FERTILISER USE BEHAVIOUR OF RICE FARMERS OF PALAKKAD AND KANNUR DISTRICTS

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Abstract: To assess the fertiliser use behaviour of rice farmers, a study was carried out at Palakkad and Kannur districts of Kerala state. The study revealed that farmers of Palakkad and Kannur differed significantly with respect to adoption of fertiliser management practices with farmers of Palakkad having a higher level of adoption. It was found that the four variables, knowledge about fertiliser management practices, credit utilisation, attitude towards fertiliser use and area under rice are important in predicting the adoption of fertiliser management practices. Organising short duration training for farmers on integrated nutrient management practices is being recommended for enhancing the adoption of fertiliser management practices in rice.

INTRODUCTION

Fertiliser is one of the most indispensable inputs which is responsible for increased food grain production in our country. The future of agriculture in India is dependent to a very large extent on replenishing the plant nutrients to the impoverished soil by adopting the integrated, well balanced, adequate and timely application of fertilisers. It is observed that inspite of available potential technologies, farmers have not adopted them to the expected level. There exists a wide variation in fertiliser consumption in the different parts of our country. In this context, a study was conducted to find out the extent of adoption of the various recommended fertiliser management practices by the farmers and to identify the variables which significantly contribute towards level of fertiliser use of the farmers so that this knowledge could be used in reorienting the fertiliser education.

MATERIALS AND METHODS

The study was conducted in Palakkad and Kannur districts of Kerala State to represent a higher fertiliser consumption area and a low fertiliser consumption area respectively. From each district, one panchayat was taken for the study.

The list of farmers growing rice in the selected two panchayats was prepared separately and from the list, 100 farmers were selected at random from each panchayat. Thus there were 200 farmers selected for the study.

The adoption of fertiliser management practices in rice was considered as the dependent variable of the study.

The independent variables were age, education, farm size, area under rice, percentage area under HYV, annual income, economic performance index, attitude towards fertiliser use, economic motivation, scientific orientation, personal guidance on better farming, mass media utilisation, inter-personal source utilisation, social participation, extension participation, credit utilisation and knowledge about fertiliser management practices.

- The fertiliser management practices in rice cultivation as recommended by the Kerala Agricultural University were selected for the study.

RESULTS AND DISCUSSION

Table 1 depicts the mean score of the respondents on adoption of fertiliser management practices. The farmers of Palakkad had a high mean adoption score (2727) than the farmers of Kannur (14.31) and the difference in mean score was found statistically significant. The results of the Correlation analysis between adoption of fertiliser management practices by the farmers and the selected independent variables are presented in Table 2. The table reveals that out of the 17 independent variables selected for the study, 10 variables were significantly correlated with adoption of fertiliser management practices at Palakkad, while 14 variables emerged significantly correlated with adoption of fertiliser management practices at Kannur. Only those variables which were significantly related with adoption at both Palakkad and Kannur were selected for multivariate analysis. Accordingly, education, area under rice, annual income, attitude towards fertiliser use, economic motivation, extension participation, credit utilisation and knowledge about fertiliser management practices were selected for the study.

The results of the step-wise regression analysis between the adoption of fertiliser management practices by the farmers and the selected independent variabbles are presented in Table 3. It could be seen that the four variables knowledge about fertiliser management practices, credit utilisation, attitude towards fertiliser use and area under rice together explained 58.99 per cent of the total variation. These four variables thus could be considered as important in predicting the adoption of fertiliser management practices of farmers in general.

Knowledge is one of the three components of behaviour, which is vital for the adoption of any practice. The concept of information influence as given by Deutsch and Gerard (1955) which operates when an individual possesses adequate knowledge is largely determined by a tendency to conform with the knowledge level, which could be a possible reason for a positive relationship between knowledge and adoption.

Adoption of scientific management practices usually need more money to be invested by the farmers. Unless there is some financial support in the form of credit, adoption of the practices may not be rendered possible for a good majority of the farmers. Hence the observed relation between credit utilisation and adoption of fertilisers is quite understandable.

The relationship between benefits which an individual associates with an object and the attitude towards the object had been set forth in several versions of attitude behaviour consistency (Fishbein, and Raven, 1962; Mc Guire, 1969). If an individual has a favourable attitude towards an object, naturally that may reflect in his response towards the object and hence the obtained result. Janakiramraju (1978), Singh and Ray (1985) and Balan (1987) have also reported significant relation between attitude towards fertiliser use and the level of fertiliser use by farmers.

Farmers with more area under rice cultivation are likely to have a different orientation than those who cultivate small areas. Such farmers are likely to invest more in farm inputs with an eye on profit maximisation. The resource base of such farmers will also be sound for such investments. On the other hand, farmers with less area have the inherent limitation

Table 1. Mean score of the respondents on adoption of fertiliser management practces

Respondents	Mean adoption score	'(' velue
Palakkad farmers (n = 100)	27.27	21.41"
Kannur farmers (n = 100)	14.31	

** Significant at 1 per cent level

Table 2. Correlation between adoption of fertiliser management practices and the selected indepcnent variables

Variable No.	Independent variable	Coefficient of correlation (ı)	
		Palakkad (n = 100)	Kannur (n = 100)
X_1	Age	0.324**	0.103
X_2	Education	0.454"	0.301"
X_3	Area under rice	0.215*	0.210
X_4	Farm size	0.232*	0.110
X_5	Percentage area under HYV	-	0.616"
X_6	Annual income	0.298"	0.262"
X_7	Economic performance index	0.071	0.008
X_8	Attitude towards fertiliser use	0.301"	0.396**
X_9	Economic motiviation	0.438"	0.345
X_{10}	Scientific orientation	0.154	0.279"
X_{11}	Personal guidance on better farming	0.135	0.379"
X_{12}	Mass media utilisation	0.165	0.413
X_{13}	Interpersonal source utilisation	0.069	0.322**
X_{14}	Social participation	0.175	0.442"
X_{15}	Extension participation	0.203*	0.395"
X_{16}	Credit utilisation	0.334"	0.391**
X_{17}	Knowledge about fertiliser management practices	0.339**	0.499"

** Significant at 1 per cent level   * Significant at 5 per cent level

to use more inputs while adopting scientific farming practices. Hence the observed relation is quite logical.

The same variables used in the step-wise regression analysis were subjected to path analysis to get a clear picture of the direct and indirect effects of the selected independent variables on the adoption of fertiliser management practices. The knowledge about fertiliser management practices, credit utilisation

Table 3. Results of the step-wise regression analysis of adoption of fertiliser management practices with selected **independent** variables

	Independent variable	Regression coefficient	SE of b	't' value	Per cent variation expanded
X_{17}	Knowledge about fertiliser management practices	0.3875	0.1527	2.537	
X_{16}	Credit utilisation	0.3386	0.8148	0.415	58.994
X_8	Attitude towards fertiliser use	0.1628	0.1905	0.854	
X_3	Area under rice	0.1427	0.0602	2.370	

Table 4. Results of the path analysis showing the direct and indirect effects of the **indepenent** variables on adoption

	Independent variable	Total effect	Direct effect	Indirect effects	
X_2	Education	0.533	0.106	0.243	(X_{17})
				0.132	(X_{16})
				0.067	(X_3)
				0.067	(X_8)
X_3	Area under rice	0.476	0.181	0.183	(X_{17})
				0.116	(X_{16})
				0.039	(X_2)
X_6	Annual income	0.462	0.045	0.189	(X_{17})
				0.146	(X_3)
				0.118	(X_{16})
X_8	Attitude towards fertiliser use	0.408	0.206	0.115	(X_{17})
				0.101	(X_{16})
				0.051	(X_9)
X_9	Economic motivation	0.319	0.089	0.131	(X_{17})
				0.117	(X_8)
				0.009	(X_{16})
X_{15}	Extension participation	0.453	0.46	0.236	(X_{17})
				0.129	(X_{16})
				0.068	(X_3)
X_{16}	Credit utilisation	0.600	0.338	0.156	(X_{17})
				0.062	(X_3)
				0.062	(X_8)
X_{17}	Knowledge about fertiliser management practices	0.652	0.370	0.143	(X_{16})
				0.090	(X_3)
				0.070	(X_2)

and attitude towards fertiliser use exerted maximum direct effects on the adoption of fertiliser management practices (Table 4). Area under rice, education and economic motivation also had relatively higher values while the remaining variables registered comparatively smaller effects on the adoption of fertiliser management practices.

It is evident that the variables knowledge about fertiliser management practices, credit utilisation and attitude towards fertiliser use are most important. The substantial indirect effects of many variables were channelled through each of these three variables. It may be concluded that though all the variables included in the path analysis are important in the adoption of fertiliser management practices, the six variables, viz., knowledge about fertiliser management practices, credit utilisation, attitude towards fertiliser use, area under rice, education and economic motiviation are more important. Since knowledge about fertiliser management practices was found to play a crucial role in determining the adoption of fertiliser management practices by the farmers, organising short duration training for farmers on integrated nutrient management practices will be of much use.

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