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ADOPTION BEHAVIOUR OF RICE GROWERS IN SOUTHERN RAJASTHAN

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ABSTRACT

The present study was conducted in Kushalgarh and Bagidora tehsils of Banswara distrcit of Rajasthan. Total 150 rice growers were selected from the identified tehsils for data collections. The findings indicated that 46 per cent rice growers had medium adoption level, whereas 32 and 22 per cent respondents had low and high level of adoption respectively. It was further noted that there was significance difference among large, small and marginal farmers with regard to adoption of improved rice cultivation technology.

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 43.77 million hectares area with an annual production of 96.43 million tonnes having an average yield of 2203 kg per hectare (Anonymous, 2008). Annual consumption is around 85 million tonnes. 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 127803 lakh hectares with a production of 259624 lakh tonnes (Anonymous, 2008). The major rice growing districts are Banswara, Dungarpur, Kota, Bundi, Ganganagar and Hanumangarh. Banswara district contributes maximum production in the southern Rajasthan, while the productivity is far below (1413 kg/ha) as against the state average of 1746 kg/ha. This is due to cultivation of poor yielding local genotypes under rainfed and irrigated conditions. The soil and climatic condition of Banswara 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. Considering these facts in view, the present study entitled "**Adoption behaviour of rice growers in southern Rajasthan"** was undertaken with following specific objectives:

1. To assess the extent of adoption of rice production technology by the farmers.
2. To see the significant difference among large, small and marginal farmers regarding adoption of improved rice cultivation technology.

RESEARCH METHODOLOGY

The present study was conducted in Banswara district of Southern Rajasthan. There are total five tehsils in Banswara district of Rajasthan, out of which two tehsils namely Kushalgarh and Bagidora 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 random selection technique. For selection of respondents, a comprehensive list of rice growers was prepared with the help of village Patwari and agricultural supervisor of respective

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village. Total 150 rice growers (50 marginal, 50 small and 50 large farmers) were selected on the basis of proportionate sampling method from the identified villages for the present study. Relevant information was collected through face to face contact method. Thereafter data were analysed, tabulated and were interpreted in the light of specific objectives of the study.

RESULTS AND DISCUSSION

To get an overview of the respondents with respect to their level of adoption, they were grouped into three strata viz. low, medium and high adoption group. This stratification was based on the calculated mean value and standard deviation score obtained by the respondents.

The data in Table 1 reveal that 69 (46.00%) of total rice growers were found to be from medium adoption level group, whereas, 48 (32%) respondents were reported from the group of low adoption level and 33 (22.00%) respondents were in the high adoption level. An analysis of large, small and marginal respondents regarding their level of adoption about improved rice production technology revealed that 18 (36.00%) large farmers were in the high adoption level and only 10 (20.00%) large farmers were in the low adoption level, while, 44 per cent large rice growers were found in the medium adoption category. Likewise, 50.00, 18.00 and 32.00 per cent small farmers possessed medium, high and low level of adoption about recommended rice production technology respectively. In case of marginal farmers' category, it was observed that 44.00, 44.00 and 12.00 per cent respondents had low, medium and high level of adoption respectively about rice production practices in the study area.

Table 1. Distribution of rice growers on the basis of their level of adoption of improved rice production technology

(n=150)

S. No.	Level of adoption	Large Farmers		Small farmers		Marginal farmers		Total	
		f	%	f	%	f	%	f	%
1.	Low (< 49)	10	20.00	16	32.00	22	44.00	48	32.00
2.	Medium (49-75)	22	44.00	25	50.00	22	44.00	69	46.00
3.	High (> 75)	18	36.00	09	18.00	6	12.00	33	22.00
	Total	**50**	**100.00**	**50**	**100.00**	**50.00**	**100.00**	**150**	**100.00**

f = Frequency, % = Per cent

It can be concluded that majority of marginal farmers fell under the category of medium level of adoption about improved practices of rice cultivation as compared to large and small farmers. It may be due to the reason that knowledge level of large farmers was comparatively higher than that of small and marginal farmers that might have contributed to slightly higher level of adoption. Another reason behind such findings may be that the large farmers were more progressive in nature than small and marginal farmers. Thus, adoption is dependent on knowledge and social participation might have also played vital role in higher adoption of large farmers.

To find out the extent of adoption among three categories of respondents i.e. large, small and marginal rice growers in the adoption of different improved rice cultivation practices, mean percent score of each major practice was calculated and presented in table 2.

Table 2 indicates that highest adoption was observed in the practice of soil & field preparation among the farmers with the extent of 71.98 per cent. Majority of the respondents were applying the FYM before one month of sowing as recommended by the scientists. The extent of adoption about time and method of sowing was 65.66 per cent among rice growers. It means that most of the farmers were following the recommended time of sowing. The study of table further reveals that the adoption regarding fertilizers application was recorded 67.75 per cent and this aspect was ranked third by the rice growers. Nearly 50 per cent rice growers were applying recommended dose of nitrogen and

phosphorus per hectare.

The extent of adoption about irrigation management was 36.75 per cent among various categories of farmers. This crop is mostly grown in kharif season under rainfed condition in the study area. During dry spell most of the farmers were following two irrigation, one at start of flowering and another at pod development stage.

The adoption about recommended seed rate and spacing obtained 54.06 per cent and it was placed on fifth position by the respondents. Nearly 50 per cent rice growers were using recommended seed rate of rice varieties. They were also following row to row and plant to plant spacing as per recommendation of agricultural scientists.

It was further noted that extent of adoption in the case of harvesting, threshing and storage aspects was 45.79 per cent among rice growers. The low adoption of plant protection measures and weed management through chemicals may be due to poor socio-economic condition of the small and marginal farmers, so they could not purchase costly chemicals. The extent of adoption of nursery raising was noted to be 44.50 per cent among rice growers.

The extent of adoption regarding the high yielding varieties of rice was observed 45.83 per cent among the rice growers. Analysis of data clearly shows that majority of the respondents were not adopting the high yielding varieties, which gives 25-30 quintals per hectare average yield. The extent of adoption of plant protection measures was observed to be 39.65 per cent among respondents. Likewise, weed management practices were also adopted by the respondents up to 36.75 per cent.

Table 2. Extent of adoption of improved rice production technology among the respondents

(n=150)

S. No.	Improved Practices	Large farmers		Small farmers		Marginal farmers		Total	
		MPS	Rank	MPS	Rank	MPS	Rank	MPS	Rank
1.	High yielding varieties	52.50	6	43.50	9	41.40	7	45.83	7
2.	Soil and field preparation	73.20	1	72.25	1	70.50	1	71.98	1
3.	Soil treatment	36.40	11	30.22	12	28.75	12	31.79	12
4.	Seed treatment	52.25	7	45.72	6	41.25	9	46.41	6
5.	Time and method of sowing	70.25	2	67.70	2	65.30	2	67.75	2
6.	Seed rate and recommended spacing	57.20	5	55.50	5	49.48	5	54.06	5
7.	Fertilizer application	67.21	3	64.25	3	63.50	3	64.98	3
8.	Irrigation management	60.41	4	58.40	4	54.75	4	57.85	4
9.	Nursery raising	48.52	8	44.75	8	40.25	8	44.50	9
10.	Weed management	36.28	12	37.42	11	36.60	11	36.75	11
11.	Plant protection measures	41.15	10	39.70	10	38.10	10	39.65	10
12.	Harvesting and storage	45.60	9	45.25	7	46.52	6	45.79	8

MPS = Mean per cent score

The adoption regarding seed treatment practice, was 46.41 per cent. Whereas, in case of soil treatment the extent of adoption was recorded 31.79 per cent. It means that farmers had poor adoption regarding use of chemicals for soil borne diseases and insects present in the soil.

From the above discussion, it could be concluded that the extent of adoption in large farmers was from 34.40 to 71.20 per cent and in small farmers it was from 31.22 to 69.25 per cent, whereas in case of marginal farmers the extent of adoption was observed to be from 25.75 to 65.40 per cent in all recommended rice production practices in the study area.

These findings are in line with the findings of Balasubramani *et al.* (2005) who revealed that cent per cent had adopted the practices like improved seed variety, optimum seed rate, seed treatment and timely harvest of paddy. Most of the farmers had adopted the practices viz, split application of fertilizer (86.67%), integrated water management (80%) and bio-fertilizer application (76.67%). This may be due

to the fact that more awareness of the high cost of fertilizers and less cost of bio-fertilizers and limited quantity of water for irrigation are the determining factors for adoption.

To find out the significance of variation among all the three categories of farmers viz. marginal, small and large farmers analysis of variance ('F' test) was applied. The results of ANOVA computed for this purpose are presented in Table 3.

Hypotheses:

NH_{01}: There is no significant variation among large, small and marginal farmers regarding adoption of improved rice cultivation practices.

RH_1: There is significant variation among large, small and marginal farmers regarding adoption of improved rice cultivation practices.

Table 3. Analysis of variance of adoption score of respondents in different category of rice growers

(n=150)

S. No.	Source of variation	D.F.	S.S.	M.S.S.	'F' cal
1.	Between the category of farmers	2	220.48	110.24	5.33**
2.	Within the categories of farmers	147	2049.07	20.81	
	Total	**149**	**2269.45**		

** Significant at 1 per cent level of significance

Data presented in table 3 shows that the calculated 'F' value (5.29) is higher than the tabulated 'F' value at 1 per cent level of significance and 2 degree of freedom. So the result is statistically ..... $_{03}$) was rejected and alternate hypothesis (RH_3) was accepted. It means that there was a significant variation among all the three categories of respondents with regard to adoption of improved rice cultivation practices.

CONCLUSION

It is concluded from the above discussion that 46.00 per cent rice growers had medium adoption level, whereas 32.00 and 22.00 per cent respondents had low and high level of adoption respectively. It was further noted that highest adoption was observed in the practices of soil and field preparation (71.98%) among the rice growers. This was followed by the practices like time and method of sowing, fertilizer application, irrigation management, seed rate and spacing with the extent of adoption was 67.75, 64.98 and 54.06 MPS respectively. It was also found that there was a significant difference among large, small and marginal farmers with regard to adoption of improved rice cultivation technology.

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