KNOWLEDGE LEVEL OF TRIBAL FARMERS ABOUT ORGANIC FARMING PRACTICES IN PADDY CULTIVATION

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Abstract : This study was carried in Kanker district of Chhattisgarh state. Kanker district has 7 blocks, out of which, 3 blocks namely Kanker, Narharpur and Antagarh, was selected purposively because the majority of tribal farmers are practicing organic farming in these blocks. From each block 40 tribal farmers were randomly selected hence a total 120 respondents were interviewed personally. The study aimed to know the knowledge level of the farmers regarding organic farming in paddy cultivation. The findings revealed that, around 60 per cent of respondents were having medium knowledge about organic farming. Among the selected characteristics nine characteristics viz. education, total number of family members involved in farming, social participation, number of training programme attended, extension contact, sources of information, cosmopoliteness, annual income and risk bearing capacity had positive and significant correlated with their knowledge about organic farming practices. Multiple regression analysis indicated that, the seventeen independent variables put together had contributed to 67.30 per cent (R^2=0.673) variation in level of knowledge about organic farming practices in paddy.

Keywords : Knowledge level, Organic farming, Paddy cultivation, Tribal farmers

INTRODUCTION

Rice is an important food grain crop in our country. During the past ten years production of paddy has increased due to the tremendous efforts taken by the research system. The higher production target of farmers has led to higher consumption of inorganic inputs like chemical fertilizers, pesticides, fungicides, etc., which the results in several unwanted problems to human life. Rice is the most consumed cereal grain in the world; it forms the dietary staple food for more than half of the planet's human population. In Asian countries, rice is the major staple crop covering about ninety per cent of rice grown in the world. India is the second largest producer after china has an area of over 44.0 million hectare under rice crop and production 144.1 million tones of rice in 2007 (FAO, 2008). Chhattisgarh is popularly known as "rice bowl of India" rice occupies an area of around 3.48 million hectare with the production of 5.3 MT and productivity of rice is1619 kg per hectare (Urkurkar *et al.* 2007).

Organic farming plays an important role in Indian agriculture. Organic farming which is a holistic production management system for promotion and enhancing health of agro eco-system, has gained wide recognition as a valid alternative to conventional food products and ensures safe food for human consumption. This farming system avoids or largely excludes the use of synthetically manufactured fertilizers, pesticides, growth regulators and livestock feed additives and relies on legumes, green manures, biofertilizers, biopesticides, bioherbicides etc. Its aims to produce nutritious food of high quality but also lead to the generation of more income and employment opportunities for rural population.

Keeping in this view, a study was taken up to determine the extent of adoption of organic farming practices by farmers in rice crop. Objectives of the study:-

1. To determine the extent of knowledge about organic farming practices in paddy cultivation among the tribal farmers.
2. To find out the relationship between selected characteristics of tribal farmers and their level of knowledge about organic farming practices.

MATERIAL AND METHOD

The study was carried out in Kanker district of Chhattisgarh state. Kanker district is situated in south-eastern part of Chhattisgarh state. Kanker district has 7 blocks, out of which, 3 blocks namely Kanker, Narharpur, Antagarh, were selected purposively because the majority of farmers practicing organic farming in these blocks. A list of organic farmers of the selected three blocks was prepared by taking the help of RAEO,s, ADO,s and SADO,s. .From each selected block, 40 tribal farmers who are practicing organic farming were selected randomly. In this way a total of 120 tribal farmers were considered as respondents for present study. Respondents were interviewed through personal interview with the help of well structured and pre-tested interview schedule. Prior to interview, respondents were taken into confidence by revealing the actual purpose of the study and full care was taken in to consideration and developed good rapport with them.

Knowledge is defined as a body of understandable information possessed by an individual or by culture. A device was developed to measure the level of knowledge of farmers regarding organic farming practices; a teacher made scale as suggested by

Anastasi (1961) was used with some modifications. The responses of respondents regarding knowledge were obtained into three-point continuum as under:

The knowledge Index (K.I.) was marked out by using the following formula:

$$\text{K.I.} = \frac{\text{Sum of knowledge score actually obtained by the respondents}}{\text{Maximum possible obtainable knowledge score by the respondents}} \times 100$$

Thus after computing the knowledge index the respondents were grouped into low, medium and high categories by taking mean and standard deviation.

Mean ($\overline{X}$) ± S.D. (Standard Deviation)

Categories	
Low level of knowledge	(< $\overline{X}$ - S.D.)
Medium level of knowledge	(In between $\overline{X}$ ± S.D.)
High level of knowledge	(> $\overline{X}$ + S.D.)

RESULT AND DISCUSSION

Practice wise level of knowledge

In table no. 1 revealed that 34.17 per cent respondents had high level of knowledge regarding selection of land and land preparation, followed by knowledge about water management (25.00%), recommended weed management (19.17%), recommended improved varieties and seed treatments (15.83%) and recommended sowing method and seedling preparation (12.50%). Whereas, only 10.00, 08.33, 8.33, 05.00, 04.17, and 01.67 per cent of the respondents were having higher level of knowledge about concept of organic farming, benefits of organic farming, market facility and market price of organically produced rice, nutrition management, storage practices in rice and pest management, respectively. None of respondents had high knowledge regarding disease management in paddy crop.

Table 1: Distribution of respondents as per as their practice wise level of knowledge regarding organic farming practices in paddy cultivation (n =120)

S. No.	Organic farming practices	Level of knowledge		
		Low f (%)	Medium f (%)	High f (%)
1.	Knowledge about concept of organic farming	00 (00.00)	108 (90.00)	12 (10.00)
2.	Selection of land and land preparation	00 (00.00)	79 (65.83)	41 (34.17)
3.	Selection of rice varieties and seed treatment	00 (00.00)	101 (84.17)	19 (15.83)
4.	Sowing method and seedling preparation	00 (00.00)	105 (87.50)	15 (12.50)
5.	Nutrition management	15 (12.50)	99 (82.50)	06 (05.00)
6.	Weed management	08 (06.67)	89 (74.17)	23 (19.17)
7.	Knowledge about water management	05 (04.17)	85 (70.83)	30 (25.00)
8.	Pest management	14 (11.67)	104 (86.67)	02 (01.67)
9.	Disease management	20 (16.67)	100 (83.33)	00 (00.00)
10.	Market facility and market price	08 (06.67)	102 (85.00)	10 (08.33)
11.	Storage method of rice	32 (26.67)	83 (69.17)	05 (04.17)
12.	Benefits of organic farming	02 (01.67)	108 (90.00)	10 (08.33)

f = Frequency % = Per cent

It is worthwhile to note that 90.00 per cent of the respondents had medium knowledge about concept of organic farming and also benefits of organic farming, followed by recommended sowing method and seedling preparation (87.50%), recommended pest management (86.67%) and 85.00 per cent per cent respondents were having medium knowledge about market facility and market price. The respondents were found to possess medium knowledge about recommended varieties and seed treatments (84.17%), recommended disease management (83.33%), recommended nutrition management (82.50%), recommended weed management (74.17%), knowledge about water management (70.83%), recommended storage method of paddy (69.17%) and selection of land and land preparation (65.83%).

Similarly majority of the respondents were having low knowledge about recommended storage practices in paddy (26.67%), recommended disease management (16.67%), recommended nutrition management (12.50%), recommended pest management (11.67%), market facility and market price and also pest management (06.67%) knowledge about water management practices (4.17%). Only 01.67 per cent respondents were having low level of knowledge about benefits of organic farming.

The overall knowledge level

Table 2: Distribution of respondents according to their overall level of knowledge pertaining to organic farming practices in paddy cultivation (n =120)

S. No.	Level of knowledge	Frequency	Per cent
1.	Low level knowledge (up to 23 score)	35	29.17
2.	Medium level knowledge (24 to 27 score)	72	60.00
3.	High level knowledge (above27 score)	13	10.83
	Total	**120**	**100.00**

$\overline{X}$ = 24.83 S.D. = 01.99

The data presented in Table 2 indicates that the majority of the respondents (60.00%) had medium level of knowledge regarding organic farming practices, whereas, 29.17 and 10.83 per cent of respondents were having low and high level of knowledge, respectively. It can be said that, most of the respondents surveyed (60.00%) had medium level knowledge regarding organic farming practices in paddy. The findings support from the work of Dhruw (2008) and Sidram (2008).

The level of knowledge of the respondents regarding type of organic manures in organic farming practices

Table 3: Distribution of respondents according to knowledge about type of organic manures

S. No.	Type of organic manures	Frequency*	Per cent
1.	Conventional compost (FYM)	120	100.00
2.	Nadep compost	61	50.83
3.	Vermicompost	66	55.00
4.	Bio-fertilizer	75	62.50
5.	Green manure	20	16.67
6.	Bio-gas slurry	25	20.83

* Frequency based on multiple responses

Among the organic manures cent per cent respondents had knowledge regarding conventional compost or farm yard manure (FYM), followed by knowledge about bio-fertilizers (62.50%), vermicompost (55.00%), Nadep compost (50.83%). Whereas, only 20.83 per cent and 16.67 per cent of the respondents were having knowledge about bio-gas slurry and green manure, respectively.

Table 4: Correlation and Multiple regression analysis of independent variables with level of knowledge regarding organic farming practices (n=120)

S. No.	Independent variables	"r" value	Regression Coefficient (b)	't' value
		Adoption		
1.	Age	0.060NS	0.781NS	0.279
2.	Education	0.216**	0.811NS	-0.825
3.	Total number of family members	0.219**	0.108*	1.991

	involved in farming			
4.	Social participation	0.370**	0.029*	2.208
5.	Organic farming experience	0.023NS	0.620NS	0.497
6.	Training programme attended	0.434**	0.074**	2.930
7.	Land holding	0.058NS	0.625NS	-0.393
8.	Annual income	0.188*	0.957NS	0.054
9.	Credit acquisition	-0.037NS	0.906NS	-0.940
10.	Livestock population	0.026NS	0.946NS	-0.064
11.	Extension contact	0.238**	0.100**	2.660
12.	Sources of information	0.403**	0.089NS	1.717
13.	Cosmopoliteness	0.268**	0.029*	2.218
14.	Infrastructure facility	0.050NS	0.014NS	-0.522
15.	Scientific orientation	-0.006NS	0.609NS	-0.513
16.	Attitude towards organic farming practices	0.032NS	0.381NS	-0.880
17.	Risk bearing capacity	0.199*	0.941*	2.250

** Significant at 0.01 level of probability NS= Non-significant

* Significant at 0.05 level of probability R^2=0.673

It can be observes from Table 4 that the correlation coefficient between education, total number of family members involved in farming, social participation, training programme attended, extension contact, sources of information and cosmopoliteness were found to be positive and highly significant at 0.01 level of probability with knowledge. Whereas, the variables annual income and risk bearing capacity were found to be positively and significantly correlated with knowledge at 0.05 level of probability. Hence, it is clear that an increase in education, social participation, training programme attended, extension contact and cosmopoliteness would certainly increase the knowledge about organic farming practices, which would result in fairly good adoption of organic farming practices in paddy cultivation.

The other eight variables *viz.* age, organic farming experience, land holding, credit acquisition, live stock possession, infrastructure facility, scientific orientation and attitude towards organic farming practices showed non-significant relation with extent of knowledge of organic farming practices.

The results presented in Table 4 shows that, out of 17 independent variables, the two variables *viz.* training programme attended and contact with extension agencies had significant contribution towards knowledge of organic farming at 0.01 level of probability. Whereas, total number of family member involved in farming, social participation, cosmopoliteness and risk bearing capacity contributed significantly towards knowledge of organic farming at 0.05 level of probability. The remaining variables *viz.* age, education, organic farming experience, land holding, annual income, credit acquisition, sources of information, infrastructure facility, scientific orientation and attitude towards organic farming practices were not found to have the prediction values of significant level.

The data also shows that all the 17 variables collectively explained 67.30 per cent variation in the knowledge level regarding organic farming practices among the respondents. Though more than three-fourth of the variation has been explained by these variables, yet it would be worthwhile to look for some more variables comprising personality traits of the farmers shown a higher level of variation in the knowledge level. As evident from the significant‘t’ value of the variables it can infer that if there is one unit increase in total number of family members involved in farming, social participation, training programme attended, extension contact, cosmopoliteness and risk bearing capacity, there would be 0.108, 0.092, 0.074, 0.100, 0.029 and 0.941 unit increase, respectively in knowledge of organic farming practices in paddy cultivation.

CONCLUSION

The correlation coefficient between education, total number of family members involved in farming, social participation, training programmes attended, extension contact, sources of information, cosmopoliteness and knowledge were found to be positive and highly significant at 0.01 level of probability. Out of 17 independent variables, the two variables viz. training programme attended and contact with extension agencies had positive and significant contribution towards knowledge at 0.01 level of probability. Whereas, total number of family members involved in farming, social participation, cosmopoliteness and risk bearing capacity contributed positively and significantly towards knowledge at 0.05 level of probability. Respondents of the selected area were not enough well-verses to the teaching aids. This is one of the major issues to non-adoption of organic farming in scientific way, so there is wise use of extension methods for transfer of technology from institution to rural community having profound importance. Special trainings in

relation to organic farming is required because the farmers who attend the training programme more then two, were having more knowledge about organic farming and adoption is naturally more.

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