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KNOWLEDGE OF IMPROVED RICE PRODUCTION TECHNOLOGY BY THE FARMERS IN DUNGARPUR DISTRICT OF RAJASTHAN

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ABSTRACT

India is the second leading producer of rice in the entire world, preceded by China. Rice remains a staple food for the majority of the world's population. More than two-thirds of the world relies on the nutritional benefits of rice. Rice is naturally fat, cholesterol and sodium free. It is a complex carbohydrate containing only 103 calories per one half- cup serving. Rice is primarily a high energy or high calorie food. It contains less protein than wheat. The protein content of rice is usually 6 to 7 per cent. In Rajasthan rice is grown on an area of 131126 Lakh hectares with a production of 265545 lakh tones (Anonymous, 2010-11). The major rice growing districts in Rajasthan are Banswara, Dungarpur, Kota, Bundi, Sriganganagar and Hanumangarh. The present study was conducted in Dungarpur district of Southern Rajasthan. There are total four tehsils in Dungarpur district of Rajasthan, out of which two tehsil namely Simalwara and Dungarpur have been selected on the basis of maximum area under cultivation of rice. Five villages from each identified tehsil were selected on the basis of maximum area under rice cultivation. Thus, in all 10 villages were selected for present investigation. For selection of respondents total 120 rice growers (60 small and 60 marginal farmers) were selected on the basis of random sampling method from the identified villages for the present study. The study indicated that 57.50 per cent respondents had medium level of knowledge about improved rice cultivation practices. It was also noted that the extent of knowledge about soil and filed preparation, time and method of sowing, irrigation management, fertilizer application and nursery raising was 81.39, 78.06, 74.44, 67.22 and 66.77 per cent respectively. While knowledge about soil treatment was very low with the extent of 40.00 per cent among the rice growers. The knowledge level of small farmers was more than marginal farmers.

INTRODUCTION

India is the second leading producer of rice in the entire world, preceded only by China. Rice is grown extensively in India in about 42.56 m ha area with an annual production of 95.33 mt having an average yield of 2240 kg per hectare (Anonymous, 2010-11). Annual consumption is around 85 million tonnes. In India, Rice is cultivated in both seasons - winter and summer. West Bengal, Uttar Pradesh, Andhra Pradesh, Punjab, Tamil Nadu, Bihar, Orissa, Assam, Karnataka and Haryana are the major rice producing states. More than 50 per cent of total production comes from the first four states. Food Corporation of India purchases around 20 to 25 per cent of the total rice production in the country both under levy from the rice mills and directly in the form of paddy from the farmers at Minimum Support Prices announced by the Government.

In Rajasthan rice is grown in an area of 131126 lakh hectares with a production of 265545 lakh tonnes (Anonymous, 2010-11). The major rice growing districts are Banswara, Dungarpur, Kota, Bundi, Ganganagar and Hanumangarh. Dungarpur district contributes maximum production in the southern Rajasthan, while the productivity is far below (660 kg/ha) as against the state average of 2025 kg/ha (Vital statistics, 2010-11). This is due to cultivation of poor yielding local genotypes under rainfed and irrigated conditions. The soil and climatic conditions of Dungarpur district is suitable for rice cultivation. The improved cultivation practices have been diffused among the farmers by scientific

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community in the reason but level of adoption of rice technology by the farmers is not yet known. Likewise the constraints that hinders the adoption needs to be known by research and extension systems for its improvements. The production of rice can be increased through timely adoption of recommended improved rice production technology by the farmers.

Considering these facts in view, the present study entitled "Knowledge of Improved Rice Production Technology by the Farmers in Dungarpur District of Rajasthan" was taken up with following specific objectives:

1. To find out the knowledge level of farmers about improved rice cultivation technology.
2. To see the significant difference between small and marginal farmers regarding knowledge of improved rice cultivation technology.

RESEARCH METHODOLOGY

The present study was conducted in Dungarpur district of Southern Rajasthan. There are total four tehsils in Dungarpur district of Rajasthan, out of which two tehsil namely Simalwara and Dungarpur have been selected on the basis of maximum area under cultivation of rice. A complete list of all the major rice growing villages was prepared in consultation with the personnel of revenue and agriculture department from the identified tehsils. From the list so prepared, five villages from each identified tehsil were selected on the basis of maximum area under rice cultivation. Thus, in all 10 villages were selected for present investigation. For selection of respondents, a comprehensive list of rice growers was prepared with the help of village Patwari and agricultural supervisor of respective village and was categorized into small and marginal farmers category. Total 120 rice growers (60 small and 60 marginal farmers) were selected on the basis of random sampling method from the identified villages for the present study.

RESULTS AND DISCUSSION

1. Knowledge of Farmers rgarding improved rice production technology

To distribute the farmers on the basis of their existing knowledge level about improved rice production technology, three categories viz. low, medium and high level of knowledge were made by using mean score and standard deviation of the obtained knowledge scores by the respondents.

Table 1 depicts that out of 120 respondents, 57.50 per cent respondents had medium level of knowledge about improved rice production technology. This was followed by 18.33 per cent farmers having high knowledge level regarding improved rice production technology. Whereas, only 24.17 per cent respondents were observed in the low knowledge group.

Table 1. Distribution of respondents on the basis of their existing knowledge level towards improved rice production technology

n=120

S. No.	Level of knowledge	Small farmers		Marginal farmers		Total	
		f	%	f	%	f	%
1.	Low (< 50)	12	20.00	17	28.33	29	24.17
2.	Medium (50 – 60)	34	56.67	35	58.33	69	57.50
3.	High (> 60)	14	23.33	8	13.34	22	18.33
	Total	**60**	**100.00**	**60**	**100.00**	**120**	**100.00**

f = Frequency, % = Per cent

Table 1 further reveals that 23.33 and 13.34 per cent small and marginal farmers respectively were in the high knowledge group. Likewise, 56.67 and 58.33 per cent small and marginal farmers had medium level of knowledge respectively. Whereas, only 20.00 per cent small farmers and 28.33 per cent marginal farmers possessed poor knowledge about improved rice cultivation practices. It was further concluded that existing knowledge of small farmers about improved practices of rice cultivation technology was comparatively higher than the marginal farmers.

Similar findings are indicated by Desai and Thakar (1996) who found that majority of the respondents (71.33%) possessed medium level of knowledge, whereas, 14.67 and 14 per cent respondents had low and high level of knowledge respectively regarding improved maize production

technology.

2. Extent of knowledge of farmers about improved rice production technology:

The data presented in table 2 shows that rice growers possessed maximum knowledge about soil and field preparation practices for rice cultivation with the extent of 81.39 per cent and ranked first by the farmers. The majority of the respondents knew the type of soil required for rice cultivation, quantity of FYM/ha added to the soil, number of ploughing to be done for field preparation. The extent of knowledge about time and method of sowing was 78.06 per cent among rice growers and this aspect was accorded second by the respondents. The extent of knowledge of this practice was very good because almost both the respondents possessed complete knowledge about appropriate time and method of sowing and advantages of timely sowing of rice.

The extent of knowledge of rice growers about irrigation management was 74.44 per cent and ranked third by both the categories of respondents. Majority of the rice growers had full knowledge about most critical stages of irrigation in rice crop. The extent of knowledge about seed treatment was 71.83 per cent. Majority of the rice growers were fully acquainted with name and quantity of chemicals which can be used for treatment of rice seed before sowing.

The knowledge of fertilizer application, it was found that the extent of knowledge was 67.22 per cent among both the categories of farmers. It was observed that some of the respondents were not aware of the recommended doze of nitrogen, phosphorus, and potash for rice crop.

Regarding knowledge about nursery raising for rice cultivation was 66.67 per cent among the respondents. Most of the rice growers were acquainted with appropriate time of sowing in nursery, recommended doses of fertilizers for 100 × 100 meter nursery, quantity of seed and age of nursery plants should be transplanted in the field.

Further analysis of table 2 reveals that MPS of rice growers possessing knowledge about recommended seed rate and spacing was 57.92. It was noted that most of the small and marginal farmers knew about recommended seed rate and spacing of rice crop.

The knowledge about harvesting and storage was 52.13 per cent among the respondents. Majority of the rice grower had complete knowledge about chemicals used during storage of rice.

The mean per cent knowledge of rice growers about plant protection measures was recorded as 46.21. Most of the farmers were not awared about quantity of chemicals used for controlling insect-pests and diseases.

Regarding knowledge of high yielding varieties, it was found that the extent of knowledge was 43.91 MPS. The analysis of data clearly shows that most of the respondents were not fully acquainted with high yielding varieties of rice namely Mahi Sugandha, Pusa Sugandha-5 and Pusa Sugandha-4. However, the average yield of these varieties was more than 45 quintals per hectare and most suitable in the study area.

The knowledge of weed management by chemicals and soil treatment was 41.43 and 40.00 MPS respectively. It means that farmers had poor knowledge about use of chemicals for controlling of weed and soil borne diseases & insects present in the soil.

Thus, from the above discussion it can be concluded that the extent of knowledge in small farmers was from 42.22 to 84.44 per cent, whereas, in case of marginal farmers the extent of knowledge was observed to be from 37.78 to 78.33 per cent in all improved rice cultivation practices. Further, it was concluded that small farmers had more knowledge than marginal farmers about almost all the major improved rice cultivation practices.

The present finding are supported by the findings of Thyagarajan and Ramanathan (2001) who reported that majority of the respondents (39.16 %) possessed medium level of awareness, followed by low (31.67 %) and high (29.17 %) level of awareness about bio-fertilizer practices in rice cultivation. They further observed that majority of the respondents were aware of the practices viz, seed treatment with Azospirillium (91.67 %) and soil application with Azospirillium (78.33 per cent) and seedling deep with Azospirillium (63.33 %). It was

also found that more than two fifth of the farmers were aware of the practices namely Blue Green Algae (50 %) and seed treatment with phospho- bacteria (42 %). Whereas, in the case of soil application of phosphobacteria, only less than forty per cent of the respondents (39.17%) were found to be aware of it. Only a small proportion of respondents were aware of practices namely seedling dip with phospho-bacteria (28.33 %) and Azolla application (14.17 %) in rice cultivation.

Table 2: Extent of knowledge of farmers regarding improved rice cultivation practices

n=120

S. No.	Improved Practices	Small farmers		Marginal farmers		Total	
		MPS	Rank	MPS	Rank	MPS	Rank
1.	High yielding varieties	45.58	10	42.24	10	43.91	10
2.	Soil and field preparation	84.44	1	78.33	1	81.39	1
3.	Soil treatment	42.12	12	37.78	12	40.00	12
4.	Seed treatment	75.00	4	68.67	4	71.83	4
5.	Time and method of sowing	83.33	2	72.78	2	78.06	2
6.	Seed rate and recommended spacing	60.00	7	55.83	7	57.92	7
7.	Fertilizer application	68.33	6	66.11	5	67.22	5
8.	Irrigation management	76.67	3	72.22	3	74.44	3
9.	Nursery raising	69.17	5	64.38	6	66.77	6
10.	Weed management	44.05	11	38.81	11	41.43	11
11.	Plant protection measures	46.92	9	45.50	9	46.21	9
12.	Harvesting and storage	53.52	8	50.74	8	52.13	8

MPS = Mean Per cent Score

3. Comparison of knowledge of farmers regarding improved rice production technology:

In relation to the extent of knowledge of respondents about improved rice cultivation technology, it was also felt necessary to study the difference between small and marginal farmers. To find out the variation in the knowledge of the respondents, 'Z' test was applied. The results are presented in Table 3.

Hypotheses:

NH01: There is no significant difference between small and marginal farmers regarding knowledge of improved rice cultivation technology.

RH1: There is significant difference between small and marginal farmers regarding knowledge of improved rice cultivation technology.

Table 3 reveals that the calculated 'Z' value. 2.348 is higher than the tabulated value at 1 per cent level of significance. Thus, the research hypothesis (RH1) entitled "there is significant difference between small and marginal farmers regarding knowledge of improved rice cultivation practices" was accepted and null hypothesis (NH01) was rejected. It infers that there was significant difference between small and marginal farmers with regard to possession of knowledge about improved rice production practices. It means that both the categories of farmers possessed different level of knowledge about improved aspects of rice cultivation.

Table 3. Comparison of knowledge between small and marginal farmers about improved rice cultivation practices

S. No.	Category of respondents	Mean	±S.D.	Difference	'Z' Value
1.	Small farmers	55.57	6.390	2.50	**2.348****
2.	Marginal farmers	53.07	5.214		

** Significant at 1 per cent level of significance

Similar results were found by Meena (2001), who reported that there is significant difference in level of knowledge regarding improved production practices of groundnut among big, small and marginal category of farmers.

CONCLUSION

The study indicated that 57.50 per cent respondents had medium level of knowledge about

improved rice cultivatin practices. While knowledge about soil treatment was very low. Study also reveals that knowledge level of small farmers was more than marginal farmers.

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