 shows the number of respondents ranking the factors as 1, 2, 3 and 4 for the adoption of SRI method of rice cultivation. This Table also shows the total score and the mean score:

**Table 1.2: Total score and Mean score for different factors**

S.No.	Factor	Rank				Total no. ofresponden t	Total score	Mean score	Rank
		1	2	3	4				
1	Low seed rate	6	10	9	5	30	1529	50.96	II
2	High yield	19	7	4	0	30	1955	65.16	I
3	Less water requirement	5	8	10	7	30	1442	48.06	III
4	Low weeding cost	0	5	7	18	30	1074	35.8	IV

**Note:** For all the factors total score was calculated by multiplying the number of respondents ranking that factor as 1, 2, 3 and 4 by their respective table values given in Table 5.9. Mean score is calculated by dividing the total score by the number of respondents.

It was seen from Table 1.2 that rank found according to the Garrett ranking for the factors low seed rate, high yield, less water requirement, low weeding cost were II, I, III, IV respectively. The factors which influence the respondents to adopt the SRI practice were in this order high yield, low seed rate, less water requirement, low weeding cost. Thus it was concluded that the factor with rank I by the garret ranking technique was most significant factor which was high yield.To know the most significant constraints in adoption of SRI the calculated percentage positions for the ranks 1,2,3,4 and 5 and their corresponding Garrett’s table values is given in Table 1.3.

**Table 1.3: Percentage positions and their corresponding Garrett’s Table values**

Rank	Percent Position		Garrett’s table value
1	100 (1-0.5) / 5	10	75
2	100(2-0.5) / 5	30	60
3	100 (3-0.5) / 5	50	50
4	100 (4-0.5) / 5	70	40
5	100 (5-0.5) / 5	90	24

Table 1.3 shows the percentage positions for the ranks 1,2,3,4 and 5 and their corresponding Garret’s table values. For Rank 1, the calculated percentage position was 10 the table value is 75. This value is given in the Garrets ranking table for the percentage 10.06, which was very near to 10. As like for all the calculated percentage positions, the table values were referred from Garrett’s ranking table.

Table 1.4 shows the number of respondents ranking the factors as 1,2,3,4 and 5 for the adoption of SRI method of rice cultivation. Table also shows the total score and the mean score.

**Table 1.4: Total score and Mean score for different factors**

S.No	Constraints	Rank					Total no. of respondent	Total score	Mean score	Rank
		1	2	3	4	5				
1	Lack of skilled labour	9	9	1	1	0	30	2055	68.5	I
2	Lack of awareness	10	10	9	2	3	30	1652	55.06	II
3	Lack of training	2	2	3	12	12	30	1113	37.10	V

4	Absence of risk bearing ability	4	4	8	10	7	30	1283	42.76	IV
5.	Lack of resources	5	5	9	5	8	30	1367	45.56	III

**Note:** For all the factors total score is calculated by multiplying the number of respondents ranking that factor as 1, 2, 3 and 4 by their respective table values given in Table 5.9. Mean score is calculated by dividing the total score by the number of respondents.

It was seen from Table 1.4 that rank found according to the Garrett's ranking for the constraints lack of skilled labour, lack of awareness, lack of training, absence of risk bearing ability, lack of resources were I, II, V, IV, III respectively. The Constraints in adoption of the SRI practice were in this order lack of skilled labour, lack of awareness, lack of resources, absence of risk bearing ability, and lack of training. Thus it was concluded that the constraint with rank I by the garret ranking technique was most significant factor which was lack of skilled labour.

#### IV. CONCLUSION

The factors which favour the respondents to adopt the SRI practice were in this order high yield, low seed rate, less water requirement, low weeding cost. Thus it was concluded that the most significant factor was high yield. The constraints in adoption of the SRI practice were in this order lack of skilled labour, lack of awareness, lack of resources, absence of risk bearing ability, and lack of training.

From the above conclusion it is suggested that for increasing the adoption of SRI technology of paddy cultivation it is necessary to provide timely guidance and training to the farmers from the extension agencies and to the persons involved in the transfer of technology (like members of PRADAN) to the farmer's fields.

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