

A Study on the Knowledge About Information and Communication Technology Tools of Paddy Growers in Nuapada District of Odisha

Abhisek Dash¹ and Jahanara²

Dept. of Agril. Extension and Comm. SHUATS, Prayagraj - 211 007 (India)

Email : dashabhisek11@gmail.com

(Received : 10.09.2024 Accepted : 15.10.2024)

Abstract

The study was conducted in Nuapada District of Odisha to know the knowledge about information and communication technology tools by Paddy growers in Nuapada district of Odisha. A total number of 120 respondents were selected randomly from six villages under Nuapada block because productivity, production and area under rice cultivation were found to be maximum. The data were collected by personnel interview method by using pre structured interview schedule and later appropriate statistical analysis was done to find out the meaningful results. The findings of the study revealed that 54.16 per cent of the respondents belonged to the middle- aged group, majority of the respondents 59.16 per cent belong to the OBC caste and majority of the respondents belongs to medium level of annual income i.e. 50,000 - 1 lakh. Majority of the respondents i.e. 45.83 per cent had medium level knowledge about rice cultivation practices. The findings also revealed that 48.34 per cent of respondents had medium level knowledge about information and communication technology tools followed by 30 per cent and 21.66 per cent of the respondents with high and low levels of knowledge respectively. It was found that independent variables like age, caste, economic motivation were positively and significantly correlated with knowledge about ICT tools by the respondents.

Key words : Knowledge, Information and communication technology.

The use of ICT is an essential pillar of agricultural extension and in this present scenario of a rapidly changing world, it has been also recognized as an essential mechanism for delivering knowledge (advice) and information as an input for modern farming. The Information and Communication Technologies (ICTs) can create new opportunities to bridge the gap between information haves and information have-nots in the developing countries. ICT tools serve as a unifying force that brings people together, regardless of caste, class, race, religion, sex or political identity. The delivery of ICT-based information delivery has the potential to be more timely and directly reach more farmers (Rajoria *et al.*, 2022).

According to the Food and Agriculture Organization, FAO (1993) ICT was defined as those technologies used in collecting,

processing, storing, retrieving, disseminating, and implementing data and information using microelectronics, optics, and telecommunication and computers.

Information and Communication Technology (ICTs) are seen as a partial solution to rapidly disseminating information to the increasing number of farming families. ICTs have the potential to enable farmers to receive up-to-date knowledge and information about agricultural technologies, best practices, markets, price trends, consumer preferences, weather, and soil moisture conditions. ICTs based information is crucial for the adoption of different technologies related to different crops for improving yield and income of small holder farmers. (Barnabas and Glenn, 2012).

ICT in the agriculture sector facilitates knowledge sharing within and among a variety

of agriculture networks including researchers, exporters, extension services and farmers. ICT enables vital information flows by linking rural agricultural communities to the internet, both in terms of accessing information and providing local content (Jayathilake, *et al.* 2008). The developments in Information and Communication Technologies (ICTs) and the internet in particular have revolutionized the entire Agriculture field, generating new market, changing the structure of the Agriculture distribution channels and re-engineering all processes. Agricultural extension which depends to a large extent on information exchange between and among farmers on the one hand and a broad range of other actors on the other, has been identified as one area in which ICTs can play a significant role. (Raksha *et al.*, 2015). Farmers also reported that mobile phones proved to be useful during health emergencies; information services on availability of inputs, quality of inputs, and pest and disease management of crops were also used by the farmers through ICTs (Syiem and Raj, 2015).

The use of ICT as a tool for enabling innovation in South Asia and found that the potential of ICT as a communication tool had not been adequately utilized. They argue ICTs could better reach their potential by acknowledging and integrating the roles of intermediaries and their capacities for innovation, and by enabling networks so that communities can make use of the information provided (Sulaiman *et al.*, 2012).

According to RLDC (2009), most of rice farmers lack agricultural information in mostly in farming practices and market price; hence farmers end up using their experience and traditional ways of farming practices. That results to low yields since they are hardly change ways of farming and incur low prices because of less information about market price. In African

counties most farmers lack access to day to day agricultural information, which is needed to assist farmers in making decisions regards farming practices and market price (Matovelo, 2008).

Research Methodology

Descriptive research design was adopted for the study as it describes the characteristics or phenomena that are being studied. The present study was conducted in Nuapada district of Odisha. Out of 6 blocks in Nuapada district, Nuapada block is selected purposively based on maximum area covered under rice cultivation. From the selected block, six villages were selected purposively based on the maximum area covered under rice cultivation.

Results and Discussion

From the Table 1, it is observed that majority of respondents belongs to middle age group i.e. 54.16%. it is shown that 28.33% of the respondents had primary level of education and 59.16% of the respondents belong to OBC caste. In terms of annual income, 52.50 per cent of the respondents had medium level of income in which 53.34 per cent had land holding of 1 ha to 2 ha. It is observed that majority of the respondents lived in nuclear family i.e. 61.66 per cent. It is also observed that 55.83 per cent of the respondents possessed a medium level of Scientific orientation. It is seen that in terms of Economic motivation, 45.83 per cent of the respondents possessed medium level of Economic motivation and 55 per cent of the respondents had medium level of Mass media exposure. Lastly 44.16 per cent of the respondents had medium level of extension contacts. Similar findings were also reported by (Singh *et al.* 2012).

Table 2 revealed that majority of the respondents i.e. 45.84% were used MTU 1001, MTU 1010 and Swarna varieties for cultivation

Table 1. Socio-economic profile of the respondents

Independent variables and category	Freq- uency	Perce- ntage
Age		
Young age (Up to 35 years)	24	20.00
Middle age (36-55 years)	65	54.16
Old age (above 55 years)	31	25.84
Educational Qualification		
Illiterate	32	26.66
Primary school	27	22.50
Upper Primary school	22	18.34
Higher Secondary	19	15.84
Intermediate	12	10.00
Graduate above	8	6.66
Caste		
General	22	18.34
OBC	71	59.16
SC & ST	27	22.50
Annual Income		
Low (below 50,000)	32	26.66
Medium (50,000-1 lakh)	63	52.50
High (Above 1 lakh)	25	20.84
Type of house		
Hut (Kuchha)	24	20.00
Semi-cemented	64	53.34
Cemented	32	26.66
Type of Family		
Nuclear family	74	61.66
Joint family	46	38.34
Size of Family		
Small (1-4)	33	27.50
Medium (5-8)	59	49.16
Large (9 above)	28	23.34
Land holding		
Marginal (Up to 1 ha.)	18	15.00
Small (1.01 to 2 ha.)	35	29.16
Medium (2 to 4 ha.)	37	30.84
Large (Above 4 ha.)	30	25.00
Scientific orientation		
Low (8-11)	28	23.34
Medium (12-14)	67	55.83
High (15-17)	25	20.83
Economic motivation		
Low (6-10)	34	28.34
Medium (11-14)	55	45.83
High (15-18)	31	25.83
Mass media exposure		
Low (5-7)	28	23.34
Medium (8-9)	66	55.00
High (10-11)	26	21.66
Extension contact		
Low (6-8)	30	25.00
Medium (9-10)	53	44.16
High (11-12)	37	30.84

Table 2. Knowledge level of farmers about rice cultivation practices

Stamets	Evaluation		
	FC F (%)	PC F (%)	NC F (%)
Varieties			
I. MTU 1001	44	55	21
II. MTU 1010	(36.66%)	(45.84%)	(17.50%)
III. Swarna			
Nursery bed preparation			
I. Wet nursery	97	15	8
II. Dry nursery	(80.34%)	(12.50%)	(6.66%)
III. Mat nursery			
Nursery sowing and raising			
	79	28	13
	(65.83%)	(23.34%)	(10.83%)
Land preparation			
I. Traditional method- 2-3 times ploughing	92	16	12
II. Use of zero tillage machine	(76.66%)	(13.33%)	(10.00%)
III. Surface seeding method			
Transplanting			
I. Random transplanting	67	39	14
II. Straight row transplanting	(55.83%)	(32.51%)	(11.66%)
Fertilizer application			
I. 120:40:40 Kg NPK ha ⁻¹	58	43	19
II. 150:50:60 Kg NPK ha ⁻¹	(48.34%)	(35.83%)	(15.83%)
III. 150:50:80 Kg NPK ha ⁻¹			
Irrigation			
I. 2 times	45	54	21
II. 3 times	(37.50%)	(45.00%)	(17.50%)
III. 6 times			
IV. 10 times			
Weeding			
I. 2 times	49	52	19
II. 3 times	(40.83%)	(43.34%)	(15.83%)
III. 4 times			
Disease			
I. Blast	51	59	10
II. Brown Spot	(42.50%)	(49.17%)	(8.33%)
III. Sheath Blight			
IV. Khaira Disease			
Harvesting			
I. 90-100days	71	40	9
II. 100-110days	(59.16%)	(33.33%)	(7.51%)
III. 110-120days			
Yield			
I. 40-50 quintal ha ⁻¹	42	57	21
II. 50-60 quintal ha ⁻¹	(35.00%)	(47.50%)	(17.50%)
III. 60-70 quintal ha ⁻¹			

of rice. In the nursery bed preparation 80.34% of the respondents possessed knowledge about wet nursery, dry nursery, mat nursery. The data also revealed that in land preparation 76.66% of the respondents possessed knowledge about traditional method of ploughing, use of zero tillage machine, surface seedling method. Majority of the respondents had knowledge about the time of transplanting the seedlings i.e. 55.83%. The data revealed that 48.34% of the respondents possessed higher level of knowledge on fertilizer application in time might be due to their perception that applying fertilizers might enhance crop yield and gives more profit. 45% of respondents possessed knowledge about proper irrigation. This might be due to proper irrigation being given at stipulated intervals to grow the crops and save water during water scarcity period. Majority of them had knowledge about weeding which leads to crop loss i.e. 43.34%. It was evident that

49.17% of the respondents possessed knowledge about diseases of rice. This result due to the reason that they believed the pest and disease could result in lower yield. Majority of respondents possessed knowledge about right time of harvesting i.e. 59.16%. The data also revealed that 47.50% of respondents have knowledge about enhancing the yield of rice this might be due to attending more campaign and field visit have been organized by extension officials and KVK representatives.

The Table 3 revealed that 45.83% of respondents had medium level of knowledge about rice cultivation practices. Considerable percentage of rice farmers were found having high 38.34% and low level of knowledge 15.83%, respectively. Similar findings was reported by Meena *et al.*, (2012).

The Table 4 presents the data obtained regarding knowledge of farmers about ICT tools. Majority of the respondents knew that TV (39.16%) and Mobile (43.34%) provides information regarding agriculture. It was observed that ICT tools provide retrievable information (47.50%). It was evident from the findings that ICT can provide information regarding crop production, protection, post-harvest technologies and other allied activities i.e. (39.16%). It was also evident that ICT can provide marketing, storage related information of agriculture and weather information i.e. (45.00%) and (48.33%) respectively. Majority of the respondents i.e. 38.34% accepted that ICT tools provide information regarding crop insurance and other government programs. It was observed that majority of them were not aware that about Kisan Call Centre provide agriculture information (56.66%). Considerable percentage (35.00%) of the respondents knew that ICT tools are user friendly. Majority of the respondents i.e. 40.00% of them considered that YouTube provide information related to agriculture.

Table 3. Distribution of the respondents on the basis of Knowledge level of farmers about rice cultivation practices

Categories	Frequency	Percentage
Low (19-23)	19	15.83
Medium (24-27)	55	45.83
High (28-31)	46	38.34
Total	120	100.00

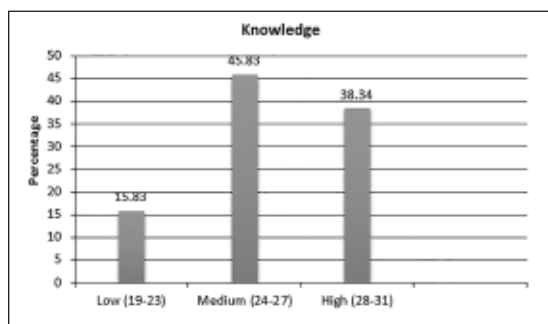


Fig. 1. Distribution of the respondents on the basis of Knowledge level of farmers about rice cultivation practices

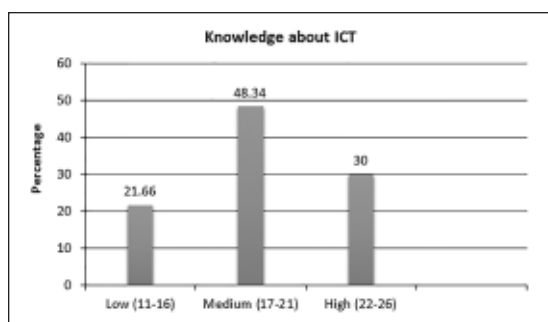
Table 4. Knowledge of farmers about information and communication technology (ICT) tools

Knowledge	Evaluation		
	FC F (%)	PC F (%)	NC F (%)
Television provides agricultural information	18 (15.00%)	47 (39.16%)	55 (45.84%)
Mobile provides agricultural information	44 (36.66%)	52 (43.34%)	24 (20.00%)
ICT tools provide retrievable information	32 (26.66%)	57 (47.50%)	31 (25.84%)
ICT tools provide information regarding crop production, protection, post-harvest technologies and other allied activities	39 (32.50%)	47 (39.16%)	34 (28.34%)
ICT tools provide marketing and storage information of agriculture.	23 (19.16%)	54 (45.00%)	43 (35.84%)
ICT provides weather information	28 (23.33%)	58 (48.33%)	34 (28.34%)
ICT provides information on crop insurance and other government programs.	35 (29.16%)	46 (38.34%)	39 (32.50%)
Kisan Call Centre provide agriculture information	16 (13.33%)	36 (30.00%)	68 (56.66%)
ICT tools are user friendly	25 (20.84%)	42 (35.00%)	53 (44.16%)
YouTube provide agriculture information	38 (31.66%)	48 (40.00%)	34 (28.34%)

The Table 5. shows that maximum number of respondents 48.34% had medium level knowledge about information and communication technology tools followed by high level

Table 5. Overall knowledge level of respondents about information and communication technology (ICT) tools

Categories	Frequency	Percentage
Low (11-16)	26	21.66
Medium (17-21)	58	48.34
High (22-26)	36	30.00
Total	120	100.00

**Fig. 2.** Distribution of the respondents on the basis of knowledge about information and communication technology (ICT) tools

30%, low level 21.66% respectively. These findings are in conformity with the findings of K.P Raghu Prasad *et al.*, (2013), Devaraja (2011).

From Table 5 concluded that the independent variables i.e. Age, educational qualification, caste, annual income, type of house, size of family, size of land holding, scientific orientation, economic motivation, mass media exposure, extension contact were

Table 6. Association between selected independent variables with knowledge about information and communication technology (ICT) tools

Independent variable	Correlation coefficient
Age	0.988*
Education	0.850*
Caste	0.976*
Annual income	0.884*
Type of house	0.992*
Type of family	-0.170**
Size of family	0.895*
Size of land holding	0.995*
Scientific orientation	0.930*
Economic motivation	0.910*
Mass media exposure	0.937*
Extension contact	0.999*

positively and significantly correlated with the knowledge about ICT tools at 0.01% of probability. Therefore, null hypothesis was rejected for these variables, where as the variable type of family availed was negatively and significantly correlated with the knowledge about ICT tools at 0.05% of probability. Therefore, null hypothesis was rejected for this variable.

Conclusion

It was found that majority of the respondents belonged to middle-aged group, having education up to primary level, having medium level annual income. Further, majority of the respondents belonged to nuclear type family with land holding of more than 1 to 2 hectares and. Majority of the respondents had medium levels of mass media exposure, extension contact and scientific orientation. It was observed that Knowledge level of farmers about rice cultivation practices were found medium level, it was also observed that Knowledge about information and communication technology (ICT) tools were found medium level. It was found that age, educational qualification, caste, annual income, type of house, size of family, size of land holding, scientific orientation, economic motivation, mass media exposure, extension contact were positively and significantly correlated with knowledge about information and communication technology. It is suggested that government should provide regular training for operating advance technology of the gadgets.

References

- Barnabas, K. and Glenn, P. 2012. ICT based market information and adoption of agricultural seed technologies: Insights from Uganda, Telecommunication Policy. 36(4): 253-259.
- Devaraja, S. C. 2011. A Study on Knowledge and Attitude of Farmers Using ICT tools for Farm Communication. M.Sc. (Ag.) Thesis. University of Agricultural Sciences GKVK, Bengaluru.
- Jayathilake, H. A. C. K., Jayaweera, B. P. A. and Waidyasekera, E. C. S. (2008). ICT adoption and its' implications for agriculture in Sri Lanka. *J. of Food and Agriculture*. 1(2): 54 and 57-60.
- Matovelo, D. S. 2008. Enhancing farmer's accessing to and use agriculture information for empowerment and improve livelihoods: a case of Morogoro region. Thesis presented at University of Dares salaam as the required of Doctor of Philosophy.
- Meena, S. L., Lakhera, J. P., Sharma, K. C. and Johri Raj, S. K. 2012. Knowledge level and adoption pattern of rice production technology among farmers. *Indian Raj. J. Extn. Edu*. 20: 133-137.
- Raghuprasad, K. P., Devaraja, S. C. and Gopala, Y. M. 2013. An Analysis of Knowledge Level of Farmers on Utilisation of ICT Tools for Farm Communication. *Journal of Rural Development*, 32(3): 245-261.
- Rajoria, S., Poonia, M. P., Nanda, B., Meena, P., Rewani, S. K., Singh, H. B. 2022. Limitations associated with the use of ICTS by livestock farmers in the Jaipur district of Rajasthan, India. *The Pharma Innovation Journal*. 11(5): 1717-1720.
- Raksha and Shaik N. Meera. 2015. Determinants of ICTs in agricultural extension system. *Indian Res. J. Ext. Edu*. 15 (1): 1-7.
- Singh, P., Kumar, S. and Singh, R. P. 2012. Socio-economic attributes of vegetable growers in Eastern Uttar Pradesh. *J. Rur. Agril. Res.*, 1(12): 45-48.
- Sulaiman V., Hall, A., Kalaivani, N., Dorai, K. and Reddy, T. 2012. Necessary, But Not Sufficient: Critiquing the Role of Information and Communication Technology in Putting Knowledge into Use. *The Journal of Agricultural Education and Extension*. 18: 331-346.
- Syiem, R. and Raj, R. 2015. Access and usage of ICTs for agriculture and rural development by the tribal farmers in Meghalaya State of North-East India. *J. Agril. Info.*; 6 (3): 24-41.