

## KNOWLEDGE AND ADOPTION OF RICE PRODUCTION TECHNOLOGY BY THE FARMERS

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### ABSTRACT

*Rice (Oryza sativa L.) is a plant belonging to the family of grasses, Gramineae. There are three major food crops (wheat, rice and maize) of world and rice is one of the foremost cereal crops feeding over more than half of the world's population. The present study was conducted through Ex-post Facto research design and multistage sampling method. Total 160 rice growers were selected from sixteen villages belongs to four talukas of Sabarkantha and Gandhinagar districts. The data were collected by personal contact method with help of structured interview schedule and data were coded, classified, tabulated and analyzed in the light of objectives. Majority of the rice growers were in the middle age, UG/PG Education, above 2 lakh annual income, above 4.00 ha of land holding, no membership in organization, bore well as a source of irrigation, medium yield gap, high extension participation, medium level utilization of source of information, medium level of knowledge and medium level of adoption of rice production technology by the rice growers.*

**Keywords :** knowledge, adoption, farmers, rice production technology

### INTRODUCTION

Among the rice growing countries, India has the largest area (448 lakh ha) followed by china and Bangladesh. Total food grain production in India is estimated at 28131.7 lakh tonnes. Rice production is estimated at 1156 lakh tonnes. (Anon., 2010). In India, rice is grown in the state of Kerala, Andhra Pradesh, Orissa, Bihar, Uttar Pradesh, Madhya Pradesh, Punjab and West Bengal lead in the area, while West Bengal harvest highest rice production. The average yield per hectare is highest i.e. 5970 kg/ha in the Punjab during 2018-19.

Rice is grown throughout the state except Kachchh and Saurashtra. Some part of the state is growing rice as a drilled, while transplanted rice is taken in south and middle Gujarat. In Gujarat rice occupies about 10.61 per cent of the gross cropped area of the state and accounts for around 25.5 per cent of the food grain production. It is grown on an average about 7.5 to 8.5 lakh hector of land comprising nearly 70 to 80 per cent low land (transplanted) and 15 to 20 per cent of upland (drilled) rice (Anonymous, 2020). During the 2018-19, the yield of kharif rice in Gujarat was around 2247.75 kg/ha. Yield of summer rice was 3130.96 kg/ha

and total production of rice in the year of 2018-19 was 1911 tonnes (Anonymous, 2020). During the 2019-20, the yield of kharif rice was 2117.81 kg/ha and yield of summer paddy was 2996.36 kg/ha and total production of rice in the year of 2019-20 was 1929.98 tonnes (Anon., 2020).

In Gujarat some districts like Chhotaudepur, Tapi and Navsari have highest rice productivity which covered 1.279 lakh hector area with production and productivity respectively of 3.338 lakh tonne and 2582 kg/ha and some district like Mehsana, Narmada, Panchmahal, North Gujarat etc. have medium to low productivity of paddy. But in some part of North Gujarat like Gandhinagar and Sabarkantha have low productivity of rice.

North Gujarat is one of the important rice (paddy, danger) growing districts in the Gujarat state. Gandhinagar and Sabarkantha is one of the major rice growing districts in North Gujarat. Majority of the farmers in the area has undertaken the cultivation of paddy vary long time. Therefore it is high time to assess the knowledge level and adoption of recommended paddy production technology by the farmer specifically of Sabarkantha and Gandhinagar district.

**OBJECTIVES**

- (1) To study the profile of rice growers
- (2) To study the knowledge level of rice production technology by the rice growers
- (3) To find out the extent of adoption of rice production technology by the rice growers

**METHODOLOGY**

The present investigation was carried out in North Gujarat. North Gujarat includes the Gandhinagar, Banaskantha, Sabarkantha, Aravalli, Mehsana and Patan districts. Out of which two viz., Gandhinagar and Sabarkantha were selected based on maximum area and production of rice crop, as compare to other districts. Two talukas from each selected district of North Gujarat (Gandhinagar and Sabarkantha) were selected purposively. Thus, total four talukas were selected from the districts of Gandhinagar and Sabarkantha based on highest area under cultivation. Four rice growing villages from each of selected taluka were randomly selected for the study. Thus, total sixteen villages were selected for study. Ten rice growers were selected randomly from each selected village. Thus, 160 rice growers were selected for the study. The list of the selected villages from talukas was shown in Table 3.3.

The present study was confirmed to “Ex-post facto” research design (Vinaya *et al.*, 2017). Multistage random sampling technique was used for selection of talukas, villages and respondents from Gandhinagar and Sabarkantha district. Two talukas from each district and four villages from each taluka and ten rice growers from each village were selected making a sample of 160 respondents. The data were collected using pre tested interview schedule and analyzed by appropriate statistical tools.

The dependant variables were measured with the help of the scales and indices developed by the past researchers as well as structured schedules which were framed for purpose.

**RESULTS AND DISCUSSION**

The main purpose of the present study was to study the knowledge level of recommended rice production technology by the rice growers and also adoption level of rice prices technology by the rice growers in North Gujarat. The results are presented as under.

**Profile of rice growers**

**Table 1: profiles of the rice growers** (n=160)

Sr. No.	Characteristics	frequency	percent
<b>Personal variables</b>			
1	<b>Age</b>		
	Young age group (up to 35 years)	27	16.87
	Middle age group (36 to 50 years)	71	44.38
	Old age group (above 50 years)	62	38.75
2	<b>Education</b>		
	Illiterate	0	00.00
	Functionally literate	01	00.63
	Primary education	11	06.87
	Middle school	35	21.87
	Higher school	36	22.50
	UG/PG	77	48.13
<b>Socio-economic variables</b>			
3	<b>Annual income</b>		
	Up to ₹50,000/- (Very low)	00	00.00
	₹50,001/- to ₹1,00,000/- (Low)	02	01.25
	₹1,00,001/- to ₹1,50,000/- (Medium)	00	00.00
	₹1,50,001/- to ₹2,00,000/- (High)	03	01.88
	Above ₹2,00,000/- (Very high)	155	96.87
4	<b>Land holding</b>		
	Marginal (up to 1.00 ha)	03	01.87
	Small (1.01 to 2.0 ha)	18	11.25
	Medium (2.01 to 4 ha)	54	33.75
	Big (above 4 ha)	85	53.13
5	<b>Social participation</b>		
	No membership	79	49.38
	Membership in one organization	64	40.00
	Membership in more than one organization	12	07.50
	Membership with position holder/Office bearer	05	03.12
<b>Situational variables</b>			
6	<b>Source of irrigation</b>		
	Canal	59	36.87
	Bore well	61	38.13
	Open well	40	25.00
7	<b>Yield gap</b>		
	Low yield gap (< 23.66)	44	27.50
	Medium yield gap (≥23.66 to < 33.29)	116	72.50
	High yield gap (≥ 33.29)	00	00.00

Communicational variables			
8	<b>extension participation</b>		
	Low level of extension participation (< 24.11)	25	15.62
	Medium level of extension participation ( $\geq 24.11$ to < 50.63)	42	26.25
	High level of extension participation ( $\geq 50.63$ )	93	58.13
9	<b>Source of information</b>		
	Low level of source of information (< 22.83)	15	09.38
	Medium level of source of information ( $\geq 22.83$ to < 30.20)	115	71.87
	High level of source of information ( $\geq 30.20$ )	30	18.75

Table 1 indicate that maximum (44.38%) respondents were found in middle age group, whereas 38.75 per cent respondents were found in old age group and 16.87 per cent respondents were young aged. Nearly half (48.13%) of the respondents had education up to undergraduate and post-graduation level followed by higher school (22.50%), middle school (21.87%), primary school (6.87%) and functionally literate (0.63%). No farmer was illiterate. Majority of the rice growers (96.87%) had very high level annual income followed by high (1.88%) and low income (01.25%). No respondent was found which having low annual income. 53.13 per cent respondents had large size of land holding followed by 33.75 per cent had medium size of land holding, 11.25 per cent had small size of land holding and 1.87 per cent had marginal size of land holding, respectively. Out of 160 respondents nearly half (49.38%) of the respondents had no membership in any organization followed by 66 respondents (40.00%) had membership in one organization and 7.50 per cent had membership in more than one organization. Remaining 5 respondents (3.12%) had position holding in organization. 38.13 per cent respondents had bore well as a source of irrigation followed by 36.87 per cent respondents had canal and 25.00 per cent respondents had open well as a source of irrigation, respectively. Majority of the respondents (72.50%) had medium yield gap followed by 27.50 per cent had low yield gap in rice production. majority (58.13%) respondents had high level of extension participation followed by 26.25 per cent had medium level of extension participation and remaining 15.62 per cent had low level of extension participation. Majority (71.87%) of the respondents had medium level of use of sources of information followed by 18.75 per cent and 09.38 per cent of them had high and low level of use of sources of information, respectively.

## B Knowledge level of rice production technology of the rice growers

**Table 2: Distribution of the respondents according to their knowledge regarding recommended rice production technology** (n = 160)

Sr. No.	level of knowledge	frequency	percent
1	Low level of knowledge (< 62.92)	21	13.13
2	Medium level of knowledge ( $\geq 62.92$ to < 77.66)	115	71.87
3	High-level of knowledge ( $\geq 77.66$ )	24	15.00

Mean: 70.29.

S.D.: 7.37

Table 2 indicated that majority (71.87%) of had the respondent medium level of knowledge followed by 15.00 per cent had high level and remaining 13.13 per cent had low level of knowledge about recommended rice production technology. The results of the study are partially supported by the findings of Rahangdale, *et al.* (2011), Mane, (2012), Punwarand and Sunil, (2017) and Paradva *et al.*, (2021).

## C Adoption level of rice production technology of the rice growers

**Table 3: Distribution of the respondents according to their adoption regarding recommended rice production technology** (n = 160)

Sr. No	level of adoption	frequency	percent
1	Low level of adoption n (<43.94)	32	20.00
2	Medium level of adoption ( $\geq 43.94$ to <54.60)	97	60.63
3	High-level of adoption ( $\geq 54.60$ )	31	19.37

Mean: 49.27

S.D.: 5.33

Table 3 revealed that majority (60.63%) of the respondents had medium level of adoption followed by 20.00 per cent low level of adoption and remaining 19.37 per cent had high level of adoption of rice production technology. The results of the study are partially supported by the finding of Wadge, *et al.* (2017), Karangami (2017) and Patil, (2017).

## CONCLUSION

Majority of the rice growers were in the middle age, UG/PG Education, above 2 lakh annual income, above

4.00 ha of land holding, no membership in organization, bore well as a source of irrigation, medium yield gap, high extension participation, medium level utilization of source of information, Majority of rice growers were having medium level of knowledge, followed by high level of knowledge and low level of knowledge about rice production technology. In case of, majority of the respondents had medium level of adoption, followed by low level of adoption and high level of adoption of rice production technology by the rice growers.

#### CONFLICT OF INTEREST

The authors of the paper declare no conflict of interest

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