

## ADOPTION LEVEL AND CONSTRAINTS IN SUMMER RICE PRODUCTION TECHNOLOGY

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**Abstract:** The study was carried out to determine the farmers' adoption behavior on summer rice production technology. The farmers were selected from Dhamtari District of Chhattisgarh during 2013-14. Findings of the study revealed that 67.36 per cent respondents had adopted high level followed by 23.61 per cent and 9.03 per cent respondents had adopted the summer rice production technology at medium and low level respectively. The major constraints among the several constraints lack of education, small size of land and home related problem, problem of grazing and others not adopted new technology, lack of motivation and guidance about summer rice cultivation, requirement of more investment for summer rice cultivation, no facility of crop insurance, credit is not available at proper time and lack of minimum support price, lack of extension services, lack of rice based industries and distance of krishi Upaj mandi.

**Keywords:** Adoption, Constraints, Production Technology

## INTRODUCTION

Rice (*Oryza sativa* L.) is one of the important food crops of the world both in terms of area (147.30 million ha.) and production (518.40 million tons) it is consumed by more than half of the world population. About 90 per cent of world rice is grown and consumed in Asia and about 2.8 million people derive 35-39 per cent calories intake from rice. Rice is the staple food for more than 65 per cent of the people of India. At present the rice is grown in 44.6 million ha and the production in the country is around 90 MT.

In India, rice is grown in 39.47 million ha during *kharif* season with average productivity of 2217 kg/ha (2011-12). Summer rice is grown in 4.83 million ha with average productivity of 3174 kg/ha (2010-11) in the country. Net sown area of the Chhattisgarh state is 4.828 m ha and the gross sown area is 5.788 m ha. In Chhattisgarh, rice is grown in 3.788 million ha during *kharif* season with average yield of 1751 kg/ha (2010-11). In Chhattisgarh, area under *rabi* crops is 1.707 million ha. During *rabi*

season irrigation is available for 0.361 million ha, in which, share of summer rice is 45 per cent (0.164 million ha) with average yield of 1941kg/ha (Sonit, 2013).

## MATHODOLOGY

The study was conducted in Dhamtari district of Chhattisgarh state. Two blocks namely Dhamtari and Kurud were randomly selected; further, twelve villages from each block were selected. From each village ten farmers were randomly selected. Thus in all, 144 farmers were selected. The data on constraints aspects of summer rice cultivation were collected through pre-structured questionnaires. To measure the constraints responsible for low adoption of summer rice production technology, a suitable schedule was developed to enlist the possible constraints. Each of the main constraints areas was further divided into sub-areas.

## FINDINGS AND DISCUSSION

**Table 1.** Distribution of respondents according to their level of knowledge regarding summer rice production technology (n=144)

S.N.	Practices	Level of knowledge		
		Low F (%)	Medium F (%)	High F (%)
1.	Time of seed sowing	9 (6.25)	26 (18.06)	109 (75.69)
2.	Seed rate	14 (9.72)	53 (36.81)	77 (53.47)
3.	Improved varieties	2 (1.39)	11 (7.64)	131 (90.97)
4.	Application of manure fertilizers	4 (2.78)	101 (70.14)	39 (27.08)

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5.	Water management	0 (0)	98 (68.05)	46 (31.95)
6.	Weed control	9 (6.25)	59 (40.97)	76 (52.78)
7.	Insect control	3 (2.08)	24 (16.67)	117 (81.25)
8.	Disease control	4 (2.78)	67 (46.53)	73 (50.69)

f = frequency,

(%) = percent

The data presented in Table 1 reveals that the respondents had low level of knowledge regarding selected practices of summer rice production technology i.e. Seed rate (9.72%), time of seed sowing and weed control (6.25%), application of manure & fertilizers and disease control (2.78%) and insect control (2.08). None of the respondents had low level of knowledge regarding water management. Whereas the respondents who had medium level of knowledge regarding summer rice production technology i.e. application of manure &

fertilizers (70.14%), water management (68.05%), disease control (46.53%), weed control (40.97%), seed rate (36.81%), time of seed sowing (18.06%), insect control (16.67%) and improved varieties (7.64%).

While, in case of high knowledge group selected practices are improved varieties (90.97%), insect control (81.25%), time of seed sowing (75.69%), seed rate (53.47%), weed control (52.78%), disease control (50.69%), water management (31.95%) and application of manure & fertilizers (27.08%).

**Table 2.** Distribution of respondents according to their overall knowledge regarding summer rice production technology (n=144)

Level of knowledge	Frequency	Percentage
Low ( up to 33.33% )	28	19.44
Medium ( 33.34 to 66.66% )	99	68.75
High ( above 66.66 )	17	11.81

The data regarding overall level of knowledge of respondents summer rice production technology are presented in Table 2 indicated that the majority of the respondents (68.75%) had medium level of knowledge regarding summer rice cultivation, whereas, 19.44 and 11.81 per cent of respondents

were having low and high level of knowledge, respectively.

It can be concluded that, most of the respondents (68.75%) had medium level knowledge regarding summer rice cultivation.

**Table 3.** Distribution of respondents according to their level of adoption regarding summer rice production technology (n=144)

S.N.	Practices	Level of adoption		
		Low F (%)	Medium F (%)	High F (%)
1.	Time of seed sowing	7 (4.86)	61 (42.36)	76 (52.78)
2.	Seed rate	9 (6.25)	79 (54.86)	56 (38.89)
3.	Improved varieties	4 (2.78)	37 (25.69)	103 (71.53)
4.	Application of manure fertilizers	8 (5.56)	73 (50.69)	63 (43.75)
5.	Water management	0 (0)	87 (60.42)	57 (39.98)
6.	Weed control	5 (3.47)	66 (45.83)	73 (50.70)
7.	Insect control	3 (2.08)	36 (25.00)	105 (72.92)
8.	Disease control	5 (3.47)	81 (56.25)	58 (40.28)

f = frequency,

(%) = percentage

The data presented in Table 3 reveals that the respondents had low level of adoption regarding selected practices of summer rice production technology i.e. Seed rate (6.25%), application of manure & fertilizers (5.56%), time of seed sowing (4.86%), weed control and disease control (3.47), improved varieties (2.78%), insect control (2.08%). And none of the respondents had low level of adoption regarding water management. Whereas the respondents who had medium level of adoption regarding summer rice production

technology i.e. water management (60.42%), disease control (56.25%), seed rate (54.86%), application of manure & fertilizers (50.69%), weed control (45.83%), time of seed sowing (42.36%), improved varieties (25.69%) and insect control (25.00%). While, in case of high adoption group selected practices are insect control (72.92%), improved varieties (71.53%), time of seed sowing (52.78%), weed control (50.70%), application of manure & fertilizers (43.75%), disease control (40.28%), water management (39.58%) and seed rate (38.89%).

**Table 4.** Distribution of respondents according to their overall adoption regarding summer rice production technology (n=144)

Level of adoption	Frequency	Percentage
Low ( up to 33.33% )	34	23.61
Medium ( 33.34 to 66.66% )	97	67.36
High ( above 66.66% )	13	9.03

It is clearly indicated from the Table 4 that 67.36 per cent of respondents had medium level of adoption about summer rice production technology, followed by low level adoption category which comprised of

23.61 per cent of the respondents. While, only 9.03 per cent of the respondents were found in high level of adoption category. Kushwaha (2005) also noted almost similar findings.

**Table 5.** Distribution of the respondents according to their socio-economic constraints (n=144)

Constraints	Frequency*	Percentage
<b>Personnel constrains</b>		
Home related problem	23	15.97
Small size of land	28	19.44
Lack of education	45	31.25
<b>Social constraints</b>		
Others not adopted new technology	22	15.27
Lack of motivation and guidance about summer rice	18	12.5
Problem of grazing	27	18.75
<b>Economical constraints</b>		
Requirement of more investment	83	57.63
Credit is not available at proper time	62	43.05
Lack of minimum support price	44	30.55
No facility of crop insurance	78	54.16
<b>Institutional constraints</b>		
Lack of extension services	54	37.50
Distance of krishi Upaj Mandi	38	26.38
Lack of rice based industries	46	31.94

\* Data are based on multiple responses

The data indicated Table 5 that regarding constraints in adoption of cultivation practices of summer rice. As regards to personnel constraints, 31.25 per cent lack of education, 19.44 per cent small size of land and 15.97 per cent home related problem. Similarly, social constraints problem of grazing (18.75%), 15.27 per cent others not adopted new technology and 12.50 per cent lack of motivation and guidance about summer rice cultivation.

As regards to economical constraints, 57.63 per cent requirement of more investment for summer rice cultivation, followed by 54.16 per cent no facility of crop insurance, 43.05 per cent credit is not available at proper time and 30.55 per cent lack of minimum support price.

In case of institutional constraints, 37.50 per cent lack of extension services, followed by 31.94 per cent lack of rice based industries and 26.38 per cent distance of krishi Upaj mandi.

## CONCLUSION

Majority of the farmers showed medium level of overall adoption of recommended technology. lack of education, small size of land and home related problem, problem of grazing and others not adopted new technology, lack of motivation and guidance about summer rice cultivation, requirement of more investment for summer rice cultivation, no facility of crop insurance, credit is not available at proper time and lack of minimum support price, lack of extension services, lack of rice based industries and distance of krishi Upaj mandi.

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