Constraints faced by the farmers in the use of information and communication technologies (ICTs) for seeking agricultural information

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ABSTRACT

Information and communication technology (ICT) is an important source of sharing and receiving agricultural information. The present study was conducted by randomly selecting 120 progressive farmers of Punjab state to analyse constraints faced by them in use of ICTs. A structured interview schedule was prepared to interview the respondents personally for collecting data. It was found that majority of the respondents were matriculate (35.83%), of the age of less than 35 years (49.20%) and having 5-10 acres operational landholding (51.67%). Study revealed that poor internet connectivity (76.67%) and lack of network coverage in rural areas (62.50%) among physical, economic and infrastructural problems and lack of region-specific information (94.17%) and lack of trustworthy information (35.83%) among operational problems were the major constraints faced by the ICT users. Customized and reliable content on agricultural technologies needs to be developed for farmers' use. Strict regulatory mechanism also needs to be promoted for authentic and useful content through ICT. Government needs to reorient its policies in order to harness ICT's potential for contributing to agricultural development.

Keywords: ICT; information; problems; farmers; internet

INTRODUCTION

Information and communication technology (ICT) is becoming a greater way of sharing agricultural information. Most of the service provider companies are providing extension services to farmers for using ICT to increase their crop production at each stage. Farmers and extension personnel are using ICTs for exchanging updates related to crop production, postharvest management, agricultural produce, market information, answering problems of farmers etc. They share pictures, massages, voice massages, video calls etc (Raj and Bhattacharya 2017). ICT is an important factor which is helping to shape up new global economy by bringing changes into the systems of society. It is a term which includes computer software and hardware, digital broadcast and telecommunication technologies as well as digital information repositories online or offline (Arendt 2008). Network providers like BSNL and Nokia Life Tools provide services viz SMS and voice messages that contain agriculture related information like weather updates, market price, agricultural policies and agricultural practices for farmers (Fafchamps and Minten 2011, Saravanan 2010). The use of ICT tools is increasing day by day but there is need to do more work on the part of the government for farmers in rural areas. In a study conducted by Agha et al (2018) it was found that more than 60.22 per cent of farmers did not access any farming information through modern ICTs. The extension mechanism for farmers to farmers learning exchange was created through ICT in the form of WhatsApp groups-based social networking of innovative farmers (Nain et al 2019, Gandhi 2015).

Farmers are using ICT because it has ability to connect with farmers, agribusiness and agri-experts over a geographical distance and to certain extent ICT usage in agricultural marketing is providing solutions to its problems. The most popular ICT tools among farmers now a days are WhatsApp, Facebook, Twitter, YouTube, Portals etc. The farmers require various types of farming information for their day-to-day farming activities. However they

lack proper farm information, infrastructure and service centers. Generally the farmers are not getting the right farming information at right time.

Development is slow in rural areas for sustainable agricultural development. Easy and quick access to farming information is vital for development of agriculture in rural areas. Progressive farmers of Punjab formed a group in 1966 and it was named as PAU Kisan Club. The main objective of this club was to acquire and share scientific information among farming community and it represented the progressive farmers of the state.

The present paper is an attempt to analyse the various constraints faced by the progressive farmers and members of PAU Kisan club.

METHODOLOGY

The study was conducted on the progressive farmers in Punjab by randomly selecting 120 farmers from PAU Kisan Club. This club is an organization of progressive farmers of Punjab started with the objective to provide and share scientific information among farming community. The most commonly used ICTs which are used by the farmers for seeking farm information are like WhatsApp, Facebook, Websites (PAU farmer portal). YouTube was taken for the present study. Problems were operationalized as hindrances or constraints faced by the respondents during the access and uses of ICTs. For this purpose a semi-structured interview schedule was prepared. Responses were measured on a dichotomous continuum Yes/No as well as open-ended questions. Problems were categorized into four groups viz physical, economic, infrastructural and operational. Frequencies and percentages were used to know the distribution pattern of the respondents with respect to the selected variables for the study.

RESULTS and DISCUSSION

The information related to socio-personal characteristics of the respondents which included age, education, type of family, number of family members, experience in farming and operational landholding is presented in Table 1. It was reported that nearly half of the farmers ie 49.20 per cent were less than 35 years of age and 36.70 per cent of them belonged to age group of 35-50 years. It was found that 35.83 per cent of the farmers were educated up to matric followed by 26.67 per cent educated up to higher secondary. Similar results were reported by Dhaka and Chayal (2010) and Ghasura et al (2011).

Majority (63.33%) of the farmers had joint whereas 36.67 per cent of them had nuclear families. Majority (55.83%) had 5-8 members in the families. More than half of the respondents (52.50%) had farming experience of 10 to 25 years followed by 33.33 per cent who had experience of up to 10 years. Similar findings were also reported by Natikar (2001). More than half of the respondents (51.67%) had operational landholding of 5 to 10 acres followed by 29.16 per cent who had more than 10 acres of landholding. The findings are supported by the observations of Angadi (1999).

Physical, economic and infrastructural problems of the respondents using ICT

Data regarding physical, economic and infrastructural problems faced by the respondents while using ICT are presented in Table 2. Most of the farmers (76.67%) faced difficulty in ICT use due to poor internet connectivity in the area. Similarly 62.50 per cent of the respondents stated that internet network was not available in many parts of the rural areas and internet connection was disturbed very often which posed a difficulty in use of ICT. It was also found that 37.50 per cent of the respondents had no access to broadband connectivity when they needed and also nearly one-fourth (28.34%) of the respondents reported the problem of erratic electric power supply which created hindrance in internet connectivity and also devices could not be charged properly. Majority of the farmers (60.84%) also faced problems regarding the maintenance of ICT tools as the cost of repairing the tools owned by them was high due to limited availability of technical experts in the area.

It was found that 35.83 per cent of the respondents felt that ICT use might be enhanced if community information centre was established in their region. It was also found that 27.50 per cent of the respondents had their privacy concerns regarding use of ICT tools. Respondents (26.66%) felt that price of smart phones, computers and laptops was high; 11.67 per cent of the respondents revealed that apart from the high price of ICT tools, data charges of the services providers in their region also restricted them to use ICT tools frequently. It was also found that gender of the respondents had

Table 1. Socio-personal profile of respondents (n= 120)

Characteristic	Class	Respondents	
		Frequency	Percentage
Age (years)	Up to 35	59	49.20
	35 to 50	44	36.70
	Above 50	17	14.10
Education	Primary	11	9.17
	Matric	43	35.83
	Higher secondary	32	26.67
	Graduation	25	20.83
	Postgraduation	9	7.50
Family type	Joint	76	63.33
	Nuclear	44	36.67
Number of the family members	<5	33	27.50
	5-8	67	55.83
	>8	20	16.67
Experience in farming (years)	Up to 10	40	33.33
	10 to 25	63	52.50
	Above 25	17	14.17
Operational landholding (acres)	<5	20	16.67
	5-10	62	51.67
	>10	35	29.16

Table 2. Distribution of the respondents* according to the physical, economic and infrastructural problems faced by them in the use of ICT (n=120)

Problem	Respondents	
	Frequency	Percentage
Poor internet connectivity	92	76.67
Lack of network coverage in rural area	75	62.50
Non-availability of broadband connectivity	45	37.50
Erratic power supply	34	28.34
High cost of ICT (mobile phone/computer/laptop)	32	26.66
High data charges	14	11.67
Lack of community information centre	43	35.83
Inadequate availability of ICT tools viz computer, laptop, mobile phone, internet facility	13	10.83
High cost of repair and maintenance of ICT tools	73	60.84
Gender and other demographic factors	17	14.16
Lack of regulatory mechanism in use of ICT	15	12.50
Privacy concerns	33	27.50

*Multiple responses

an effect on the use of ICT tools because most of the farm owners were males and they had more access to ICT tools as compared to the female members of the family. This problem was faced by only 14.16 per cent of the respondents.

Inadequate availability of ICT tools such as computers, laptops, mobile phones and internet facility was reported by 10.83 per cent. Only 12.50 per cent of the respondents were not satisfied with the regulatory mechanism associated with the use of ICT and felt that government should put some restrictions for sharing information through ICTs. Findings of the study are in accordance with the observations made by Kumar (2003), Kumar (2008) and Dhaka and Chayal (2010).

Table 3. Distribution of the respondents* according to the operational problems faced by them in the use of ICT (n=120)

Problem	Respondents	
	Frequency	Percentage
Lack of region-specific information	113	94.17
Complexity in searching relevant material on internet	38	31.66
Lack of information in local language	29	24.17
Lack of reliable information	43	35.83
Storage and retrieval of information	35	29.16
Lack of relevant customized content	23	19.17
Time consuming	22	18.33
Lack of adequate skills for optimum use of ICT	35	29.16
Lack of adequate knowledge about hardware, software and internet	18	15.00

*Multiple responses

Operational problems

Data regarding operational problems faced by the respondents in use of ICT are reported in Table 3. It was found that 94.17 per cent of the respondents were facing the problem of non-availability of region-specific information through ICT tools followed by 35.83 per cent who reported that there was lack of reliable information and 31.66 per cent expressed that there was complexity in searching relevant material on internet. Problems of storage and retrieval of information and lack of adequate skills for optimum use of ICT were expressed by 29.16 per cent respondents each. Lack of information in local language (24.17%), lack of relevant customized content (19.17%), more time consuming (18.33%) and lack of adequate knowledge about hardware, software and internet (15.00%) were other problems expressed by the respondents. The findings of Karunakaran (2004), Mwakaje (2010) and Mooventhan and Philip (2012) are complimentary to these results.

CONCLUSION

Government is emphasizing and devising mechanisms to connect rural areas to digital world. The present study reported the different problems faced by the farmers in this direction. The results of the study revealed that poor internet connectivity, lack of region-specific content, non-reliability of the information, lack of skill in handling ICTs, low digital literacy, lack of repairing facilities, attitudinal barriers towards ICT, poor finance, lack of training and practical exposure, high cost of repairing ICT tools and insufficient regional language content were some of the major constraints faced by the farmers in the effective use of ICTs.

Since there is an increased penetration in the level of availability and accessibility of ICTs among the farmers of the state there is a need to ensure that the problems of the farmers are properly addressed in order to enable the farming community derive maximum benefits on better access to information services through the use of ICTs for agriculture and other developmental purposes. Customized and reliable content on agricultural technologies needs to be developed for use according to different ICT tools. Government should also develop strict regulatory mechanism to promote authentic and useful content for ICTs by making the users more accountable for their post on ICT platform. Skill-based trainings should be imparted to farmers to promote digital literacy to make them competent users of ICT. Setting up kiosks at public places may enhance the reach of poor farmers to ICT-enabled services.

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