



Utilization Pattern of ICT Tools by Paddy Growers in Uttar Pradesh

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ABSTRACT

Information and Communication Technology (ICT) in agriculture refers to the process of making available ICTs to assist, enhance, and optimise the dissemination of knowledge among the farmers. This study was conducted during 2018-19 in Sultanpur district of Uttar Pradesh. Due to the district's significant area under rice cultivation, Sultanpur in Uttar Pradesh was chosen as the location of the research. For the sampling a total of 120 farmers, from five villages were selected randomly by using proportionate random sampling technique. ICT utilization among the farmers was the maximum and 45.83 per cent respondents were using ICT tools to a medium extent, and the mobile was the most utilized ICT tool, ranking first with a mean score value of 6.99. In contrast to age, caste, family type, social involvement, and material ownership, this showed non-significant and negative correlations with the extent to which ICT tools were used. The variable 'education' had a very significant and positive correlation with the use of ICT tools that mainly effect the utilization of ICT tools 19. The utilization extent of ICT tools was satisfactory but still there was need of awareness and educational programmes to be introduced in study area.

INTRODUCTION

Information and Communication Technology (ICTs) in agriculture is an emerging field that emphasizes on the enhancement of agriculture and other development in India. The agriculture sector is preparing itself to make optimum use of new information and communication technologies. Agriculture extension is a service that educates farming communities by introducing them to new information and technological advancements so they can raise their yield, income, and living standards. Despite having a significant, educated, skilled, and organised agricultural extension workforce, about 60 per cent of farmers in the nation are still unreached (NSSO, 2005), means they are not being helped by any extension organisation or functionary. Radio and television are the main sources of agricultural information for the 40 per cent of people who have some access to it. Although there are several ICT facilities, the majority of extension agents owned, accessed, and

used radios, televisions, and phones that they had personally purchased from the open market (Ezeh, 2013). ICT improvements can be used to provide farmers with accurate, timely, and relevant information and services, facilitating an environment in which the agriculture occupation is also financially rewarding. However, there are differences between regions in the quantity and quality of telecommunications, information, and the effort of individuals, public and private organisations, as well as a differentiated nature of farmer demand in various areas. This means that not all ICT initiatives are created equal. The rapid growth of ICTs has enormous potential for expanding farmers' information access and, thus, yields and profitability through the adoption of productivity-enhancing technology; yet, the lack of ICT-based technical knowledge is the most significant barrier to the widespread adoption of ICTs (Mahalakshmi et al., 2015). Illiteracy, the availability of relevant and specialized content in their own language, the easy and affordable access of ICT tools,

and other issues such as understanding and willingness to adopt new technologies are all common issues in the utilization of ICT. Farmers with larger land holdings were using ICT more effectively than farmers with smaller holdings. However, it is important to understand how farmers use ICT (Lokeswari, 2016). It was very important to know the extent of utilization, and problems faced during the use of ICT tools by the farmers.

METHODOLOGY

The study was conducted in the state of Uttar Pradesh, and Sultanpur district was purposefully chosen for the study because of its predominant rice-wheat cropping pattern. Thus, paddy growers from the Sultanpur district constituted respondents for the study. Out of the district's 14 community blocks, Motigarpur block was purposefully chosen for this study because it had the most area under the rice-wheat cropping pattern. Five of the 79 villages in the Motigarpur block were identified through a simple random sampling technique. At the end of the sampling process, a separate list of respondents was prepared for each sample village, and thus a total of 120 paddy grower farmers from the five sample villages were selected using a proportionate random sampling technique based on the farmers' categories, namely marginal farmers (less than 1 ha), small farmers (between 1 and 2 ha), medium farmers (between 3 and 4 ha) and large farmers (from 4 ha and above). A pretested and structured interview schedule was prepared. Thus, the data were collected from the respondents using the personal interview method, according to a predetermined interview schedule for data collection. The extent to which paddy grower farmers used ICT tools was measured on a 7-point continuum, with 1, 2, 3, 4, 5, 6, and 7 assigned, respectively, for yearly, half-yearly, quarterly, monthly, fortnightly, weekly, and daily use. The mean and standard deviation were used to divide the respondents into low, medium, and high utilization extent categories based on the total feasible score. Based on the total attainable score, the respondents were classified into three categories, namely low, medium, and high utilization extent, by using the mean and standard deviation. The following formula was used to figure out the overall mean score value for using information sources:

$$MSV = \frac{\sum_{i=1}^n \text{Total Score}}{K}$$

Where, MSV = Mean Score Value, K= total number of respondents

The mean score value was determined by the total score of an individual ICT tool divided by the total number of respondents. To determine the extent of utilization of each ICT tool by respondents, the mean score value (MSV) was worked out and ranked accordingly. The coefficient of correlation (r) was used to measure the mutual relationship between independent variables and utilization extent of ICT tools.

RESULTS AND DISCUSSION

The levels of utilization of ICT tools by paddy growers were calculated using the method as Mean \pm S.D. and the data and the maximum number of paddy growers (45.83%) was using selected ICT tools to a medium extent. As a result, it was concluded that the majority of respondents used ICT tools at a medium level.

Similar results were also reported by Panda et al., (2022), as the majority of livestock and poultry farmers had medium level information source utilization. It is also in agreement with the results of Kumar et al., (2019).

Utilization extent of ICT tools

The data in Table 1 indicated that there were twelve different ICT tools used for this study. Among the different selected ICT tools, paddy growers had the highest utilization of mobile phones, with a mean score value of 6.99, which was assigned first rank. This indicates that paddy growers were mostly using mobile phones as ICT tools. A similar result was reported by Anastasios et al., (2011). Television came in second with a mean score value of 6.94, followed by the internet and radio, which came in third and fourth with a mean score value of 4.85 and 4.81, respectively. The paddy-growing farmers had the lowest utilization of the e-Agricultural Magazine, with a mean score of 0.81, which was awarded last rank among the selected ICT tools, i.e., twelfth rank. They were the ones who were least likely to use the e-Agricultural magazine.

In terms of ICT use, the findings supported Sharma et al., (2012), who reported that most of the farmers receive information through cell phones because they are dissatisfied with print media and prefer two-way mobile phone communication. The study's findings were consistent with those of Adamides & Stylianou (2013), who reported that nearly 98 per cent of the farmers in Cyprus used their mobile phones as a source of agriculture information. It was also in line with Roy et al., (2018), who reported that the majority of farmers often used mobile phones (98%) as a main source of communication tools, followed by television (97%), telephones (60%), radio (57%) and the internet (49%) as ICT tools. It was also somewhat in agreement with the results of Olaniyi (2013) & Ani et al., (2015), which showed that radio (M = 2.38), television (M = 2.10), and mobile phones (M = 2.20) were the most utilized ICT tools in their study area.

Correlation between different independent variables and utilization extent of ICT tools

Table 2 shows that, of the 14 variables investigated, the variable "education" had a highly significant and positive correlation

Table 1. Distribution of the respondents on the basis of utilization extent of ICT tools

S.No.	Categories of information sources	Total Score	Mean Score Value	Rank order
1.	Radio	578	4.81	IV
2.	Television	833	6.94	II
3.	Mobile	839	6.99	I
4.	Internet	582	4.85	III
5.	Kisan call center	411	3.42	VII
6.	e-Kisan	377	3.14	VIII
7.	e-news paper	267	2.22	X
8.	e-Agricultural magazine	98	0.81	XII
9.	Email	229	1.90	XI
10.	YouTube	455	3.79	VI
11.	Whatsapp	565	4.70	V
12.	Face book	352	2.93	IX

Total score: 5586, Average Mean Score Value: 3.87

Table 2. Correlation between independent variables and utilization extent of ICT tools

S.No.	Independent variable	Correlation coefficient
1.	Age	-0.1786
2.	Education	0.5632**
3.	Caste	-0.1958
4.	Type of family	-0.0904
5.	Size of family	0.0370
6.	Housing pattern	0.1526
7.	Land holding	0.0079
8.	Occupation	0.2507*
9.	Annual income	0.0622
10.	Social participation	-0.0593
11.	Material possession	-0.0174
12.	Economic motivation	0.2186*
13.	Scientific orientation	0.0476
14.	Knowledge extent about paddy cultivation	0.0782

*Significant at 0.05% probability level 0.197, ** Significant at 0.01% probability level 0.257

with the extent to which ICT tools were used. The variables, namely occupation and economic motivations, were discovered to have a significant and positive correlation with the extent to which ICT tools were used. This signifies that as education, occupation, and economic motivations increase, information source utilization also increases, resulting in a highly educated and economically motivated group utilizing more information sources. Other variables, i.e., size of family, housing pattern, land holding, annual income, scientific orientation, and knowledge extent about paddy cultivation, have a non-significant but positive correlation with the utilization extent of ICT tools, while age, caste, type of family, social participation, and material possession have a non-significant and negative correlation with the utilization extent of ICT tools. This signifies that as it increases; information source utilization decreases, resulting in younger age groups and nuclear families utilizing more information and communication sources.

The outcomes of the study are in line with Kafura et al., (2016) & Panda et al., (2019) who reported that level of education had a positive and significant relationship with the extent of use of different ICT tools by the farmers, while age showed a negative relationship. The findings are consistent with the reports of Chakraborty et al., (2000) about ICT utilization who found a strong and positive correlation between the variables education and economic motive.

CONCLUSION

The study indicated that nearly half of the paddy grower farmers were using ICT tool at medium level. Among the different ICT tools paddy grower were having highest utilization of mobile phone. They were using social media such as YouTube, WhatsApp, and Facebook to a moderate extent, but they preferred WhatsApp, YouTube and Facebook. Education had a highly significant and positive correlation with the extent to which ICT tools were used. The variables, namely occupation and economic motivations, were discovered to have a significant and positive correlation with the extent to which ICT tools were used. It is necessary to enhance

the capacity of paddy farmers and extension workers to use modern ICT technologies effectively to increase agricultural productivity. They should be trained and also know the importance of ICT tools in agriculture and how to make it easy to connect agriculture with information and communication technology.

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