

# Use of Information and Communication Technology and Product Promotion

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**Abstract:** *E-agriculture, i.e., Information and communication technology (ICT) in agriculture enriches the agriculture and brings rural development. Due to this upbringing of information and communication technology, agricultural production has increased and also enhancing the market which indicates a complete change of makeover. Indian farming is revolutionized and all farmers including small landholders are benefited through the use of ICT in agriculture. ICT helps a lot to increase the demand for new perspectives in agricultural field. The present study was basically conducted in Jorhat district of Assam during the time of 2018 and data was collected from 40 farmers through a well structured questionnaire. The main mathematical or statistical tools that have been used in this study are percentages, Likert Scale and measurement of central tendency. The present study tries to analyse the socio-economic characteristics of the farmers which consider or use the information and communication technology in agriculture. This study also focuses on the farmer's attitude towards using ICT in agriculture and also the frequency of using ICT in agriculture. In this study, it is obtained that there are highest 37.50 percent of farmers are small farmers with a land holding of 1-2 ha and highest 40 percent of farmers have 16 to 20 years of farming experience. From the analysis, it is also noticed that majority(4.68) of farmers strongly agree with the statement that ICT helps in community based planning by providing timely information regarding agricultural field which is followed by the concept of ICTs helpful for reducing the distance in Digital Divide or Technological gap(4.63). With some statements the farmers are strongly disagree or disagree such as ICT helps to exchange the opinion, knowledge, experience and also the assets(2.94) and by improving rural livelihoods ICT fill up the social segregation gap(2.15). Again it is observed that to gaining knowledge and information all 40 farmers are using mobile phones as ICT very frequently.*

**Key Words:** *ICT, Agriculture, Development, Digital Divide, Farmer.*

## I. INTRODUCTION

Through improved and modern information and communication practices, e-agriculture, i.e., Information and communication technology (ICT) in agriculture enriches the agriculture and brings rural development. Indian farming is revolutionized and all farmers including small landholders are benefited through the use of ICT in agriculture. Due to this upbringing of information and communication technology, agricultural production has increased and also enhancing the market which indicates a complete change of makeover. In allied fields, such as sericulture, fishery, forestry field and also husbandry, the ICT is used and gain some profit. ICT helps a lot to increase the demand for new perspectives in agricultural field.

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Farmer's informational needs are divided into various forms such as firstly pre-sowing needs which includes information regarding agricultural inputs like credit, weather forecasting, early warning and also testing of soil; secondly pre-harvest needs and this includes harvesting and packaging techniques of agriculture, management of disease and nourishment and thirdly post-harvest needs which includes management, storage, grading, standardization and logistic and lastly market information needs which may include prices of commodities and inputs, alternative marketing and other mandi informations such as informations regarding the goods and services and also the behaviour of the consumers. The extensive review of literature depicts that in agricultural field, information and communication technology is not widely applicable as much as possible. Therefore, considering this issue, this study tries to analyse the socio-economic characteristics of the farmers which consider or use the information and communication technology in agriculture. This study also focuses on the farmer's attitude towards using ICT in agriculture and also the frequency of using ICT in agriculture.

## II. METHODOLOGY

The present study was basically conducted in Jorhat district of Assam during the time of 2018. A well structured questionnaire was made and the relevant data or information regarding the usage of ICTs was collected from 40 agricultural farmers. Here, both primary and secondary data have been used in the study. The main mathematical or statistical tools that have been used in this study are percentages, Likert Scale and measurement of central tendency.

## III. RESULTS AND DISCUSSIONS

The results or findings of the current study have been presented with the help of the below mentioned headings-

### A. SOCIO-ECONOMIC CHARACTERISTICS OF THE ICT USING AGRICULTURAL FARMERS

Proper and effective use of information and communication technology would not only increase the quality of the farmers but also help them to do the work in a shorter period of time with a quality work. But the use of ICT in agriculture is mostly depends on the farmers socio-economic conditions and their mind set. Therefore, the following table 1 shows the socio-economic characteristics of the surveyed farmers using ICT in their agricultural fields.

**Table 1: ICT using farmer’s socio-economic characteristics**

Features	Number of Respondents	Percentages
<b>Farmer’s classification</b>		
Marginal Farmers(<1ha)	8	20.00
Small Farmers(1-2 ha)	15	37.50
Medium Farmers(3-5 ha)	14	35.00
Large Farmers(>5 ha)	3	7.50
<b>Total</b>	40	100.00
<b>Farming Experience(in Year)</b>		
0-5 Years	4	10.00
6-10 years	5	12.50
11-15 Years	12	30.00
16-20 Years	16	40.00
21-25 Years	3	7.50
26 and Above	0	0.00
<b>Total</b>	40	100.00

Source: Field survey

From the table 1, it is seen that there are 20 percent of marginal farmers which have a land holding of less than 1 ha which is followed by small farmers (37.50 percent) occupying a land holding of(1-2 ha). There are 35 percent of medium farmers(3-5 ha) and 7.5 percent are large farmers with a land holding of greater than 5 ha. In terms of farming experience, highest 40 percent of farmers have 16 to 20 years of farming experience followed by 30 percent have 11 to 15 years of farming experience. Around 12.50 percent of farmers have 6-10 years of farming experience and only 10 percent have 5 percent of experience. A very less amount,i.e., 7.5 percent of farmers have at least 21-25 years of farming experience. Again it is noticed that there is no farmers which have more than 26 years of farming experience among the surveyed farmers in the study area.

**B. FARMER’S ATTITUDE REGARDING THE USE OF INFORMATION AND COMMUNICATION TECHNOLOGY IN AGRICULTURE**

In developing countries, majority of rural population is basically depends on agriculture sector and it is the most important sector of the country. In case of production, marketing and profit, traditional agriculture sector has

numerous challenges and hurdles. The challenges of traditional agriculture are significantly addressed by the proper use of ICT and ultimately improving the sector. But the use of ICT in agriculture is mostly depending on the attitude of the farmers. The following table 2 calculated the attitude of the farmers towards the use of ICT in agriculture-

**Table 2: ICT using Agriculture: Farmer’s Attitude**

Assertion of the Farmers	Mean value
For improving farm-gate realization ICT is helpful	3.66
Useful to modify farmer’s crop portfolio	3.86
Helpful for reducing the distance in Digital Divide or Technological gap	4.63
They are helpful for farmers profitably by selling their products and they also provide access to markets	4.32
It helps in reducing transaction costs	4.15
Increasing the productivity level and capacity/strength in rural agricultural field	3.34
It also helps to reach the sufficient number of agricultural clients by providing such a financial or banking services	3.95
Helpful for e-commerce or online trading	2.97
Improve scientific and modern farming practices	3.21
ICT increases the knowledge about inputs availability	3.63
ICT pushes the farmers towards commercially oriented items and move away from low value crops	4.37
ICT influence the final product of agriculture with advancement of technology	3.45



By improving rural livelihoods ICT fill up the social segregation gap	2.15
It helps to fill up the information asymmetries which is occur among stakeholders	3.62
ICT helps to increase the employment opportunities in rural agricultural field	3.67
ICT helps in community based planning by providing timely information regarding agricultural field	4.68
ICT helps to improve communication and helps to dispute problems in various platforms	4.41
ICT helps to provide personalized agricultural advice at a regular basis	3.27
ICT helps to decrease the risk of agriculture and increase double crop yield and and farm income increased	2.96
ICT helps to exchange the opinion, knowledge, experience and also the assets	2.94

Source: Field Survey

Table 2 depicted the farmer's attitude towards the use of ICT in agriculture and it is observe that the attitude of the farmers towards the use of ICT in agriculture has been noticed against the Likert Scale. In case of Likert Scale, it is calculated that here strongly agree with a score of 6, agree - 5, neutral -4, disagree -3 and strongly disagree -1. Table 2 highlighted that majority(4.68) of farmers strongly agree with the statement that ICT helps in community based planning by providing timely information regarding agricultural field which is followed by the concept of ICTs helpful for reducing the distance in Digital Divide or Technological gap(4.63), again farmers agree with that ICT helps to improve communication and helps to dispute problems in various platforms(4.41), some are agree with the statement that ICT pushes the farmers towards commercially oriented items and move away from low value(4.37). Again with some statements the farmers are strongly disagree or disagree such as ICT helps to exchange the opinion, knowledge, experience and also the assets(2.94), ICT helps to decrease the risk of agriculture

and increase double crop yield and and farm income increased(2.96), By improving rural livelihoods ICT fill up the social segregation gap(2.15) and with some other statements the farmers are neutral.

### C. FREQUENCY OF INFORMATION AND COMMUNICATION TECHNOLOGY USAGE IN AGRICULTURAL FIELD

As ICT plays a very important role in case of improving traditional agriculture in developing countries so that the author tries to calculate the frequency of using ICT in agricultural field in the following table 3-

Table 3: Frequency of ICT usage in Agricultural field

Name of ICTs	Using Very frequently	Using Frequently	Using Occasionally	Using rarely	Never Used
Radio	12	10	15	3	0
Mobile	40	0	0	0	0
Television	28	9	2	1	0
Computer	2	3	22	8	5
Internet	29	9	2	0	0
Newspapers	9	23	5	3	0
Magazines	9	13	15	3	0
Facebook	19	4	12	2	3
E-mail	3	2	5	2	28
E-books	1	2	6	2	29
YouTube Videos	5	3	4	2	26
SMS	30	7	3	0	0
Video Conferencing	1	1	4	0	34

Source: Field Survey

From table 3, it is seen that to gaining knowledge and information all 40 farmers are using mobile phones as ICT very frequently. Again 30 farmers out of 40 are using SMS and a very high amount, i.e., 29 are also using internet as ICT very frequently. 28 farmers are using TV as ICT very frequently and access the information regarding agricultural field. Facebook device is used only 19 farmers out of 40 farmers. A very small number, i.e., 1,1,2,3, are using video conferencing, E-books, computer, E-mail respectively. Only 5 farmers are used YouTube videos.



Therefore from the analysis, it is highlighted that some tools of ICT such as mobile phones, internet, and television are widely circulated among the rural population of developing countries and other tools are not.

#### IV. CONCLUSION

From the discussion, it is obtained that there are highest 37.50 percent of farmers are small farmers with a land holding of 1-2 ha and highest 40 percent of farmers have 16 to 20 years of farming experience. From the analysis, it is also noticed that majority(4.68) of farmers strongly agree with the statement that ICT helps in community based planning by providing timely information regarding agricultural field which is followed by the concept of ICTs helpful for reducing the distance in Digital Divide or Technological gap(4.63). With some statements the farmers are strongly disagree or disagree such as ICT helps to exchange the opinion, knowledge, experience and also the assets(2.94) and by improving rural livelihoods ICT fill up the social segregation gap(2.15). Again it is observed that to gaining knowledge and information all 40 farmers are using mobile phones as ICT very frequently. Agriculture sector is the main jist of rural economy of India. So, profitable agriculture is very much required to maintaining the sustainability of the Indian economy. But, now a days, traditional agriculture sector has faced numerous hurdles to maintaining its sustainability such as high poverty , low amount and quality production, illiterate farmers, price violation, poor loan transaction and repayment and less knowledge about the market condition and consumer behavior etc. Therefore, considering these issues the tools of information and communication technology would be marked as a proper weapon to stabilize these hurdles and make the agricultural sector sustainable. Information and communication technology (ICT) also provide better placement to the needy people and also strengthening the farming communities. Therefore, it can be considered that ICT is the proper channel to improve the agriculture sector as well as the whole Indian economy.

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