ICTs Supported Agricultural Extension Services: A Study on Information Access for Farmers in Barnala District of Punjab

Suryendra Singh[1], P. S. Tanwar[2] and Anjuly Sharma[3]

Abstract

ICTs have enormous potential to improve e-extension advisory services if taken advantage of by the 'extension agents' in the diffusion process of innovations. ICTs can play a crucial role in strengthening the capacity of farmers and the field level extension functionaries and intermediaries. The purpose of the study was to analyze the use of different ICTs in agricultural knowledge pathways, the dissemination pathways, line departments, and socio-economic factors. Data were analyzed manually and using R software (version 3.6.1).

A total of one hundred farmers were interviewed, with a purposively selected sample of 60 farmers, using a pre-formulated questionnaire from all three blocks of Barnala district. The findings indicate that farmers depend on four major ICT applications viz., mobile apps, television, internet browsing and Facebook to access information. The lack of harmonization and weak linkages between line departments in utilizing the existing ICT tools, level of ICT ownership and access to information at the household level were found important challenges for ICT-enabled agricultural extension services.

Keywords: ICT, e-Extension, Agricultural Extension

Introduction

Farming is a critical profession for the livelihood of farmers in the Barnala district of Punjab. Farmers heavily independent on agricultural production activities like crops cultivation and animal rearing. They use both non-ICTs and ICTs means to access information on modern agricultural technologies.

[1,2,3] KVK, Barnala, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana, Punjab, India
Corresponding Author E-mail: suryendraicar@gmail.com

Received Date: 21.01.2022 Accepted Date: 05.02.2022

ICTs play a crucial role in accessing agricultural information for farmers, and the modern ICT tools and services can strengthen the traditional extension services and information provision (Singh et al. 2016). Modern ICT tools and applications offer excellent platforms and services for disseminating knowledge on new agricultural technologies to the farming community. There is a need to study find out the use of different ICTs in agricultural knowledge and dissemination pathways, ownership of ICTs and access to information, and usage of these modern IT technologies by the farmers.

Methodology

The study was conducted in all three blocks i.e. Sehna, Barnala, and Mehel Kalan of Barnala district. A total of 100 farmers were interviewed using a pre-formulated questionnaire with a purposively selected sample of 60 farmers (20 from each block). The sampling method was non-probability sampling, under which convenience sampling technique was used. The collected data was compiled, tabulated, and analyzed manually using R software (version 3.6.1). Frequency and percentage were calculated. A Chi-square test was performed to assess the statistical significance of the sources of information available to respondent farmers and on availability, accessibility, and usage of different sources of information. The study aims to analyze the use of different ICTs in agricultural knowledge pathways that farmers use to access agricultural technologies information, the various dissemination pathways and ownership, access and usage of ICTs at the farmers level.

Results and Discussion

Overview of Knowledge Pathways

Knowledge pathways are the methods and various approaches used to disseminate agricultural technologies and information by the extension service providers. There are many channels to get agricultural knowledge and technologies information in the district.

Major knowledge pathways through which agricultural technologies information reaches the farmers were (1) conventional approaches and (2) ICTs. Table 1 shows that for 95% of farmers (n= 57) ICTs have been the source for information on agricultural technologies. This trend was followed by gathering information from friends and relatives 88.33% (n=53) and extension activities 86.67% (n=52). A significant major proportion of farmers, 83.33% (n=50) acknowledged Krishi Vigyaan Kendra as their reliable source of information. In addition to these sources, 53.33% (n=32) and 40% (n=24) of farmers acquired information through helpline and extension workers, respectively. The most negligible share of farmers recognized government agencies (23.33%) and Farmer Field Schools (21.67%) as their sources of information. Similar observations were also reported by Kameswari et al. 2011 and Singh et al. 2016. It was also observed that there was a lack of harmonization and weak linkages between line departments in utilizing existing ICT tools and performing similar extension activities with the risk of duplication or sending conflicting information to the farmers.

Table - 1: Sources for Information on Agricultural Technologies for Farmers

Source of Information	**Yes**	**No**
Krishi Vigyaan Kendra (KVK)	50	10
Farmer Field Schools(FFSs)	13	47
Extension Worker	24	36
ICTs	57	3
Extension Activity	52	8
Government Agencies	14	46
Helpline	32	28
Friends & Relatives	53	7
X2	49.84*	
p-value	0.00	

*Note: * Significant at 5% level of significance*

Availability, Accessibility and Usage of Different ICTs

The data on farmers' availability, accessibility and usage of different ICTs reflected statistically significant differences as mentioned in Table 2. The study revealed that almost all the respondent farmers had accessibility to television and mobile phones. The mobile phone was available and accessible to 95% (n=57) farmers. Television was available to 96.67% (n=58), accessed by 95% (n=57) and used by 90% (n=54) farmers. The use of mobile phones was higher (91.67%) than all other ICT tools, which can be attributed to the fact that it is affordable and portable. Only 65% (n= 39) farmers have availability to internet browsing whereas accessibility and usage of internet browsing was 63.33% (n=38).

Table - 2: Availability, Accessibility and Usage of Different ICTs By The Farmers

Type of ICT's	Availability		Accessibility		Usage	
	Yes	No	Yes	No	Yes	No
Mobile (GADVASU and other Apps)	57	3	57	3	57	5
Television	58	2	57	3	54	6
Radio	1	59	1	59	1	59
Information kiosk	2	58	2	58	2	58
Internet Browsing	39	21	38	22	38	22
Facebook	31	29	27	33	27	33
E-mail	27	33	18	42	18	42
Computer	20	40	18	42	15	45
Youtube	36	24	32	28	30	30
CD/ DVDs	0	60	0	60	0	60
E-books	0	60	0	60	0	60
X2	333.90*		330.50*		316.11*	
p-value	0.00		0.00		0.00	

*Note: * Significant at 5% level of significance*

Almost half of the farmers interviewed had the availability of Facebook, while usage and accessibility of Facebook was 45% (n=27). Availability of e-mail was with 45% (n=27) of farmers, but usage and accessibility of e-mail were limited to 30% (n=18) farmers. The accessibility of YouTube was 60% (n=36), and the usage was 50% (n=30). Radio was accessible, available, and used by only 1 farmer (1.67%), and the information kiosk was accessible, available, and used by 2 farmers (3.33%) only. Accessibility, availability, and usage of CD/DVD and E-Books was 0% each. Some of the farmers were illiterate and were non-ICTs acquiescent, and they could not use these ICT tools and services. So, a skill assessment would indicate what kind of formal training may be conducted for farmers to improve their skills for proper use of modern ICTs technologies to access and adopt new agricultural technologies for increasing their farm income. The study findings are in line with Syiem and Raj (2015).

Conclusion

The study revealed that several knowledge pathways exist through which farmers access farming information in the district. The primary ICT tools and services were mobile, television, internet browsing and Facebook; however, lack of harmonization and weak linkages between line departments in utilizing the existing ICTs. Respondent farmers and a large number of the extension staff also lacked the skills to exploit ICTs to fully access agricultural knowledge from various sources. An ICT intervention that can improve the livelihood of farmers will likely have significant direct and indirect impacts on enhancing agricultural production, post-harvest activities, and marketing. The higher percentage of ownership and accessibility of ICTs among the survey farmers also offers the potential to fully exploit ICTs to improve the agricultural knowledge pathways and information provision. More awareness and training programs for farmers on ICTs to improve their self-confidence, capability, and skills to take the benefits of modern agricultural technologies and increase farm income are recommended.

References

Syiem, R. and Raj, S. (2015). Access and usage of ICTs for Agriculture and Rural Development by tribal farmers in Meghalaya State of North-East India. Journal of Agricultural Informatics, 6(3), 24-41

Singh, A., Sidhu, S., Hundal, J. S. and Chahal, U. S. (2016). Information sources for Indian livestock farmers. Journal of Livestock Science, 7, 150-156

Kameswari, V. L. V., Kishore, D. and Gupta, V. (2011). ICTs for Agricultural Extension: A study in the Indian Himalaya region. The Electronic Journal on Information Systems in Developing Countries, 48(3), 1-12.