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Availability of Information and Communication Technologies (ICTs) tools usages by Farmers in Haryana

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ABSTRACT

The present study was carried out in four district of Haryana state i.e. Yamunanagar, Karnal, Hisar and Fatehabad, which were selected randomly. In total 240 respondents viz., 60 farmers from each district, 30 farmers from each block and 15 farmers from each village were selected for present study. Availability of mobile among the farmers was high followed by television, FM/Radio, internet, Whatsapp, Mobile phone camera was found, face book, YouTube, Computer, E-mail, E-book and CD/VCD available/access by the farmers. Frequency use mobile phone by farmers was found high followed by TV user, FM/Radio, followed by television, FM/Radio, internet, Whatsapp; Mobile phone camera was found, face book, YouTube, Computer, E-mail, E-book and CD/VCD.

Key words: *ICTs, Accessibility and Frequency*

INTRODUCTION

ICT or Information and Communications Technology in simple terms, can be defined as the basket of technologies, which assist or support in storage, processing of Data/Information, or in dissemination/ communication of Data/Information, or both. ICT thus includes technologies such as desktop and laptop computers, software, peripherals and connection to the Internet that are intended to fulfill information processing and communication functions. According to Wikipedia[8], the term ICT is the broader term of Information Technology (IT), to explicitly include the field of electronic communication, in addition to IT. The term IT is defined as "the study, design, development, implementation, support or management of computer-based information systems, particularly software applications and computer hardware." IT deals with the use of electronic computers and computer software to convert, store, protect, process, transmit and retrieve information, securely. The relevance of ICTs for Agricultural Development in general and for Agricultural Extension in particular is extremely high for a country like India. ICTs are most natural allies to facilitate the outreach of Agricultural Extension system in the country.

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Despite a large, well-educated, well-trained and well-organized Agricultural extension manpower, around 60% of farmers in the country still remain un-reached, not served by any extension agency or functionary. Of the 40%, who have some access to Agricultural Information, the major sources of this information are Radio and Television. The telephone has just started to make its presence felt on this scenario. Internet-supporting Information-Kiosks are also serving the farming community, in many parts of the country. Hence ICTs are highly relevant for Agricultural Extension scientists, researchers, functionaries and organizations. Climate change is one of the most complex challenges that humankind has to face in the next decades. As the change process seems to be irreversible, it became urgent to develop sound adaptation processes to the current and future shifts in the climate system. In particular, it is likely that the biggest impacts of changes will be on agricultural and food systems over the next few decades. Several researchers, thanks to the application of crop modeling tools, have pointed out that climate change is likely to reduce food availability because of a reduction in agricultural production.

MATERIAL AND METHODS

The present study was carried out in four district of Haryana state i.e. Yamunanagar, Karnal, Hisar and Fatehabad, which were selected randomly. Radaur and Chhachroli, Indri and Nilokheri block were selected with villages Bakana, kandroliand Bhagwanpur, Sherpur, Kalri, Kukhnai and Barhtal, Raipur from Yamunanagar and Karnal. Similarly, Hisar I and Hisar II, Bhattu and Fatehbad block were selected with villages Sathrod, Mizapur and Balsamand, Budhak, Dhand and Bnawali, Daulatpur and Hizrawan from Hisar and Fatehbad. In total 240 respondents viz., 60 farmers from each district, 30 farmers from each block and 15 farmers from each village were selected for present study. Each of the selected respondents was interviewed personally. Interview for data collection with the help of interview schedule was generally conducted at the farmers' houses and occasionally also at their farms when they were free to talk to the researcher. The researcher had to make repeated visits to the study area with a view to develop sufficient rapport with the farmer. Computer facilities were availed to work out Percentage, weighted mean, coefficient of correlation, multiple regression analysis etc. The correlation coefficient between the dependent and independent variables were calculated with the help of Pearson's formula of correlation coefficient. Multiple regression equation was fitted to find out the amount of variation caused by Independent variables constituting personality traits of respondents on dependent variables On the basis of statistical analysis, conclusions were drawn and report writing was done keeping in view the objectives of the study.

RESULTS AND DISCUSSION

Availability of ICT tools among farmers

The data for the level of availability and that of accessibility of ICTs among the farmers surveyed was found to be similar. As shown in Table 1, the availability/accessibility of mobile among the farmers was 100 per cent while television was found 60 per cent available/access by farmers.29.58 per cent FM/Radio, 24.17 per cent internet and 19.17 per cent Whatsapp were available/access by the farmers. Mobile phone camera was found 14.17 per cent followed by face book (7.91%), YouTube (6.25%), Computer (5.42%), E-mail (4.58%), E-book (2.50%) and CD/VCD (1.66%) available/access by the farmers. Similar result was found by Adejo *et al*[1]., emphasized the use of ICTs in boosting agricultural production among farmers. Farmers who were hooked up to new technologies fared better. ICTs promoted access to and sharing of information in agriculture and allied fields. ICTs included the use of radio, television and computer/internet, global system of mobile telecommunication (GSM) and the other fixed telephone network, fax, etc.

Table 1: Availability of ICT tools among farmers n=240

Sr. no.	Tools	Frequency (Percentage)
1	Mobile	240(100)
2	T.V	144(60.00)
3	Mobile camera	34(14.17)
4	F.M/Radio	71(29.58)
5	Internet	58(24.17)
6	Whatsapp	46(19.17)
7	Facebook	19(7.91)
8	Youtube	15(6.25)
9	E-mail	11(4.58)
10	Computer	13(5.42)
11	E-book	6(2.50)
12	CD/DVD	4(1.66)

Figures in parentheses indicate percentages

Frequency of ICT tools usage by farmers

The data presented in Table 2 reported that 63.75 per cent of farmers use of mobile phone very frequently, 30.00 per cent frequently and 6.25 per cent occasionally. The TV user was found 14.17 per cent very frequently 39.58 per cent frequently and 6.25 per cent occasionally. Majority of mobile camera was found occasionally (5.42%) followed by frequently (4.58%) and rarely (4.17%) usage by farmers. FM/Radio was found very frequently (10.83%), frequently (9.58%), occasionally (6.67%) and rarely (2.50%) usage by framers. Majority of internet user was found frequently (10.42%) followed by occasionally (8.75%), very frequently (2.50%) and rarely (2.50%). 8.33 per cent farmers use of Whatsapp frequently followed by 7.08 per cent occasionally,2.08 per cent very frequently and 1.66 per cent rarely. Face book was use by farmers frequently (3.75%), rarely (2.92%) and occasionally (1. 25%).YouTube was using rarely (3.33%) and occasionally (2.92%) by farmers. 2.50 per cent frequently and 2.08 per cent rarely used of E-mail by farmers. Computer used 3.33 per cent occasionally and 2.08 per cent frequently. E-book was found frequently (1.25%) and rarely (1.25%) and CD/VCD used by farmers only rarely (1.66%). Similarly found by Sharma *et al*[7]., also pointed that about 98.3 per cent of the farmers in Punjab, India possessed mobile phones. This indicated that there is an increased penetration of ICTs among rural populations and therefore if appropriately used it can offer huge scope for development in rural areas.

Table 2: Frequency of information and communication technologies (ICTs) usage by farmers n=240

Sr. No.	Category	Percentage of Frequency			
		Very Frequently	Frequently	Occasionally	Rarely
1.	Mobile	153(63.75)	72(30.00)	15(6.25)	0
2.	TV	34(14.17)	95(39.58)	15(6.25)	0
3.	Mobile Camera	0	11(4.58)	13(5.42)	10(4.17)
4.	FM Radio/Radio	26(10.83)	23(9.58)	16(6.67)	6(2.50)
6.	Internet	6(2.50)	25(10.42)	21(8.75)	6(2.50)
7.	Whatsaap	5(2.08)	20(8.33)	17(7.08)	4(1.66)
8.	Facebook	0	9(3.75)	3(1.25)	7(2.92)
9.	YouTube	0	0	7(2.92)	8(3.33)
10.	E-mail	0	6(2.50)	0	5(2.08)
11.	Computer	0	5(2.08)	8(3.33)	0
12.	E-Books	0	3(1.25)	0	3(1.25)
13.	CD/DVD	0	0	0	4(1.66)

Figures in parentheses indicate percentages.

The Table 3 reveals that majority (52.92%) of the respondents found the number of ICT tools to be of low level followed by medium (25.83%) and low (21.25%) level of number of ICT tools used by farmers. Similar finding by Chauhan *et al*[2]., was really pleased to note the majority (86 %) of the farmers. Out of them 56 per cent totally and 30 per cent partly assumed that development of Indian farmers was possible through Internet. Internet was best mean to learn all new things for young generation, thus, 82 percent of the farmers wished their children to make positive use of internet at the same time 81 per cent of them had judgment that farmers should make use of internet. Jain *et al*[4]., observed that the extent of the farm women's access to ICT depicted a direct relationship with farm size. Radio and TV was accessible to nearly one-third of women farmers up to medium size farms, while 4 out of 5 women farmers of large farms had access to ICT tools.

Table 3: Number of Information and Communication Technologies (ICTs) tools use by farmers

Number of ICTs tools	Low (up to 3)	127(52.92)
	Medium (4-5)	62(25.83)
	High (>6)	51(21.25)

Figures in parentheses indicate percentages.

The perusal of data in Table 4 depicts the correlation and regression coefficient between availability/accessibility of ICTs and independent variables of farmers. The data revealed that the variables education (0.559), socio-economic status (0.575), land holding (0.036), extension contact (0.601), mass media exposure (0.581), scientific orientation (0.532), economic motivation (0.536) and risk orientation (0.571) exhibited positive and significant where as age (0.584) exhibited negative significant but irrigation facilities (0.070) non-significant but positively correlated with availability of ICTs by farmers. Similarly, regression coefficient of variables education (0.549), socio-economic status (2.237), extension contact (2.401), mass media exposure (1.030), scientific orientation (1.227), economic motivation (2.827) and risk orientation (1.376) exhibited positive and significant and age (1.404), land holding (0.171) and irrigation facilities (0.665) negatively significant with availability/accessibility of ICTs by farmers. Osondu *et al*[6]., reported that farmers had a clear and favorable perception of the relevance of ICTs in extension service delivery. Farmers' education level and income had a positive significant relationship with the number of ICTs farmers in Imo State had access to. It was therefore recommended that ICT education should be built into the extension delivery package of extension agents to farmers particularly the use of the mobile phone since this was capable of eliminating the series of wasteful trips to get at the extension workers and vice versa.

Table 4: Relationship between respondent's personal variables and availability of ICTs tools using by farmers

S. No.	Variables	Correlation coefficient (r)	Regression coefficient	't' values
1.	Age	-0.584^{*}	-0.071	-1.404^{*}
2.	Education	0.559^{**}	0.225	0.549^{*}
3.	Socio-economic status	0.575^{**}	0.342	2.237^{**}
4.	Landholding	0.036^{*}	0.017	-0.171^{*}
5.	Irrigation facilities	0.070^{NS}	-0.117	-0.665^{*}
6.	Extension contact	0.601^{**}	0.564	2.401^{**}
7.	Mass media exposure	0.581^{**}	0.327	1.030^{*}
8.	Scientific orientation	0.532^{**}	-0.198	1.227^{*}
9.	Economic motivation	0.536^{**}	-0.759	2.827^{**}
10.	Risk orientation	0.571^{**}	0.252	1.376^{*}

* Significant at 5% level of significance and, ** Significant at 1% level of significance $R^2 = 0.4044$

The data presented in Table 5 indicate the correlation and regression coefficient between number of ICTs and personal variables of farmers. The data revealed that correlation out of 10 variables, only seven variables Education (0.903), socio-economic status (0.405), extension contact (0.929), mass media exposure (0.926), scientific orientation (0.403), economic motivation (0.905) and risk orientation (0.316) exhibited positive and significant where as age (0.897) exhibited negative significant with number of ICTs usage by farmers. However, land holding (0.017) and irrigation facilities (0.141) was non-significant but positively correlated with number of ICTs usage by farmers. Similarly, regression coefficient of variables Education (1.931), socio-economic status (3.067), extension contact (4,785), mass media exposure (3.183), scientific orientation (2.004), economic motivation (1.470) and risk orientation (0.590) exhibited positive and significant and age (0.329), land holding (0.804) and irrigation facilities (1.690) negatively significant with number of ICTs usage by farmers. Dhaka *et al*[3]., and Meera *et al*[5]., found that education was positively associated with ICT use in both correlation and regression indicating that as education level improves the usage of various information services provided in i-kisan was also improved. Study conducted in Rajasthan and India also showed that land holding did not have any significant relationship with ICT use by the farmers.

Table 5: Relationship between respondent's personal variables and Number of ICTs tools using by farmers

S. No.	Variables	Correlation coefficient (r)	Regression coefficient	't' values
1.	Age	-0.897*	-0.004	-0.329*
2.	Education	0.903**	0.181	1.931*
3.	Socio-economic status	0.405*	0.107	3.067*
4.	Landholding	0.017NS	-0.018	-0.804*
5.	Irrigation facilities	0.141NS	-0.068	-1.690*
6.	Extension contact	0.929**	0.256	4.785**
7.	Mass media exposure	0.926**	0.230	3.183**
8.	Scientific orientation	0.403*	0.074	2.004*
9.	Economic motivation	0.905**	0.090	1.470*
10.	Risk orientation	0.316*	0.150	0.590*

* Significant at 5% level of significance and, ** Significant at 1% level of significance $R^2 = 0.9030$

CONCLUSION

Availability of mobile among the farmers was found 100 per cent followed by television, FM/Radio, internet, Whatsapp, mobile phone camera, Facebook, YouTube, computer, e-mail, e-book and CD/VCD available/access by the farmers. The per cent of frequency use mobile phone by farmers was found high followed by TV user, FM/Radio, internet, Whatsapp, mobile phone camera, Face book, YouTube, computer, E-mail, E-book and CD/VCD. variables education, socio-economic status, extension contact, mass media exposure, scientific orientation, economic motivation and risk orientation exhibited positive and significant whereas age exhibited negative significant with number of ICTs usage by farmers. However, land holding and irrigation facilities were non-significant but positively correlated with number of ICTs usage by farmers. Similarly, regression coefficient of variables education, socio-economic status, extension contact, mass media exposure, scientific orientation, economic motivation and risk orientation exhibited positive and significant and age, land holding and irrigation facilities negatively significant with number of ICTs usage by farmers. variables education, socio-economic status, land holding, extension

contact, mass media exposure, scientific orientation, economic motivation and risk orientation exhibited positive and significant where as age exhibited negative significant but irrigation facilities non-significant but positively correlated with availability/accessibility of ICTs by farmers. Similarly, regression coefficient of variables education, socio-economic status, extension contact, mass media exposure, scientific orientation, economic motivation and risk orientation exhibited positive and significant with availability of ICTs and age, land holding and irrigation facilities negatively significant with availability/accessibility of ICTs by farmers.

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