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Importance of information and communication technology in agriculture development: a study of Shrawasti district

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Abstract

Today India is passing through the phase of communication revolution, which has brought about a significant growth of media in mass communication. It has become an important part of development initiatives in health, nutrition, agriculture, family planning, education, community economy and world empowerment. This present study aims to focus on agricultural development with the emergence of the new communication technology. The main objective of the study is to analyze the knowledge level and utilization pattern of ICT tools for agricultural development. The study is being undertaken to know how agriculture development is possible through an effective communication tools that is ICT (Information and Communication Technology). The study was carried in Ikauna Block of Shrawasti District of Uttar Pradesh. Out of 81 villages in Ikauna block, eight villages were selected purposively and equal numbers of users and non- users among 120 farmers were selected randomly from the list of ICT users and non-users group. Data was collected by using pre-tested schedule and analyzed using appropriate statistical tools. Majority of Users (66.67%) had medium level of usage for agricultural information followed by high usage (18.33%) to low usage (15.00%). It is concluded from the study that usage of ICT tools in agriculture helps the farming community to raise their socio- economic status and also provide relevant and useful information. Lack of funds and lack of training are major constraints encountered by users. Hence, government should take more steps to minimize it and create more awareness about ICT tools regarding agricultural information.

Keywords: ICT, knowledge, utilization pattern

Introduction

The Information and Communication Technology (ICT) enabled extension systems are acting as a key agent for changing agrarian situation and farmers' lives by improving access to information and sharing knowledge. The term Information communication technology was coined by Stevenson in 1997. Rapid innovations in telecommunications, semi-conductors, micro processors, fiber optics and micro electronics are the engines of growth for development of countries across the world. These innovations are being referred to as Information Communication Technology (ICT). ICT make a significant contribution to economic growth of agrarian sector by empowering farmers with modern technologies and creating new employment opportunities (Malhan *et al.*, 2007) [2]. Access to ICT is now considered as one of the important determining factors for the development status of a country. Agriculture sector is very important for a developing country as it provides employment to majority of the people, covering the largest areas of the land and provides access to external currencies through trade. Increasing market orientation of agriculture in liberalization of trade, emergence of global markets and competition and increasing concern about food and environment place the agricultural sector of a developing country under tremendous pressure. In a research study conducted by Rao (2007) [2, 3] on 'role of space technology in social transformation' it was observed that in agricultural country with a large population and with limited land of less than 0.3 ha per capita, optimal utilisation of ICT is essential for increasing its food production by providing vital inputs for management of soil, water and other agriculture resources. However, there is a great scope and prospects for ICT to move agriculture on the path of development for food production.

In the present era of information revolution, ability to acquire and use information is regarded as a national asset. Information is considered as a resource, much like land, labour and capital. Access to information and improved communication is therefore considered as a crucial requirement for the success of any development efforts.

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Materials and methods

The present study was conducted in Ikauna block of Shrawasti district in Uttar Pradesh to analyze the knowledge level of respondents about ICT tools. A multi-stage Random sampling procedure was applied to draw the sample for the study. 1 block was purposively selected due to presence of adequate number of ICT users. Further, Out of 81 villages in Ikauna block, 8 villages were selected purposively for the present study. The selection of these villages was based on the assumption that these were having maximum amount of involvement of rural men in agricultural activities and high level of mass media exposure among the villagers. 60 users were selected randomly from the list of ICT users and similar number of respondents was also selected from non-user group. Further, final selection of the sample respondent was made on the basis of different criteria designed by the researcher with the consultation of the expert working in the field.

Secondary Data Collection: The secondary data has been collected through different source of materials, portals, websites and other exiting records. The other relevant data has been collected from various books, magazines, official records, research paper, internet, journals, news articles and other exiting sources of data.

Primary Data Collection: The primary data has been collected through two methods survey and observation. Through schedule, data has been collected from the farmers of selected villages Schedule has been prepared with both close ended and open ended questionnaire.

Data analysis

Data are analyzed in qualitative and quantitative methods. Statistical tools such as frequency, percentage, ranking technique, chi-square and Microsoft excel has been used for analysis of data.

Table 1: Utilization pattern of tools No. of respondents (N= 60)

S. No.	Area of information	Always	Sometimes	Never
		F(P%)	F(P%)	F(P%)
1.	Radio	20(33.34%)	32(53.3%)	8(13.33%)
2.	Television	16(26.67%)	34(56.66%)	10(16.67%)
3.	Mobile	18(30.00%)	33(55.00%)	09(15.00%)
4.	Computer	12(20.00%)	34(56.67%)	14(23.33%)
5.	Internet	21(35.00%)	29(48.33%)	10(16.33%)
6.	E-mail	15(25.00%)	32(53.33%)	13(21.67%)
7.	Web based agricultural info. Portal	18(30.00%)	29(48.33%)	13(21.67%)
8.	Facebook	16(26.67%)	36(60.00%)	8(13.33%)
9.	Whats App	16(26.67%)	35(58.33%)	9(15.00%)
10.	Tele-conferencing	17(28.33%)	36(60.00%)	7(11.67%)
11.	E-book	21(35.00%)	33(55.00%)	6(10.00%)
12.	E- application	12(20.00%)	30(50.00%)	18(30.00%)

Figures shown in parenthesis is percentage

Data provide in above table reveals the usage pattern of ICT tools for information of agriculture. It is clearly shown that radio has been used by majority of users (53.33 %) followed by 33.33 per cent always and only 13.33 per cent never use or once in a while. Similarly 56.67 per cent of users sometime use television for the information followed by 26.67 always and only 16.67 per cent never. Mobile has been used sometimes by 55 per cent of users followed by 30 per cent always and only 15 per cent never. In case of computer, it is used sometimes by 56.67 per cent of uses followed by 23.33 per cent who never use it just because of unavailability and only 20 per cent always use it. Whereas majority of

respondents (53.33 %) know how to use E-mail followed by 25 per cent who always use it and only 21.66 per cent never use it. Similarly 48.33 per cent of users sometime use Web based Agri. Portals for the information followed by 30 per cent always and only 21.67 per cent never. Facebook that is common application has been used sometimes by majority (60 %) for agricultural information, while 26.67 per cent use always and 13.33 per cent never use it. Similarly 58.33 per cent of users sometime use Whats App for the information followed by 26.67 per cent always and only 15 per cent never. Majority of respondents sometime use tele-conferencing, E-book and E-application.

Table 1.1: Overall level of Utilization of users

S. No.	Categories	Users (n=60)
1.	Low usage (14-20)	9(15.00%)
2.	Medium usage(21-26)	40(66.67%)
3.	High usage(27-32)	11(18.33%)
Total		60

Association between selected independent variables and utilization pattern of ICT tools by the users

Table 1.2 shows the association between selected independent variables like age, education, income, land holding, extension contact, mass- media exposure etc. and usage of ICT tools by the farmers according to data collected. Chi- square test is applied for the given association in which relation between

usage of ICT tools is done with selected socio-economic profile.

Chi square test

Test to determine whether two attributes are independent by comparison of observed frequencies related to expected frequencies.

Table 1.2: Association between independent variable and utilization pattern of ICT tools by users: n=60

S.NO	Category	Utilization pattern	S.E.P.	Total(Row)	Result
1.	Low	09(a) (11.5) = Ea	14(b) (11.5) = Eb	23 R1 (a + b)	Significant
2.	Medium	40(c) (32.5) = Ec	25(d) (32.5) = Ed	65 R2 (c + d)	
3.	High	11(e) (16) = Ee	21(f) (16) = Ef	32 R3 (e + f)	
Column total		60	60	120=N	

$\chi^2_{(5\%)} = 5.99$ (tabulated value), $\chi^2 = 6.99$ (calculated value)

Ea = Expected value of a;

(a) = Observed value

Expected cell frequency = $\frac{(\text{row total}) \times (\text{column total})}{N}$

$\chi^2 = \sum \frac{(\text{observed value} - \text{expected value})^2}{\text{Expected value}}$ with d.f. = (R-1)(C-1)

Where,

\sum = summation overall differences, R= no. of rows, C= no. of columns, d.f. = degree of freedom

Since, the calculated value of chi- square test is greater than the tabulated value of X^2 on 2 degree of freedom and at 5% probability level, so our null hypothesis will be rejected, therefore it can be concluded from above calculated data that there is significant association between socio economic condition & usage pattern of ICT tools.

As shown in Table 1.2 education, income, age and other given socio- economic profile were found to be associated to the respondents usage to ICT.

Conclusion

It is concluded from the study that majority of users (66.67%) have medium level of usage of ICT tools followed by high level of usage (18.33 %) and only 15 per cent of users have low usage. It is concluded from the study that agricultural information is mainly taken from radio, television and mobile phones whereas internet, E-book and agricultural portals are used less widely by the farmers for agricultural information. The high penetration of mobile phone make them good ICT tool for information dissemination. Those respondents who are aware of whats app and facebook use them for personal chat not for utilization in agricultural information. Lack of training program and lack of funds are the major constraints faced by the respondents. Hence, government should take steps to minimize it and create more awareness about ICT Tools regarding agricultural information.

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