

**RESEARCH ARTICLE :**

# Paddy cultivation technology for utilization comporment of farmers

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**SUMMARY :** Using functional technology, majority of the farmers had average to above average technology utilization behaviour in paddy farming. All the variables except experience in paddy farming, extension participation and risk orientation, all other independent variables showed significant influence in determination of technology utilization behaviour. Annual income and scientific orientation had shown maximum influence on technology utilization behaviour. Annual income contributed 49.40 per cent total variation in predicting technology utilization behaviour and total joint contribution of all independent variable together contributed 62.40 per cent variation in determining technology utilization behaviour. As far as direct, indirect and substantial effects are concerned age was key variables in exerting positive and direct effect on technology utilization behaviour in paddy growers. Whereas, annual income had positive and highest indirect effect and economic motivation, animal possession and annual income were the key variables in determination of substantial indirect effect on technology utilization behaviour of paddy growers.

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Behaviour, Paddy growers, Technology utilization

## BACKGROUND AND OBJECTIVES

Rice (*Oryza sativa* L.) is an important staple food crop grown worldwide. Rice is one of the most important cereal crops of the country. In Gujarat most of the area under rice crop is confined to middle and south Gujarat comprising the districts of Kheda, Anand, Vadodara, Dahod, Godhra, Ahmedabad, Surat, Valsad, Dang and Navsari. Paddy is one of the important commercial crops of Anand district having with total area of 87700 hectares with total production of 1.85 million tonnes (Anonymous, 2011). Khambhat and Tarapur are major rice growing taluka of the district. Majority of the farmers in the area has undertaken the cultivation of paddy since a very long time. Many factors influence on adoption behaviour. Keeping in view, present study was conducted with the objectives includes identification the behaviour of paddy growers for

utilization using recommended production technology, reconnoiter the association characteristics of farmers with new technology utilization, prediction of independent of variable along with their direct and indirect effects.

## RESOURCES AND METHODS

A comparable random sample of 120 respondents was selected from 10 randomly villages of Khambhat and Tarapur taluka of Anand district (Gujarat state). Then the data were collected with the help of well-structured, pre-tested, interview scheduled through personal contact and data were compiled, tabulated, analyzed and interpreted to draw valid conclusion. Statistical tools like frequency, percentage (%), standard deviation with mean, correlation co-efficient, multiple and stepwise regression and path analysis were used.

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## OBSERVATIONS AND ANALYSIS

The respondents came under the category of above average, average and high for overall technology utilization behaviour in paddy cultivation (Table 1) indicated that 41.66, 25.00 and 16.66 per cent respondents. While equal (08.33 %) of each had very low and low technology utilization behaviour. Level of technology utilization behaviour from very low to low was found similar (08.33%). Traditional attitude towards new farm technology due to low level of educational and socio-economic calamite condition might be possible reasons for low to very low technology utilization behaviour. Above average to high technology utilization behaviour might be due to sincere efforts of NGOs and extension agencies in study area.

Significant relation with technology utilization behaviour was observed in education, social participation, occupation, land holding, animal possession, annual income, sources of farm information, economic motivation and scientific orientation, besides that discrimination was observed in connection with age of farmers in paddy cultivation (Table 2). Multiple regression of technology utilization behaviour of farmers in paddy cultivation is presented in Table 3. The rank order on the basis of the standard partial regression co-efficient as found that out of 13 variables five variables namely annual income, scientific

orientation, age, experience in paddy cultivation and social participation had exerted their influence on technology utilization behaviour. All the five variables together were contributing 62.40 per cent variation indicated by ( $R^2$ ) value on technology utilization behaviour of the respondents. Further, more it could be inferred that 49.40 per cent variation in annual income of the respondents. However, using regression co-efficient of different variable, 62.40 per cent determination was observed. Apart from that,  $R^2$  values at each stage of step up regression were found to be significant at 0.05 level of probability and partial 'b' values of these five variables were converted into standard partial 'b' values (Table 3) significant multiple regression of technology utilization behaviour for farmers in paddy cultivation was observed using 't' value or partial 'b' with different five variable.

The results of path analysis presented in Table 4 indicated that, out of thirteen variables, eight variables have been employed positive direct effect. Age of the respondents has been employed maximum positive direct effect (0.2199) followed by land holding (0.1223), scientific orientation (0.0770), extension participation (0.0744), animal possession (0.0538), risk orientation (0.0378), occupation (0.0207) and education (0.0094). Besides that, negative direct effect is concerned with annual income (-0.5808) have been employed maximum negative direct effect followed by economic

**Table 1 : Distribution of paddy growers according to their overall technology utilization behaviour**

			(n=120)	
Sr. No.	Level of technology utilization behaviour	Number	Per cent (%)	
1.	Very low (up to 20 %)	10	08.33	
2.	Low (21 to 40 %)	10	08.33	
3.	Average (41 to 60 %)	30	25.00	
4.	Above average (61 to 80 %)	50	41.66	
5.	High (above 80 %)	20	16.66	
	Total	120	100.00	

**Table 2 : Relationship between characteristics of the paddy growers and their technology utilization behaviour**

Sr. No.	Independent variables	Correlation co-efficient (r)
1.	Age	-0.3048*
2.	Education	0.1840*
3.	Experience in paddy farming	0.1056 (NS)
4.	Social participation	0.1939*
5.	Occupation	0.2356*
6.	Land holding	0.1984*
7.	Animal possession	0.3126*
8.	Annual income	0.7026*
9.	Extension participation	0.1513 (NS)
10.	Sources of farm information	0.3144*
11.	Economic motivation	0.3120*
12.	Risk orientation	0.1436 (NS)
13.	Scientific orientation	0.3940*

\* and \*\* indicates of significance of values at P=0.05 and P = 0.01, respectively

NS= Non-significant

motivation (-0.209), social participation (-0.2069), experience in paddy farming (-0.1992) and sources of farm information (-0.0711). Keeping in view, the total indirect effect is concerned annual income (1.2834) expected maximum positive indirect effect followed by economic motivation (0.521), social participation (0.4008), sources of farm information (0.3855), scientific orientation (0.317), experience in paddy farming (0.3048), animal possession (0.2588), occupation (0.2149), education (0.1746), risk orientation (0.1058), extension participation (0.0769) and land holding (0.0761). It was further noticed that only age exercise the negative indirect effect on technology utilization behaviour of the farmers. Age (-0.5247), education (0.1746), experience in paddy farming (0.3048), social participation (0.4008), occupation (0.2149), land holding (0.0761) and animal possession (0.2588) had exerted total indirect effect on technology utilization behaviour through annual income and economic motivation. Whereas, annual income (1.2834), extension participation (0.0769) and source of farm information (0.3855) had exerted total indirect effect on technology utilization behaviour through animal possession and economic motivation. Further economic motivation (0.521), risk orientation (0.1058) and scientific orientation (0.317) have been employed total indirect effect on technology

utilization behaviour through annual income and source of farm information.

In present study, total indirect substantial effect as concern ten independent variables roughed through economic motivation, seven roughed through annual income, six roughed through animal possession and three roughed through source of farm information. Similar type of studies were also conducted by Bhosale (2010), Desale (2009), Maheria (2013), Parmar (2006), Patel *et al.* (2012) and Prakash *et al.* (2003) in which they found almost similar results.

**Conclusion :**

To optimize the results it can be concluded that majority of the farmers were having average to above average technology utilization behaviour in paddy farming. All the variables except experience in paddy cultivation, extension participation and risk orientation, all other independent variables showed significant influence in determination of technology utilization behaviour. Further among all variables, annual income contributed 49.40 per cent total variation in predicting technology utilization behaviour and total joint contribution of all independent variable together contributed 62.40 per cent variation in

**Table 3 : Stepwise multiple regression of technology utilization behaviour of farmers in paddy cultivation**

Sr. No.	Independent variables	Multiple co-relation co-efficient (R )	co-efficient of determination (R <sup>2</sup> )	F <sup>r</sup> values	Partial regression co-efficient(b)	t' values	Standard partial regression co-efficient (SPRC)	Rank
1.	Annual income (X <sub>8</sub> )	0.703	0.494 (49.40)	115.03	9.485	9.891**	0.598	I
2.	Scientific orientation (X <sub>13</sub> )	0.738	0.544 (54.40)	69.89	1.130	3.497**	0.208	III
3.	Age (X <sub>1</sub> )	0.759	0.578 (57.80)	52.58	-0.404	-0.873**	-0.257	II
4.	Experience in paddy farming (X <sub>3</sub> )	0.780	0.609 (60.90)	44.79	1.279	2.841**	0.186	IV
5.	Social participation (X <sub>4</sub> )	0.790	0.624 (62.40)	37.85	1.928	2.134**	0.124	V

R square= 0.624 (62.40 %)

**Table 4 : Path analysis of technology utilization behaviour of farmers in paddy cultivation**

Sr. No.	variables	Direct effect	Total indirect effect	Substantial indirect effect through	
				1	2
1.	Age	0.2199	-0.5247	0.1035 (X <sub>8</sub> )	0.0717(X <sub>11</sub> )
2.	Education	0.0094	0.1746	-0.1197 (X <sub>8</sub> )	-0.0485 (X <sub>11</sub> )
3.	Experience in paddy farming	-0.1992	0.3048	-0.0107 (X <sub>8</sub> )	0.0375 (X <sub>11</sub> )
4.	Social participation	-0.2069	0.4008	-0.0164(X <sub>8</sub> )	-0.0135(X <sub>11</sub> )
5.	Occupation	0.0207	0.2149	-0.1801(X <sub>8</sub> )	-0.0552(X <sub>11</sub> )
6.	Land holding	0.1223	0.0761	-0.2526(X <sub>8</sub> )	-0.0308(X <sub>11</sub> )
7.	Animal possession	0.0538	0.2588	-0.2313(X <sub>8</sub> )	-0.0670(X <sub>11</sub> )
8.	Annual income	-0.5808	1.2834	0.0214 (X <sub>7</sub> )	-0.0560(X <sub>11</sub> )
9.	Extension participation	0.0744	0.0769	0.0108(X <sub>7</sub> )	-0.0350(X <sub>11</sub> )
10.	Sources of farm information	-0.0711	0.3855	0.0117(X <sub>7</sub> )	-0.0558(X <sub>11</sub> )
11.	Economic motivation	-0.209	0.521	0.0172(X <sub>7</sub> )	-0.0190 (X <sub>10</sub> )
12.	Risk orientation	0.0378	0.1058	0.0036(X <sub>7</sub> )	-0.0140(X <sub>10</sub> )
13.	Scientific orientation	0.0770	0.317	0.0114(X <sub>7</sub> )	-0.0051(X <sub>10</sub> )

determining technology utilization behaviour. As far as direct, indirect and substantial effects are concerned, age was key variables in exerting positive and direct effect on technology utilization behaviour in paddy growers. Whereas, annual income had positive and highest indirect effect and economic motivation, animal possession and annual income were the key variables in determination of substantial indirect effect on technology utilization behaviour of paddy growers.

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## REFERENCES

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Anonymous (2011). Directorate of Agriculture Gujarat State, Krishi Bhavan Sector-10/A, Gandhinagar (GUJARAT) INDIA.

**Bhosale, U.S.** (2010). Participation of rural youth in paddy farming in Anand district of Gujarat state. M.Sc. (Ag.) Thesis, Anand Agricultural University, Anand (GUJARAT) INDIA.

**Desale, M.M.** (2009). Extent of adoption of hybrid castor

production technology by the farmers in Kheda district of Gujarat state. M.Sc. (Ag.) Thesis, Anand Agricultural University, Anand (GUJARAT) INDIA.

**Maheriya, H.N.** (2013). Technology utilization behaviour of paddy growers in Anand district of Gujarat state M.Sc. (Ag.) Thesis, Anand Agricultural University, Anand (GUJARAT) INDIA.

**Maheriya, H.N., Patel, R.C. and Patel, J.B.** (2014). Technology utilization behaviour of paddy growers. *Gujarat J. Extn. Edu.*, **25** (2) : 209-211.

**Parmar, P.B.** (2006). A study on knowledge and extent of adoption of paddy growers about recommended paddy production technology in Khambhat taluka of Anand district. M.Sc (Ag.) Thesis, Anand Agricultural University, Anand (GUJARAT) INDIA.

**Patel, B.M, Patel, J.K., Badhe, D.K. and Gulkari, Krupal** (2012) Functional analysis of rural youth's participation in paddy farming. *Agric. Update*, **7** (3&4) : 206-209.

**Prakash, Vinod, Singh, Harish Chandra and Prajapati, M.K.** (2003). Extent of adoption of rice growers regarding rice production technology. *Rajasthan J. Ext. Edu.*, **11**: 55-58.

**Valand, B.S.** (1997). Impact of integrated pest management on *Kharif* paddy growers in Kheda district of Gujarat State. M.Sc. (Ag.) Thesis, Gujarat Agricultural University, Sardarkrushinagar, GUJARAT (INDIA).

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