



# A STUDY ON ELEMENTS CONTROLLING THE KNOWLEDGE AND ADOPTION LEVEL OF RESPONDENTS ABOUT POST HARVEST TECHNOLOGIES IN PADDY

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## Abstract

India is the second largest producer of rice in the world next to China. In India, paddy occupies the first place both in area and production. It has been reported that about nine percent of paddy is lost due to use of old and outdated methods of drying and milling, improper and unscientific methods of storage, transport and handling. To minimize post harvest losses, precautions should be taken to follow proper post harvest practices. They include timely harvest at optimum moisture percentage, use of proper method of harvesting; avoid excessive drying, fast drying and rewetting of grains. Ensure drying of wet grain after harvest, preferably within 24 hours to avoid heat accumulation, uniform drying to avoid hot and wet spots and mechanical damage due to handling. The study was conducted in Nagapattinam district of Tamil Nadu, where paddy is the main cereal crop, in which six villages were selected, among those 120 respondents were randomly selected. The study is expected to bring to limelight; the relationship between personal, socio-economic and psychological characteristics of the paddy growers and the knowledge and extent of adoption of post harvest technologies in paddy cultivation.

**Key words:** Paddy growers, post harvest technologies, characteristics, knowledge and adoption

## Introduction

Paddy (*Oryza sativa*) is the staple food for 65 percent of the population in India. It is the largest consumed calorie source among the food grains. With a per capita availability of 73.8 kg it meets 31 percent of the total calorie requirement of the population. It has been reported that about 9 percent of paddy is lost due to use of old and outdated methods of drying and milling, improper and unscientific methods of storage, transport and handling. It has been estimated that total post harvest losses of paddy at producers' level was about 2.71 percent of total production. To minimize post harvest losses, precautions should be taken to follow proper post harvest practices.

An understanding of appropriate post harvest technologies is very important to avoid losses and get more benefit. The personal, socio-economic and psychological characteristics of the paddy growers may play a vital role in determining their knowledge and adoption level on recommended post harvest technologies. Keeping this in view, the present study has been made to

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know the relationship and contribution of characteristics with knowledge and adoption level in post harvest technologies.

## Materials and Methods

Nagapattinam district in Tamilnadu was purposively selected for this study for the following reasons. Paddy is the most important commercial crop cultivated in this district. Majority of the farmers, farm women and agricultural labors are directly or indirectly involved in rice crop cultivation which forms the basis for the agrarian economy of Nagapattinam district. Sirkali taluk was randomly selected for the study. A total number of 120 respondents were identified from the selected six villages by using the proportionate random sampling technique. Totally fourteen variables were selected for this study. The percentage analysis, zero order correlation and multiple regression analysis were the statistical tools used in the study.

## Results and Discussion

### I. Relationship between socio economic and psychological characteristics of respondents with

**the knowledge level on post harvest technologies in paddy**

The personal, socio-economic and psychological characteristics of the paddy growers may play a role in determining their knowledge level on post harvest technologies in paddy. The zero order correlation and multiple regressions were computed to know the relationship between socio-economic and psychological characteristics of respondents with their knowledge level of post harvest technologies in paddy. The results are given in Table 1.

**Correlation analysis**

It could be observed from the Table 1, that out of the fourteen variables studied, six variables viz., educational status (X2), experience on paddy cultivation (X7), extension agency contact (X9), information sharing behaviour (X12), risk orientation (X13), innovativeness (X14) were found to have positive and significant relationship with the extent of knowledge of post harvest technologies. All other variables were found to be non-significant.

Among the significant variables, educational status (X2) and experience on paddy cultivation (X7) were significant at one per cent level of probability while the remaining variables extension agency contact (X9), information sharing behaviour (X12), risk orientation (X13) and innovativeness (X14) were found to be significant at five per cent level of probability.

The positive and highly significant relationship of

education with knowledge level needs no explanation because it is a proven fact that education enables the people to acquire knowledge. This findings derives support from the findings of Jeremy konsan (2014).

Experience on paddy cultivation showed a positive and highly significant relationship with knowledge level of the respondents on post harvest technologies. As the farming experience increases their experience made them to know the post harvest technologies. This is in line with the findings of Sarveshkumar (2014).

Extension agency contact showed a positive and significant association with knowledge level. This meant that the paddy growers might have got adequate knowledge due to frequent contact with extension agency which would have motivated them to adopt the recommended post harvest technologies. This finding is line with the findings of Niruban Chakkaravarthy (2018).

Information sharing behaviour had shown a positive and significant association with knowledge level. It is obvious because the respondents who had higher information sharing behaviour would have naturally acquired knowledge about the practices. This finding is in line with the findings of Vasanthakumar (2014).

Risk orientation is found to have positive and significant relationship with the knowledge level of post harvest technologies. Respondents with higher risk orientation would have high risk bearing tendency and this increased the knowledge level in post harvest farming technologies for getting higher production. This might be

the reason for the reported relationship between risk orientation and knowledge level. This finding is in line with the findings of Archana (2018).

Innovativeness is found to have positive and significant relationship with the knowledge level of post harvest technologies. This is associated with individuals earliness in the use of new practices. Innovative farmers will always be experimenters. During any constraint situation framers with high level of innovativeness will experiment the new ways

**Table 1:** Zero order correlation and multiple regression of socio-economic and psychological characteristics of respondents with their level of knowledge on post harvest technologies in paddy (n=120).

Variable number	Variable	'r' Value	Regression Co-efficient	Standard error	't' Value
X1	Age	0.123 NS	-0.022	0.072	-0.310 NS
X2	Educational status	0.272**	0.652	0.250	2.677**
X3	Occupational status	-0.023 NS	-1.587	2.120	-0.749 NS
X4	Family type	0.097 NS	0.362	0.764	0.475 NS
X5	Area of land holding	0.014 NS	0.107	0.092	1.163 NS
X6	Annual income	-0.103 NS	0.478	0.312	1.431 NS
X7	Experience on paddy cultivation	0.265**	2.578	0.992	2.598**
X8	Social participation	0.120 NS	0.762	1.034	0.737 NS
X9	Extension agency contact	0.198*	0.648	0.316	2.057*
X10	Mass media exposure	0.062 NS	0.030	0.039	0.780 NS
X11	Decision making ability	0.024 NS	-0.082	0.081	-1.012 NS
X12	Information sharing behavior	0.187*	1.786	0.901	1.982*
X13	Risk orientation	0.218*	0.476	0.218	2.183*
X14	Innovativeness	0.231*	1.642	0.812	2.022*

\*Significant at 5 per cent level      R<sup>2</sup> = 0.547      \*\*Significant at 1 per cent level      F = 6.478\*\*  
 NS = Non Significant

of doing things to change the existing situation and there by acquiring new knowledge. This finding is in line with the findings of Aitochophi (2016).

### Regression analysis

The Table 1 also reveals that all the fourteen independent variables put together accounted for 54.70 percent of variation in knowledge. Hence, it could be concluded that a functional linear relationship between independent variables and the dependent variables could be established.

Of the fourteen variables taken for analysis six variables *viz.*, educational status (X2), experience on paddy cultivation (X7), extension agency contact (X9), information sharing behavior (X12), risk orientation (X13), innovativeness (X14) were found to have positive and significant relationship with the extent of knowledge of post harvest technologies. All other variables were found to be non-significant.

Among the significant variables, educational status (X2), experience on paddy cultivation (X7) were significant at one per cent level of probability while the remaining variables extension agency contact (X9), information sharing behaviour (X12), risk orientation (X13), innovativeness (X14) were found to be significant at five per cent level of probability.

The strength of contribution of these variables can be explained as *ceteris paribus i.e.*, educational status (X2), experience on paddy cultivation (X7), extension

**Table 2:** Zero order correlation and multiple regression of socio-economic and psychological characteristics of respondents with their level of adoption on post harvest technologies in paddy (n=120).

Variable number	Variable	'r' Value	Regression Co-efficient	Standard error	't' Value
X1	Age	0.070 NS	-0.271	0.171	-1.583 NS
X2	Educational status	0.278**	2.798	0.998	2.803**
X3	Occupational status	-0.053 NS	-0.044	5.053	-0.009 NS
X3	Occupational status	-0.053 NS	-0.044	5.053	-0.009 NS
X4	Family type	0.090 NS	2.837	1.821	1.558 NS
X5	Area of land holding	-0.013 NS	0.108	0.091	1.186 NS
X6	Annual income	-0.101 NS	0.518	0.407	1.272 NS
X7	Experience on paddy cultivation	0.265**	0.642	0.251	2.657**
X8	Social participation	0.056 NS	-1.721	2.466	-0.698 NS
X9	Extension agency contact	0.185 NS	2.798	1.139	2.156*
X10	Mass media exposure	0.067 NS	0.043	0.092	0.469 NS
X11	Decision making ability	0.060 NS	0.273	0.194	1.404 NS
X12	Information sharing behavior	0.212*	0.476	0.198	2.104*
X13	Risk orientation	0.199*	2.168	1.101	1.969*
X14	Innovativeness	0.201*	2.740	1.198	2.287*

\*Significant at 5 per cent level  $R^2 = 0.521$  \*\*Significant at 1 per cent level  $F = 6.161$  \*\*  
NS = Non Significant

agency contact (X9), information sharing behaviour (X12), risk orientation (X13), innovativeness (X14) would bring about 2.677, 2.598, 2.057, 1.982, 2.183 and 2.022 units increase in knowledge respectively.

## II. Relationship between socio economic and psychological characteristics of respondents with the adoption level on post harvest technologies in paddy

The personal, socio-economic and psychological characteristics of the paddy growers may play a role in determining their adoption level on post harvest technologies in paddy.

The zero order correlation and multiple regression were computed to know the relationship between socio-economic and psychological characteristics of respondents with their adoption level of post harvest technologies in paddy. The results are given in Table 2.

### Correlation analysis

It is noticed from Table 2 that out of the fourteen variables studied, five variables *viz.*, educational status (X2), experience on paddy cultivation (X7), information sharing behaviour (X12), risk orientation (X13), innovativeness (X14) were found to have positive and significant relationship with the extent of knowledge of post harvest technologies. All other variables were found to be non-significant.

Among the significant variables, educational status

(X2) and experience on paddy cultivation (X7) were significant at one per cent level of probability while the remaining variables information sharing behaviour (X12), risk orientation (X13) and innovativeness (X14) were found to be significant at five per cent level of probability.

The educational status reveals a positively significant relationship with the adoption. It may be due to the reason that more educated people can have better knowledge about the post harvest technologies leading to better adoption. This finding derives support

from the findings of Prashanth (2012).

Experience on paddy cultivation showed a positive and highly significant relationship with the adoption of the respondents on post harvest technologies in paddy. As the farming experience increases their experience made them to know the post harvest technologies. This is in line with the finding of Sathishkumar (2016).

Information sharing behaviour showed a positive and significant relationship with the adoption level. Farmers who have shared the information with others would have more awareness about the new technologies. It is obvious because the respondents who had higher information sharing behaviour would adopt the post harvest technologies.

Risk orientation was found to have positive and significant relationship with the adoption of post harvest technologies. Adoption of improved technologies involves some risks and hence respondents with high risk orientation alone would have adopted the post harvest technologies in paddy. This is in line with findings of Singh (2015).

Innovativeness showed a positive and significant relationship between the adoption of post harvest technologies in paddy. This shows more the innovativeness more will be the adoption of post harvest technologies in paddy. It is obvious that innovativeness could contribute to the adoption of post harvest technologies in paddy, for more the innovativeness more the farmers would try to acquire information about the post harvest technologies. This is in line with the findings of Rajivgandhi (2010).

### **Regression analysis**

The Table 2 also reveals that all the fourteen independent variables put together accounted for 52.10 per cent of variation in adoption. Hence, it could be concluded that a functional linear relationship between independent variables and the dependent variables could be established.

Of the fourteen variables taken for analysis six variables viz., educational status (X2), experience on paddy cultivation (X7), extension agency contact (X9), information sharing behaviour (X12), risk orientation (X13), innovativeness (X14) were found to have positive and significant relationship with the extent of adoption of post harvest technologies. All other variables were found to be non-significant.

Among the significant variables, educational status (X2), experience on paddy cultivation (X7) were significant at one percent level of probability while the

remaining variables extension agency contact (X9), information sharing behaviour (X12), risk orientation (X13), innovativeness (X14) were found to be significant at five percent level of probability while the remaining variables.

The strength of contribution of these variables could be explained as *ceteris paribus i.e.*, educational status (X2), experience on paddy cultivation (X7), extension agency contact (X9), information sharing behaviour (X12), risk orientation (X13), innovativeness (X14) would bring about 2.808, 2.657, 2.156, 2.104, 1.969 and 2.287 units increase in the extent of adoption respectively.

### **Conclusion**

Correlation analysis of socio economic and psychological characteristics of the respondents with their knowledge level of post harvest technologies showed that out of the fourteen variables studied, six variables viz., educational status(X2), experience on paddy cultivation(X7), extension agency contact (X9), information sharing behaviour (X12), risk orientation (X13), innovativeness (X14) were found to have positive and significant relationship with the extent of knowledge of post harvest technologies.

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