



E-ISSN: 2278-4136

P-ISSN: 2349-8234

JPP 2019; 8(5): 2004-2008

Received: 19-07-2019

Accepted: 21-08-2019

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Attributes of paddy growers regarding indigenous technological knowledge (ITK) in Bastar district of Chhattisgarh, India

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Abstract

The study was an “*Ex-Post-Facto*” research carried out in Bastar district of Chhattisgarh State during year 2015-16 to assess the attributes of paddy growers regarding indigenous technological knowledge (ITK). The study covered 12 villages from 2 blocks of Bastar district to form a sample of 120 paddy growers. A pre-tested structured interview schedule was used to collect the data from the paddy growers by personal interview method. The data analysis was done by using various statistical methods like frequency, percentage, mean, standard deviation and coefficient of variation. The findings of the study reveal that most of paddy growers were middle-aged, scheduled tribe, nuclear family, small size of land holding and had medium level of exposure to their respective attributes (social participation, socio-economic status, extension participation, innovativeness, information seeking behaviour, attitude towards ITK and mass media exposure) of paddy growers.

Keywords: Indigenous technical knowledge, local knowledge, attitude towards ITK, attributes, paddy growers

Introduction

Indigenous knowledge is an institutionalized knowledge that passes from one generation to another and develops within a certain culture or ethnic group and strives to meet subsistence goals in a particular ecological setting (Ajibade, 2003) ^[2]. Indigenous traditional knowledge (ITK) is the assemblage of awareness and understanding of various facts which people have developed over a large span of time and continue to expand it. Since the inception of agricultural practices, there has been a constant tussle between mankind and insects for better yield of crops. Through trial-and-error, farmers have developed many physical and cultural practices to protect crops from various pests and diseases. Indigenous knowledge is unique knowledge developed over time and continues to develop by people in a given community or geographic area (Samal *et al.* 2010; Mitiku *et al.*, 2006) ^[19,11]. Indigenous knowledge plays an important role in sustainable management of ecosystems and can also have a role in addressing problems of global concern (Tripathi and Bhattarya, 2004) ^[21].

Rice is an important crop in India occupying 43 million hectares of land representing various ecosystems. The crop is cultivated 2 meters below the sea level in Kuttanadu region of Kerala and 2500 meter above sea level in Jammu Kashmir. This type of geographical and wide climatic variation provided the farmer's ideal situations to develop their own indigenous practices in rice cultivation. The total geographical area of Chhattisgarh is 13.5 million hectares, out of which 5.9 million hectare area is under cultivation. Rice occupies an area of 3.68 million hectares with production of 6.71 million tones with average productivity 1766 kg per hectare. (Deptt. of Food and Public Distribution, 2013-14). The Bastar district has net sown area 317.293 thousands hectare, of which 207.510 thousand hectare area under rice cultivation, producing 327.5 thousand tones and productivity of 1284.5 kg per hectare in the year 2013- 14. (Agricultural Statistics, commissioner land record, Raipur, Govt. of Chhattisgarh). Hence, in this context the present study was undertaken to study the attributive characteristics of paddy growers.

Methodology

The study was conducted in the Bastar district of Chhattisgarh, India. There are seven blocks viz., Bastanar, Darbha, Bakawand, Bastar, Jagdalpur, Tokapal and Lohandiguda. Among these two blocks viz., Tokapal and Lohandiguda were selected purposively in 2015-16 because of paddy is the main Kharif crop in that area. The “*Ex-Post-Facto*” research design was used for the study. The sample has been selected through multi-stage sampling technique. From each

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selected block, six villages were randomly selected. Thus total 12 villages were selected for the study. From each of the selected villages, 10 paddy growers were selected by simple random sampling procedure, thus the sample size for the study was 120. The data were collected through personal interview technique with the help of an interview schedule. The statistics applied were frequency, percentage, mean, standard deviation and coefficient of variation.

Results and Discussion

Social-personal, economical, psychological and communicational attributes of paddy growers towards Indigenous Technological Knowledge (ITK)

Table 1: Distribution of paddy growers according to their socio-personal and economical attributes

Attributes	Categories	Frequency	Percentage
Age	Young age (up to 35)	37	30.83
	Middle age (36 to 55)	65	54.17
	Old age (above 56)	18	15.00
Educational qualification	Illiterate	22	18.33
	Primary & middle education	70	58.33
	Higher education	28	23.34
Caste	Schedule Tribe (ST)	71	59.17
	Schedule Caste (SC)	14	11.67
	Other Backward Class (OBC)	23	19.16
	General	12	10.00
Type of family	Nuclear family	63	52.50
	Joint family	57	47.50
Size of land holding	Marginal (up to 2.5 acre)	21	17.50
	Small (2.6 to 5 acre)	63	52.50
	Medium (5.1 to 10 acre)	26	21.67
	Large (above 10 acre)	10	8.33
Annual income	Low (up to 50,000)	42	35.00
	Medium (50,001 to 1,00,000)	50	41.67
	High (above 1,00,000)	28	23.33

Age

The data presented in Table 1 indicated that more than half (54.17%) of paddy growers belonged to the middle-aged group, followed by young (30.83%) and old (15.00%) age. The major group engaged in farming and is responsible for maintaining their families. Usually, the farmers of middle-aged are enthusiastic having more responsibility and more efficient than the younger and old farmers. The above finding is justified by Umar (2007) [22], Luka and Yahaya (2012) [8], Rokonzaman (2012) [18], Khandkar *et al.* (2014) and Ashraf *et al.* (2015) [3].

Educational qualifications

Education builds the ability of an individual to seek knowledge, understand and utilize things better and hence assessment of respondent's educational attainment was essential. It is clear from the result presented in Table 1 that nearly half (58.33%) of paddy growers had primary to middle school level education. It also revealed that 23.34 per cent had higher education level and 18.33 per cent of the paddy growers were found in the category of illiterate. It can be

concluded from the study that overall majority of the paddy growers were literates and the maximum numbers of the paddy growers were primary and middle school passed. This may be due to the availability of primary and secondary school education at village level and college at tehsil place. This finding is in agreement with result of Chowdhury *et al.* (2012) [4], Luka and Yahaya (2012) [8] and Khandkar *et al.* (2014).

Caste

As regards to caste, most of the paddy growers (59.17%) belonged to Schedule Tribe, followed by (19.16%) Other Backward Class and (11.67%) of the paddy growers were found in the category of Scheduled Caste whereas, the only 10.00 per cent of the paddy growers were found in the category of general caste. It can be concluded from the study that overall majority of the paddy growers were other backward class after schedule tribe (ST) category. This is due to having maximum numbers of the Schedule Tribe respondents in the study area. Padekar (2004) [13] and Das (2012) [5] observed the same findings.

Type of family

Data presented in Table 1 indicates that more than half of the paddy growers had a nuclear family type i.e. (52.50%), followed by joint family (47.50%). Thus; it can be concluded that majority of the paddy growers had nuclear type of family. This is due to having nuclear family system in the study area. This finding is in agreement with results of Umar (2007) [22], Chowdhury *et al.* (2012) [4] and Das (2012) [5].

Size of landholding

It is clear from the table 1 that more than half (52.50%) of the paddy growers had small size of landholding (2.6 to 5 acre), followed by (21.67%) medium (5.1 to 10 acre), marginal (17.50%) (Up to 2.5 acre) and only (8.33%) of the paddy growers were found in large size of the landholding (above 10 acres) category. It can be concluded from the study that overall majority of the paddy growers having small to large size of landholding and maximum number of paddy growers were small farmers. Similar results were reported by Chowdhury *et al.* (2012) [4], Rehman (2012) and Khandker *et al.* (2014) [7].

Annual income

An annual income of family helps to project the overall economic position and it is an indicator of the economic stability of the family. The results presented in Table 1 revealed that majority 41.67 per cent of the paddy growers were having their annual income between Rs 50,001 to 1,00,000 lakh, followed by (35.0%) of paddy growers were having their annual income Up to Rs 50,000 and (23.33%) paddy growers were having their annual income above Rs 1,00,000 lakh. The probable reason for the findings is that more than half of the paddy growers had small to large landholdings and a majority of them engaged in farming, thus, they could get an average income annually. This finding is in agreement with result of Rawat (2010) [16], Chowdhury *et al.* (2012) [4], Rokonzaman (2012) [18] and Khandker *et al.* (2014) [7].

Table 2: Distribution of paddy growers according to their socio-psychological and communicational attributes (n=120)

Attributes	Category	Frequency	Percentage	Mean	SD	CV
Social Participation	Low (<7.15)	25	20.83	8.94	1.79	20.02
	Medium (7.15 – 10.73)	58	48.33			
	High (>10.73)	37	30.84			
Socio-economic status	Poor (<2.19)	29	24.17	3.65	1.46	40.00
	Medium (2.19 – 5.11)	66	55.00			
	Good (>5.11)	25	20.83			
Extension Participation	Low (<7.98)	32	26.67	9.42	1.44	15.29
	Medium (7.98 – 10.86)	67	55.83			
	High (>10.86)	21	17.50			
Innovativeness	Low (<7.9)	37	30.83	9.67	1.77	18.30
	Medium (7.9 – 11.44)	65	54.17			
	High (>11.44)	18	15.00			
Information Seeking Behaviour	Low (<12.33)	24	20.00	14.95	2.62	17.53
	Medium (12.33 – 17.57)	75	62.50			
	High (>17.57)	21	17.50			
Attitude towards ITK	Unfavourable (<7.89)	28	23.33	9.44	1.55	16.42
	Neutral (7.89 – 10.99)	67	55.84			
	Favourable (>10.99)	25	20.83			
Mass Media Exposure	Low (<5.14)	29	24.17	6.61	1.47	22.24
	Medium (5.14 – 8.08)	71	59.17			
	High (>8.08)	20	16.67			

Social Participation

Social participation gives an idea of the respondent's participation in social activities. From Table 2, it is clearly showed that nearly half (48.33%) of paddy growers had medium level of social participation, followed by high (30.84%) and low (20.83%) level of social participation, respectively. The mean value of social participation of paddy growers was observed to be 8.94 and the coefficient of variation 20.02, depicting 20.02 per cent variation in social participation. It is clear from the data that a huge majority of the paddy growers were having membership either in one or more than one organizations. Similar results are also reported by Adhikari (2007) ^[1], Deshmukh *et al.* (2007) ^[6] and Rokonzaman (2012) ^[18].

Socio-economic status

From the results, it is clear that more than half of (55.00%) paddy growers had medium socio-economic status, followed by (24.17%) had poor socio-economic status and only (20.83%) were found to have good socio-economic status. The mean value of socio-economic status of paddy growers was observed to be 3.65 and the coefficient of variation 40.00, depicting 40.00 per cent variation in socio-economic status. Thus; it may be concluded that majority of the paddy growers had medium level of socio-economic status. The probable reason for the finding is that more than half of the paddy growers had medium to large landholdings. Thus, they could manage their social and economic status. This finding is in agreement with result of Mineswar (1992) ^[10], Adhikari (2007) ^[1] and Rawat (2010) ^[16].

Extension participation

Out of total 120 paddy growers, a higher percentage of paddy growers (55.83%) were in medium extension participation, followed by low (26.67%) and high (17.50%) level of extension participation, respectively. The mean value of extension participation was found to be 9.42 and coefficient of variation 15.29 indicating 15.29 per cent variation in extension participation. Thus; it can be concluded that most of the paddy growers were in medium extension participation category. Due to being literate and most of the paddy growers had education up to primary school level only. Adhikari

(2007) ^[1], Deshmukh *et al.* (2007) ^[6], Chowdhury *et al.* (2012) ^[4], Rehman (2012), Sangeetha *et al.* (2013) ^[20] and Khandker *et al.* (2014) ^[7] observed the same findings.

Innovativeness

Innovativeness plays a greater role in individuals' personality. The person with higher innovativeness can do things rapidly and more precisely than others. The result that more than half of (54.17%) paddy growers had medium level innovativeness, followed by low (30.83%) and high (15.00%) level of innovativeness, respectively. The mean value obtained for the innovativeness of paddy growers was 9.67 with coefficient of variation 18.30 indicating 18.30 per cent variation in the innovativeness of paddy growers. The probable reason is that the paddy growers were more aware of indigenous technical knowledge so that they do not adopt any innovation. This finding is in agreement with result of Natikar (2001) ^[12], Reddy (2006) ^[17] and Adhikari (2007) ^[1].

Information seeking behavior

With regard to information-seeking behavior, Table 2 revealed that a big majority 62.50 per cent of paddy growers had medium information-seeking behavior, followed by 20.00 and 22.50 per cent of paddy growers belonged to low and high level of information-seeking behavior, respectively. The mean value of information-seeking behavior was found to be 14.95 and coefficient of variation 17.53 indicating 17.53 per cent variation in information-seeking behavior of paddy growers. Thus; it can be concluded that majority of the paddy growers had medium information-seeking behavior. It is revealed from the study that the majority of the paddy growers had medium to low information-seeking behaviour as the majority of the paddy growers having high socio-economic status tends to try more and more information when they are in need. This finding is in agreement with result of Adhikari (2007) ^[1] and Rawat (2010) ^[16].

Attitude towards ITK

For the adoption of ITK, the attitude of the paddy growers must be positive. In order to increase the level of adoption, paddy growers must be made aware of indigenous technical knowledge. The result showed that more than half (55.84%)

of the paddy growers had neutral attitude towards ITK, followed by unfavourable (23.33%) and favourable (20.83%) attitude towards ITK. The mean value of attitude towards ITK was found to be 9.44 and the coefficient of variation 16.42, depicting 16.42 per cent variation in attitude towards ITK. Thus; it could be concluded that higher majority of the paddy growers had neutral attitude towards ITK. Majority of the paddy growers due to being literate and belonging to young to middle age, their attitude was positive and they think that these types of technologies can be play a major role in their socio-economic development. Similar results are also reported by Rawat (2010)^[16] and Rehman (2012).

Mass media exposure

With regard to the mass media exposure, more than half 59.17 per cent of the paddy growers had a medium level of mass media exposure, followed by low (24.17%) and high (16.67%) level of mass media exposure, respectively. The mean value for mass media exposure of paddy growers was found to be 6.61 and coefficient of variation 22.24, indicating 22.24 per cent variation in mass media exposure. Thus; it may be concluded that the majority of the paddy growers were in the category of medium mass media exposure. It is revealed from the study that the majority of the paddy growers were in medium mass media exposure. This finding is in agreement with result of Adhikari (2007)^[1], Rawat (2010)^[16], Manjunath (2010)^[9], Pallabi *et al.* (2013)^[14] and Sangeetha *et al.* (2013)^[20].

Conclusion

This paper concluded that majority of the paddy growers were belonging to the middle-aged group, having small size of landholding, nuclear family and had medium level of exposure to their respective attributes (social participation, socio-economic status, extension participation, innovativeness, information seeking behaviour, attitude towards ITK and mass media exposure) of paddy growers.

Acknowledgment

We hereby express our deep gratitude to the Rajmata Vijayaraje Scindia Krishi Vishwavidyalaya for providing us the facilities for smooth functioning of research and members of advisory board viz. Dr. S. N. Singh and Dr. S. N. Soni for their continuous support and motivation.

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