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A study on access and availability of ICT tools used by farmers of Durg district

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Abstract

Information and Communication Technology (ICT) in agriculture is a growing model that focuses on enlightening agricultural and other development in India (Singh *et al.*, 2015). ICT's can make agribusiness more lucrative and a profitable occupation for farmers by providing location based subject specific relevant information. It saves money, time and efforts and reduces dependency on so many factors in the chain of extension. The research was conducted at a micro level to find out the ICT utilization pattern of farmers of Durg district of Chhattisgarh. Total number of respondents were 384, the data was taken from all three blocks of Durg district via proportionate sampling for the true representation of population. The study revealed that 93.8 per cent and 93.5 percent respondents were using mobile phone and television respectively.

Keywords: ICT, tools used, agriculture

Introduction

ICT has pivotal role in lowering transaction costs in agribusiness by enabling timely and realistic communication and identified the particular informational requirements of the farmers along with the Agri-value chain, starting with the decision concerning the crop to be cultivated and ending with the marketing of the produce (Mtega & Malekani 2009) [3]. In South Asia, study examined at the use of ICT as a tool for fostering innovation and discovered that the promise of ICT as a communication tool had not been fully achieved (Sulaiman *et al.* 2012) [5]. The well-organized use of ICT may positively result rural community's prosperity as it offers user-friendly, easy-to-access, cost-effective approaches of disseminating the important information in timely manner (Lokeshwari, 2016) [2]. In last five years from January, 2016 to January 2021 the number of telephone subscribers (wireless & wireline) has been increased from 1043.29 million to 1183.49. Also, the number of rural telecom subscribers has been increased from 439.43 million to 530.19 million (TRAI, 2016; TRAI, 2021). Bigger tele density and amplified use of telecom services will help India's rural sector in achieving technological development. The developing countries should compile and categorize different forms of local information related to agriculture so that it can be distributed more broadly by creating Traditional Knowledge Digital Libraries (TKDL) (Banerjee 2011) [1].

Methodology

Selection of study area

Out of 27 districts of Chhattisgarh, Durg district was selected for the collection of data and study. Since the production of horticultural crops are highest in Durg district compared to other districts of Chhattisgarh.

Size of the sample

According to secondary sources of data, it was found total numbers of farmers in Durg district are 136246. Hence at 95% of level of confidence and 5% of degree of error sample size comes out 384. According to the percentage of farmers in 3 blocks of Durg district, the proportionate sampling was done for true representation of the population. This comes out to be 153 farmers from Durg block, 92 from Dhamdha block and 139 farmers from Patan block. Since, the total number of villages in Durg district is 448, therefore above 384 samples were taken from 45 villages which is 10% of the total number of villages.

Data collection

In this study, the primary information was collected from the data related to use of ICT services, socio-economic variables and impact of COVID-19 on ICT adaptation.

The study required primary as well as secondary data. Pre-structured questionnaire was tool for primary data collection. Secondary data were collected from government organizations, magazines etc. To achieve the desired results from the use of ICT for information dissemination in a country where most of the farmers are illiterate, land holdings are small or marginal, the level of infrastructure development is very poor in the rural areas, there is a need to assess the information regarding requirements of the farmers (Gummagolmath *et al.*, 2011)

Socio Economic Features of Farmers in study area

Features of Socio –Economy of the responded have direct influence on the operation of the farming and organizational activities. It helps in decision making process of different activities (Marhaeni *et al.*, 2018)

Education level of the respondents

Table 1: Education level of the respondents

S. No.	Education	Frequency	Percent
1	Illiterate	88	22.92
2	Literate	11	02.86
3	Primary School	52	13.54
4	middle School	63	16.41
5	High school	60	15.63
6	Higher Secondary	51	13.28
7	Graduate	52	13.54
8	Post Graduate	7	01.82
	Grand Total	384	100

The Table-1 focuses total literacy percentage of farmers which were observed (77.08 per cent, while illiterate farmers were observed 22.92 per cent) in the study area. Further, the educational level of literate farmers in descending order were found primary (13.54 per cent) middle school (16.41 per cent), High school (15.63 per cent), higher secondary (13.28 per cent), graduate (13.54), post graduate (1.82 per cent), respectively.

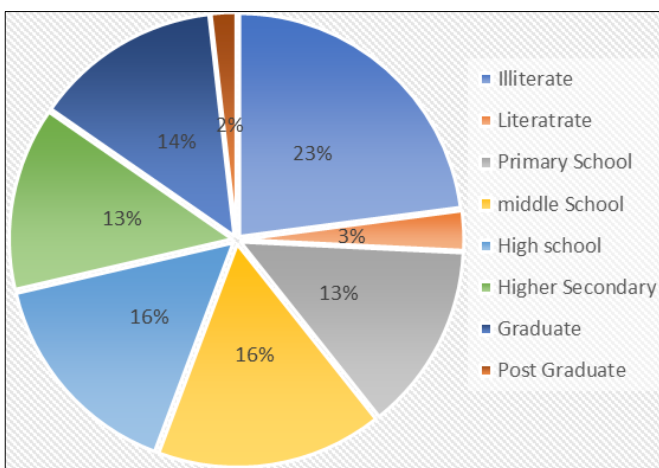


Fig 1: Education level of the respondents

Average Land holding size of the respondents

Table-2 gives clear indication that out of total respondents 298 (77.6 per cent) of farmers *i.e.* majority of farmers belongs to category of marginal farmers followed by farmers with small land holding 72 (18.8 per cent) and medium and large land holding 7 (1.8 per cent).

Table 2: Average Land holding size of the respondents

S. No.	Category	Range	Frequency	Percentage
1	Marginal farmers	<1 ha	298	77.6
2	Small farmers	1-2 ha	72	18.8
3	Medium farmers	2-4 ha	7	1.8
4	Large farmers	>4ha	7	1.8
	Total		384	100

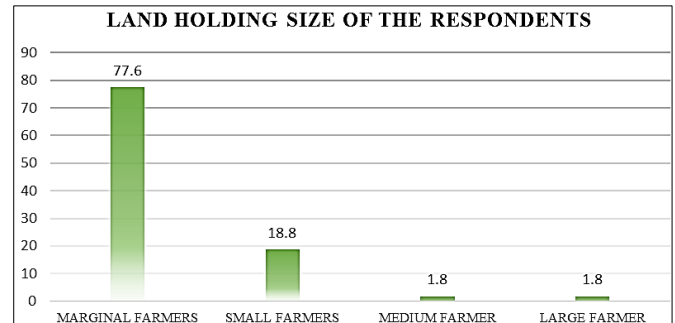


Fig 2: Average Land holding size of the respondents

Gender of sample household

The study revealed the number of male farmers were greater than female farmers, in the research area where 313 (81.5 per cent) and 71(18.5 per cent) were male and female farmers respectively.

Table 3: Gender of Sample household

S. No.	Gender	Frequency	Percentage
1	Male	313	81.5
2	Female	71	18.5
3	Other	0	0
	Total	384	100

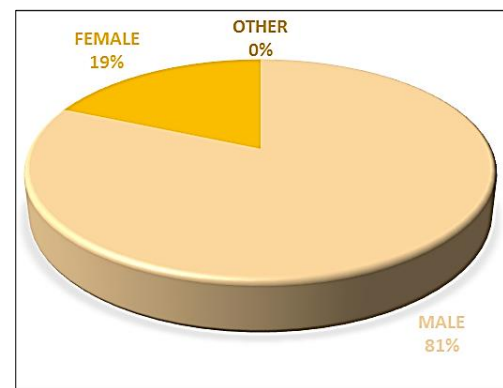


Fig 3: Gender of Sample household

Sample house hold according to the age

Age is an important demographic factor to make a decision regarding the operation of any type of business. The higher age of the respondents the higher their experience in farming and this translates to more encounter with risks. The younger generations tend to use ICTs more as compared to old generation. (Sintowe *et al.* 2016).

Table 4: Represents the sample house hold according to the age.

S. No.	Age	Frequency	Percentage
1	Young (Up To 35)	150	39.1
2	Middle (35 To 55)	158	41.1
3	Old (55<)	76	19.8
	Total	384	100

The table 4 reveals that the maximum numbers of respondents (41.1 per cent) were observed in middle age category followed by young (39.1 per cent) and old (19.8 per cent), respectively.

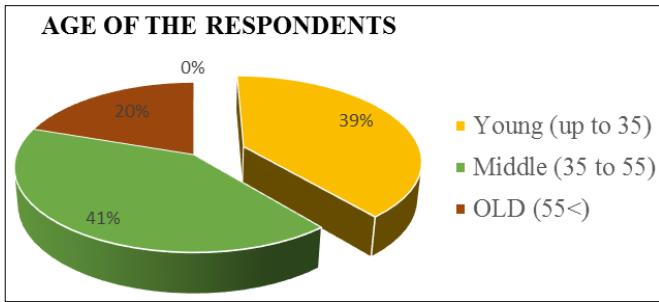


Fig 4: Age of the respondents

Social Status of sample household

Table 5: Social Status of Farmers

S. No.	Class	Frequency	Percentage
1	ST	36	9.4
2	SC	74	19.3
3	OBC	246	64.1
4	UR	28	7.3
	Total	384	100.00

Regarding caste majorities of (64.1 per cent) of the respondents belongs to other backward caste followed by schedule caste (19.33 per cent) and schedule tribes (9.4 per cent) and (7.3 present) Unreserved category’s farmers in the study area.

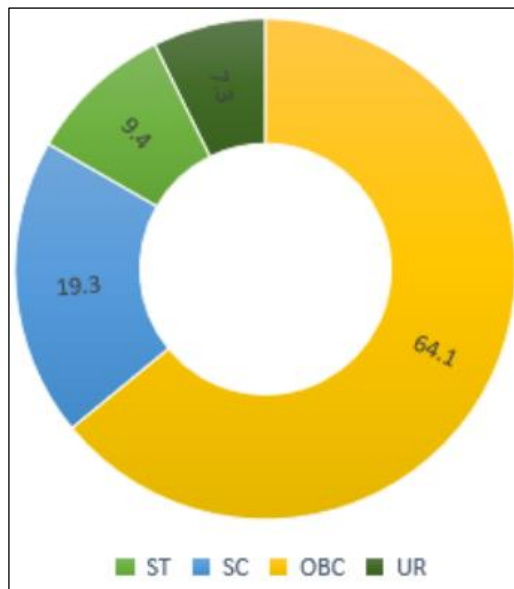


Fig 5: Social status of sample household

Annual income of the respondents

Table 6: Distribution of respondents on the basis of annual Income

S. No.	Categories (Rs.)	Respondent	
		Number of respondents	Percentage
1.	Up to -1.0 lakh	297	77.30
2.	1 lakh to 2 lakh	72	18.8
3.	Above 2 lakh	15	3.9
	Total	384	100

The scale was given by Mahra (2012) was modified and used for the purpose

The Table-6 reveals that a maximum number of the respondents (77.30 per cent) belonged to the annual income up to 1 lakh whereas (18.8 per cent) and (3.9 per cent) respondents belonged to income range from Rs. 1 lakh to 2 lakh, and above 2 lakhs, respectively.

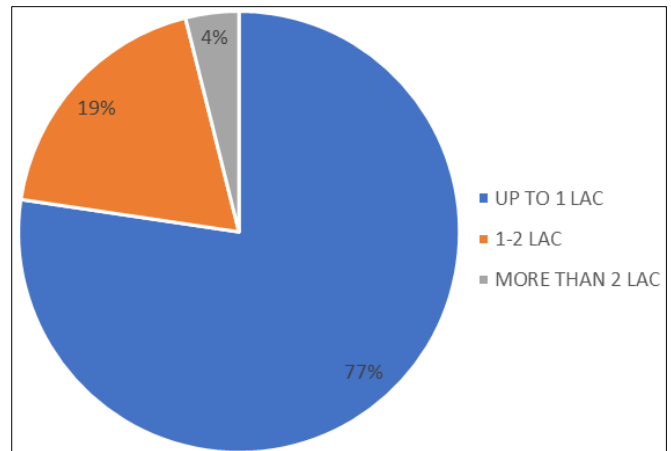


Fig 6: Distribution of respondents on the basis of annual Income

Specific Objective

To study current ICT enabled services used by farmers Existing ICT tools used by the Farmers

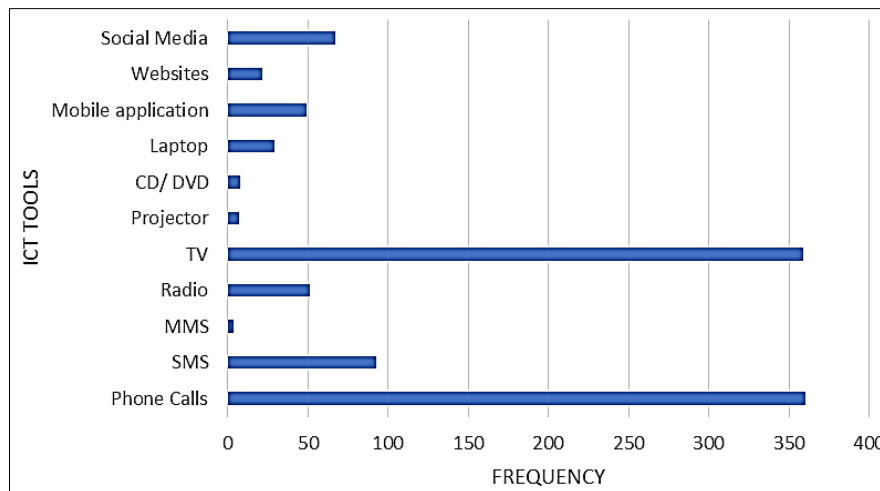
The Table- 7 and 8 reveals that a maximum number of the respondents 360 (93.8 per cent) uses the Phone calls for gathering information about from production to marketing of products, 359 (93.5 per cent) were using TV, 93 (24.3 per cent) through SMS, 67 (17.4 per cent) from social media , 51(13.3 per cent) through Radio, 49 (12.8 per cent) through mobile application, 29 (7.6per cent) through Laptop, 8 (2.1 per cent) through CD/DVD and the least ICT tools was MMS 4 (1.0 per cent) being used by the Farmers.

Table 7: Distribution of various ICT tools used by respondents

S. No	ICT Tools	Frequency	Percentage
1	Phone Calls	360	93.8
2	SMS	93	24.2
3	MMS	4	1
4	Radio	51	13.3
5	TV	359	93.5
6	Projector	7	1.8
7	CD/ DVD	8	2.1
8	Laptop	29	7.6
9	Mobile application	49	12.8
10	Websites	22	5.7
11	Social Media	67	17.4

Table 8: Distribution of various ICT tools used by respondents

S. No	ICT Tools	Percentile values	Z-score values	Ranks
1	MMS	9.09	-.68473	XI
2	Projector	18.18	-.66224	X
3	CD/ DVD	27.27	-.65475	IX
4	Websites	36.36	-.54982	VIII
5	Laptop	45.45	-.49736	VII
6	Mobile application	54.55	-.34747	VI
7	Radio	63.64	-.33248	V
8	Social Media	72.73	-.21257	IV
9	SMS	81.82	-.01771	III
10	TV	90.91	1.97582	II
11	Phone Calls	100.00	1.98332	I

Distribution of values from table 8 into ascending order based on percentile ranks and Z-score values**Fig 7:** Distribution of various ICT tools used by respondents**Summary and Conclusion**

- Majority of the farmers (22.92%) interviewed were illiterate followed by 16.41 per cent with education up to middle school followed by 15.63 per cent with education up to high school.
- Majority of the farmers (77.6%) were marginal farmers with land holding up to 1 hectare followed by 18.8% farmers who had land holding between 1-2 hectare.
- Majority of the farmers (81.5%) were males while only 18.5 per cent were females.
- Majority the farmers (41.1%) lied in the age group of 35 to 55 years followed by 39.1 per cent farmers who were young with age up to 35 years.
- The maximum numbers of respondents (41.1 per cent) were observed in middle age category followed by young (39.1 per cent) and old (19.8 per cent), respectively.
- Majority of the farmers (64.1%) were from the OBC category which were followed by 19.3 per cent who belonged to the SC category.
- Majority of the farmers (77.3%) had annual income up to 1 lakh rupees followed by 18.8 per cent farmers who had annual income between 1 to 2 lakhs.

Existing tools used by the farmers

- Majority of the farmers (93.8%) used phone calls followed by 93.5 per cent using the television while MMS and the projector were the least used tools as they were used by 1.00 and 1.8 per cent farmers respectively.
- Directness of use of ICT tools by the farmers:
- Majority of the farmers (64.6%) used the ICT tools directly while 35.4 per cent farmers used them in an indirect manner through assistance of friends or relatives.
- In terms of indirect usage, majority of farmers (91.2%) used the tools through the assistance of their family members followed by 6.6 per cent using them through others.
- Website use for information:
- Majority of the farmers (89.03%) used no websites at all who were followed by 3.49 per cent of the farmers who used the krishi darpan.com.
- Majority of the farmers (81.93%) used no mobile applications at all who were followed by 3.86 per cent of the farmers who used the IFFCO Kisan.

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