



INTERNATIONAL JOURNAL OF TROPICAL AGRICULTURE

ISSN : 0254-8755

available at <http://www.serialsjournals.com>

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Volume 37 • Numbers 3 • 2019

Assessment of Knowledge and Adoption of Rice Production Technology from North Konkan Coastal Zone of Maharashtra

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Abstract: The present study was conducted in Raigad district of Maharashtra state to assess knowledge level and extent of adoption of rice production technology by the farmers. Out of 15 tehsils of Raigad district four tehsils were selected on the basis of higher production of rice. Total 10 rice growers were selected from each village making a total sample of 200 farmers. The results indicated that 61.50 per cent farmers had medium level of knowledge. Farmers had very good amount of knowledge (more than 90 %) in practices like nursery raising, fertilizer application, soil and field preparation and improved varieties. About 67.50 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 improved varieties (75.30 MPS) and time and method of sowing (73.50%). They had very low extent of adoption in recommended plant protection measures and recommended weed management practices.

Key words: Assessment, knowledge, adoption, technology.

INTRODUCTION

Rice (*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. Annual consumption of rice in India is around 85 million tonnes. In India rice is

cultivated in both cropping seasons-winter and summer. The soil and climate of Raigad district is most suitable for rice crop. The productivity 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 know the personal and socio-economic status of the farmers
- 2) To assess the knowledge level of farmers about the rice production technology.
- 3) To find out the extent of adoption of rice production technology by the farmers.

RESEARCH METHODOLOGY

There are 15 tehsils in Riagad district of Maharashtra. Out of which four tehsils namely Roha, Mangon, Mahad and Poladpur 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 twenty villages were selected for the investigation. For selection of farmers, a comprehensive list of rice growers was prepared with help of contact farmer, Gram Sevak, Agriculture Supervisor and Agril. Assistant of respective village. Total 10 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 were collected during post *kharif* season 2018 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 and socio economic characteristics

The data regarding the personal characteristics of farmers viz., age, education, family size, family type, social participation, occupation, income and size of land holding are presented in Table 1.

Age

Table 1 shows that majority of farmers belonged to middle age group *i.e.* 31.50 years of age. This age group alone constituted 54.00 per cent of the total sample. Further, 26.00 and 20.00 per cent farmers were from young and old age groups, respectively.

Education Level

The data presented in Table-1 shows that 55.00 per cent of the total farmers were having medium level of education *i.e.* from middle to high school standard, 31.00 per cent farmers were having low educational level *i.e.* upto primary and only 14.00 per cent of respondent 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 58.00 per cent of the total sample and rest 42.00 per cent farmers were from small families.

Family Type

Table 1 shows that majority of farmers belonged to nuclear family. This family type constituted 53.50 per cent of the total sample and rest 46.50 per cent were from joint family.

Social Participation

The data reported in Table -1 shows that majority of farmers (52.00 %) were not having membership in any social organization.

Occupation

Table 1 shows that majority (46.00%) of the farmers were engaged in agriculture only. Whereas 40.00 and 14.00 per cent farmers were engaged in Agril. + AH 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 0.60 to

Table 1
Distribution of farmers according to their personal attributes (n=200)

<i>Sr. No.</i>	<i>Personal attributes</i>	<i>No. of farmers</i>	<i>Per cent of farmers</i>
1.	<i>Age</i>		
	i. Young upto 30 years	52	26.00
	ii. Middle (30.50 years)	108	54.00
	iii. Old 50 and above	40	20.00
2.	<i>Education Level</i>		
	i. Low educated (upto primary)	62	31.00
	ii. Medium educated (Middle to High School)	110	55.00
	iii. High educated (above High School)	28	14.00
3.	<i>Family Size</i>		
	i. Small family – upto to five members	84	42.00
	ii. Large family – above five members	116	58.00
4.	<i>Family Type</i>		
	i. Nuclear	107	53.50
	ii. Joint	93	46.50
5.	<i>Social Participation</i>		
	i. No membership in any organization	104	52.00
	ii. Membership in some organization	96	48.00
6.	<i>Occupation</i>		
	i. Agrilcultute	92	46.00
	ii. Agriculture + AH	80	40.00
	iii. Agriculture + Service	28	14.00
7.	<i>Annual Income</i>		
	i. Low (below 0.60 lakh)	42	21.00
	ii. Medium (Between 0.60 to 1.20 lakh)	111	55.50
	iii. High (Above 1.20 lakh)	47	23.50
8.	<i>Size of Land Holding</i>		
	i. Marginal (Less than 1 ha.)	58	29.00
	ii. Small (1 to 2 ha.)	120	60.00
	iii. Big (Above 2 ha.)	22	11.00

1.20 lakh per annum. This income group alone constituted 53.50 per cent of the total sample. Further 21.00 and 23.00 per cent farmers were from low and high income groups, respectively.

Size of Land Holding

The data presented in Table 1 shows that 60.00 per cent of the total farmers were small whereas 29.00 per cent farmers were marginal and rest 11.00 per cent of them were big farmers.

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

To gather the information related to knowledge level of farmers regarding rice production technology, eleven major practices of rice production technology were included in the test (Table 3). Each practice had several questions for knowledge assessment. These practices of rice production technology further divided into 95 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 and standard deviation.

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.* 61.50 per cent had medium level of knowledge followed by low and high level of knowledge with 23.50 and 15.00 per cent farmers, respectively. The findings of the study are in conformity with the findings of Ashival (2006) and Meena *et al.*(2012).

Table 2
Distribution of farmers according to level of knowledge

Sr. No.	Level of knowledge	No. of farmers (n=200)	%
1.	Low (below 63 score)	47	23.50
2.	Medium (63 – 72 score)	123	61.50
3.	High (Above 72 score)	30	15.00

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 11 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)

Sr. No.	Package of practices	MPS	Rank
1.	Soil and field preparation	93.22	III
2.	Improved varieties (HYV)	92.18	IV
3.	Seed treatment	36.16	X
4.	Time and method of sowing	51.60	VII
5.	Seed rate and spacing	64.00	V
6.	Nursery raising	95.30	I
7.	Fertilizer application	94.12	II
8.	Weed management	42.10	IX
9.	Irrigation management	43.33	VIII
10.	Plant protection measure	32.50	XI
11.	Harvesting, threshing and storage	54.14	VI

Data presented in Table 3 shows that farmers had very good knowledge (above 90 %) regarding the practices like nursery raising, fertilizer application, soil and field preparation, and high yielding varieties with 95.30, 94.12, 93.22 and 92.18 MPS, respectively. Farmers possessed good amount of knowledge (above 50 %) in the practice like time and method of sowing, seed rate and spacing, harvesting, threshing and storage, time and method of sowing and irrigation management which assigned V, VI, VII and VIII ranks respectively. They possessed poor knowledge regarding seed treatment and plant protection measures and weed management. The findings of the study are in conformity with the findings of Ganesan and Seethalakshmi (2002) and Gupta *et al.* (2003).

C) Extent of adoption of rice production technology among farmers

The data presented in Table 4 revealed that 15.50 per cent farmers were high adopters and 17.00 per cent were low adopters and rest 67.50 per cent

farmers were in the category of medium adopters of rice production technology.

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

Sr. No.	Extent of adoption	No. of farmers	Per cent of farmers
1.	Low (up to 55)	4	17.00
2.	Medium (55-65)	135	67.50
3.	High (Above 65)	31	15.50

If we look to the data reported in Table 5, it is observed that farmers had very good extent of adoption regarding improved varieties, nursery raising and soil and field preparation showing 75.30, 73.50 and 71.00 MPS, respectively. Similarly, the practices like time and method of sowing, fertilizer application and harvesting, threshing and storage practices were found 70.42, 69.25 and 68.19 MPS, respectively. In rest of practices, they had low extent of adoption ranging from 44.10 to 30.60 MPS.

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

CONCLUSION

The average age of the respondents found in this study was 30 years and education up to high school level. More than 50.00 per cent respondents were from large family but nuclear type. Only, 48.00 per cent respondents were member of social organization. Majority of respondents possess agriculture as a main occupation. The annual income of the respondents was 0.60 to 1.20 lakh per year. Regarding land holding it was observed that 60.00 per cent farmers having 1 to 2 ha land holding.

The data revealed that majority of the farmers *i.e.* 61.50 per cent had medium level of knowledge followed by low and high level of knowledge with

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

Sr. No.	Package of practices	MPS	Rank
1.	Soil and field preparation	71.00	III
2.	Improved varieties (HYV)	75.30	I
3.	Seed treatment	44.10	IX
4.	Time and method of sowing	70.42	IV
5.	Seed rate and spacing	64.15	VII
6.	Nursery raising	73.50	II
7.	Fertilizer application	69.25	V
8.	Weed management	33.80	X
9.	Irrigation management	40.43	VIII
10.	Plant protection measure	30.60	XI
11.	Harvesting, threshing and storage	68.19	VI

23.50 and 15.00 per cent farmers, respectively. On the basis of findings it can be concluded that, majority of the farmers having good amount of knowledge in practices like nursery raising, soil and field preparation, fertilizer application and high yielding varieties.

In adoption process it was found that 67.50 per cent farmers were in the category of medium adopters of rice production technology. Similarly, the practices like use of high yielding variety, nursery raising, fertilizer application and harvesting, threshing and storage practices were adopted by majority of the respondents.

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