

KNOWLEDGE LEVEL AND ADOPTION PATTERN OF RICE PRODUCTION TECHNOLOGY AMONG FARMERS

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ABSTRACT

The present study was conducted in Hanumangarh district to assess knowledge level and extent of adoption of rice production technology by the farmers. Out of seven tehsils of Hanumangarh district, two tehsils were selected on the basis of higher production of rice. From each selected tehsil, five villages were selected on the basis of higher production of rice. Total 20 rice growers were selected from each village making a total sample of 200 farmers. The results indicated that 70.00 per cent farmers had medium level of knowledge. Farmers had very good amount of knowledge (above 90%) in practices like irrigation management, high yielding varieties and soil and field preparation, while they had poor knowledge regarding seed and soil treatment. About 68.50 per cent farmers had medium extent of adoption followed by low and high extent of adoption. Farmers had very good extent of adoption regarding recommended irrigation management practices (75.19 MPS) and useful method of planting. They had very low extent of adoption in recommended storage practices.

INTRODUCTION

Oryza sativa is grown all over the world. India is the second leading producer of rice in the world after China. Rice is grown extensively in India on 43.77 million ha. area with an annual production of 96.43 million tones, having an average yield of 2203 kg/ha. (Anonymous, 2008). Annual consumption of rice in India is around 85 million tonnes. In India rice is cultivated in both cropping seasons - winter and summer. In Rajasthan rice is grown in an area of 150691 ha. with a production of 228284 tonnes (Anonymous, 2010). The major rice growing districts in Rajasthan are Banswara, Dungarpur, Kota, Bundi, Ganganagar and Hanumangarh. Hanumangarh is the leading district with the production of 84380 tonnes and productivity is also far higher (3425 kg/ha) as against the state average of 1515 kg/ha (GOR, 2009-10). The soil and climate of Hanumangarh district is most suitable for rice cultivation and production of rice can be increased through timely adoption of recommended rice production technology by the farmers. Keeping these facts in view the present study was undertaken with the following specific objectives:

- (1) To assess the knowledge level of farmers about the rice production technology.
- (2) To find out the extent of adoption of rice production technology by the farmers.

RESEARCH METHODOLOGY

There are seven tehsils in Hanumangarh district of Rajasthan, out of which two tehsils namely Tibbi and Hanumangarh were selected on the basis of higher production of rice. For the selection of villages, a complete list of all the major rice growing villages was prepared in consultation with the personnel of Revenue and Agriculture Departments of the selected tehsils. From the list so prepared, five villages were selected from each selected tehsil on the basis of higher production of rice. Thus, in all ten villages were selected for the investigation. For selection of farmers, a comprehensive list of rice growers was prepared with the help of village Patwari, Gram Sevak and Agriculture Supervisor of respective village. Total 20 rice growers were selected randomly from each identified village making a total sample of 200 farmers for the present study. The responses of the farmers

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were collected through a comprehensive schedule developed by the researcher in consultation with the experts. Later the responses were tabulated, analyzed and results were presented.

RESULTS AND DISCUSSION

(A) Distribution of farmers according to personal characteristics

The data regarding the personal characteristics of farmers viz., age, education, family

size, family type, caste, social participation, occupation, income, size of land holding and information source used are presented in Table-1.

Age: Table 1 shows that majority of farmers belonged to middle age group i.e. between 30-49 years of age. This age group alone constituted 59.50 per cent of the total sample. Further, 24.50 and 16.00 per cent farmers were from young and old age groups, respectively.

Education Level: The data presented in Table-

Table 1. Distribution of farmers according to their personal attributes

(n = 200)

S. No.	Personal attributes	No. of farmers	Per cent of farmers
1.	Age		
(i)	Young (below 30 years)	49	24.50
(ii)	Middle (30-49 years)	119	59.50
(iii)	Old (above 49 years)	32	16.00
2.	Education Level		
(i)	Low educated (upto primary)	49	24.50
(ii)	Medium educated (Middle to High School)	115	57.50
(iii)	High educated (above High School)	36	18.00
3.	Family Size		
(i)	Small family – up to five members	74	37.00
(ii)	Large family – above five members	126	63.00
4.	Family Type		
(i)	Nuclear	105	52.50
(ii)	Joint	95	47.50
5.	Caste		
(i)	Schedule Caste	27	13.5
(ii)	Other backward Caste	139	69.50
(iii)	General Caste	34	17.00
6.	Social Participation		
(i)	No membership in any organization	134	67.00
(ii)	Membership in some organization	66	33.00
7.	Occupation		
(i)	Only Agriculture	103	51.50
(ii)	Agriculture + Business	71	35.50
(iii)	Agriculture + Service	26	13.00
8.	Income Per Year		
(i)	Low (below ` 1.50 lakh)	23	11.50
(ii)	Medium (Between ` 1.50 to ` 5.75 lakh)	145	72.50
(iii)	High (Above ` 5.75 lakh)	32	16.00
9.	Size of Land Holding		
(i)	Marginal (Less than 1 ha.)	10	5.00
(ii)	Small (1 to 2 ha.)	56	28.00
(iii)	Big (Above 2 ha.)	144	77.00
10.	Information Source Used		
(i)	Low (below 52.94)	64	32.00
(ii)	Medium (52.94 to 87.48)	93	46.50
(iii)	High (Above 87.48)	43	21.50

1 shows that 57.50 per cent of the total farmers were medium educated i.e. from middle to high school standard, 24.50 per cent farmers were low educated

i.e. upto primary and only 18.00 per cent of them were highly educated i.e. above high school.

Family Size: Observation of Table-1 shows

that majority of the farmers belonged to large family size. This group constituted 63.00 per cent of the total sample and rest 37.00 per cent farmers were from small families.

Family Type: Table-1 shows that majority of farmers belonged to nuclear family. This family type constituted 52.50 per cent of the total sample and rest 47.50 per cent were from joint family.

Caste: The data presented in Table-1 shows that majority of farmers i.e. 69.50 per cent belonged to Other Backward Class followed by General and Scheduled Caste with 17.00 and 13.50 per cent, respectively.

Social Participation: The data reported in Table-1 shows that majority of farmers (67.00%) were not having membership in any social organization.

Occupation: Table-1 shows that majority (51.50%) of the farmers were engaged in agriculture only. Whereas, 35.50 and 13.00 per cent farmers were engaged in agriculture along with business and agriculture along with services, respectively for their livelihood.

Annual Income: Table-1 revealed that majority of farmers belonged to middle income group i.e. between ₹ 1.50 to ₹ 5.75 lakh per annum. This income group alone constituted 72.50 per cent of the total sample. Further, 11.50 and 16.00 per cent farmers were from low and high income groups, respectively.

Size of Land Holding: The data presented in Table-1 shows that 77.00 per cent of the total farmers were big, whereas 28.00 per cent farmers were small and rest 5.00 per cent of them were marginal farmers.

Information Source Used: The data presented in Table-1 shows that 46.50 per cent of the total farmers were using information sources upto medium level. Only 32.00 per cent farmers were under low level of information source used and rest 21.50 per cent of them were using information source to a high extent.

(B) Level of knowledge of farmers about rice production technology

To gather the information related to knowledge level of farmers regarding rice production technology, 12 major practices of rice production were included in the test (Table-3). Each practice had several questions for knowledge

assessment. These 12 practices of rice production technology further divided into 101 questions. Knowledge scores were assigned on the basis of performance of farmers in the knowledge test, one mark was given for every right answer and zero for every wrong answer. The farmers were divided into three categories i.e. low, medium and high level of knowledge based on the mean score (67.40) and standard deviation (4.60).

The statistical data regarding the level of knowledge of farmers about recommended rice production technology practices were presented in Table-2. The data revealed that majority of the farmers i.e. 70.00 per cent had medium level of knowledge followed by low and high level of knowledge with 16.00 and 14.00 per cent farmers, respectively.

Table 2. Distribution of farmers according to level of knowledge (n = 200)

S. No.	Level of knowledge	f	%
1.	Low (below 63 score)	32	16.00
2.	Medium (63 – 72 score)	140	70.00
3.	High (Above 72 score)	28	14.00

The findings of the study are in conformity with the findings of Ashiwal (2006). Further, the farmers knowledge about different aspects of rice production technology was analysed separately. The MPS (Mean Percent Score) were calculated. The relative importance of all the 12 aspects of rice production technology was highlighted by ranking in descending order.

Table 3. Practice wise level of knowledge of farmers regarding rice production technology (n = 200)

S. No.	Package of practices	MPS	Rank
1.	Soil and field preparation	94.33	III
2.	Soil treatment	08.44	XII
3.	High yielding varieties	94.66	II
4.	Seed treatment	23.11	XI
5.	Time and method of sowing	66.00	VI
6.	Seed rate and spacing	55.50	VII
7.	Nursery raising	44.85	IX
8.	Fertilizer application	93.67	IV
9.	Weed management	55.00	VIII
10.	Irrigation management	95.33	I
11.	Plant protection measures	71.03	V
12.	Harvesting, threshing and storage	35.86	X
Pooled		61.51	

Table 3 the data shows that farmers had very good amount of knowledge (above 90%) in practices like irrigation management, high yielding varieties, soil and field preparation and fertilizer application with 95.33, 94.66, 94.33 and 93.67 MPS, respectively. Farmers possessed good amount of knowledge (above 50%) in the practices like plant protection measures, time and method of sowing, seed rate and spacing, weed management & nursery raising and assigned V, VI, VII and VIII ranks respectively. They possessed poor knowledge regarding nursery raising, harvesting, threshing and storage, seed treatment and soil treatment.

Table 4. Distribution of farmers according to extent of adoption (n = 200)

S. No.	Extent of adoption	No. of farmers	Per cent of farmers
1.	Low (upto 55)	36	18.00
2.	Medium (55 – 65)	137	68.50
3.	High (Above 65)	27	13.50

The findings of the study are in conformity with the findings of Ganesan and Seethalakshmi (2002).

(C) Extent of adoption of rice production technology among farmers

The data presented in Table 4 revealed that 13.50 per cent farmers were high adopters, 18.00 per cent were low adopters and rest 68.50 per cent farmers were in the category of medium adopters of rice production technology.

If we look the data reported in Table-5, it is observed that farmers had very good extent of adoption regarding recommended irrigation management practices and useful methods of planting with 75.19 and 74.30 MPS, respectively. Similarly, the practices like recommended methods and time of harvesting of crop, using recommended dose and time of use of nitrogenous fertilizers, adoption of high yielding varieties, maintaining recommended plant to plant and row to row spacing, using recommended dose and time of phosphatic fertilizers, using recommended chemicals and their concentration and time of spray for disease control, using recommended weed management practices and following recommended time of sowing were adopted relatively at higher degree with 72.25, 70.43, 68.30, 67.83, 63.64, 55.60 and 53.92 MPS respectively. In rest of practices, they had low extent of adoption ranging from 52.17 to 41.17 MPS.

Table 5. Practice wise extent of adoption of rice production technology among farmers (n = 200)

S. No.	Package of practices	MPS	Rank
1.	High yielding varieties	68.80	V
2.	Recommended soil treatment	50.75	XIV
3.	Following recommended time of sowing	53.92	X
4.	Useful methods of planting	74.30	II
5.	Recommended seed rate	49.25	XV
6.	Raising of nursery	52.17	XI
7.	Recommended seed treatment	51.25	XIII
8.	Maintaining recommended plant to plant and row to row spacing	67.83	VI
9.	Recommended dose and time of use of nitrogenous fertilizers	70.43	IV
10.	Recommended dose and time of use of phosphatic fertilizers	63.70	VII
11.	Recommended weed management practices	55.60	IX
12.	Recommended irrigation management practices	75.19	I
13.	Recommended chemicals, their concentration and time of spray for disease control	63.64	VIII
14.	Recommended chemicals, their concentration and time of spray for insect pest control	51.85	XII
15.	Recommended methods and time of harvesting of crop	72.25	III
16.	Recommended storage practices	41.17	XVI
Pooled		60.30	

The findings of the study are in conformity with the findings obtained by Kumawat (2005) and Jat (2008).

CONCLUSION

On the basis of findings it can be concluded that majority of the farmers belonged to medium level of knowledge group followed by low and high knowledge group. Farmers possessed more knowledge about irrigation management, high yielding varieties, soil and field preparation and fertilizer application. Poor knowledge possessed by the farmers was in seed and soil treatment. As the adoption of rice production technology was concerned, majority of farmers were in medium adoption group (68.50%) followed by low (18.00%) and high (13.50%) adoption groups.

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