



International Journal of Research in Agronomy

E-ISSN: 2618-0618
P-ISSN: 2618-060X
© Agronomy
NAAS Rating (2026): 5.20
www.agronomyjournals.com
2026; SP-9(6): 50-53
Received: 11-04-2026
Accepted: 15-05-2026

Priya Pallavi
Ph.D. Scholar, Department of
Agricultural Extension Education,
Birsa Agricultural University,
Ranchi, Jharkhand, India

Dr. BK Jha
Head of Department, Department
of Agricultural Extension
Education, Birsa Agricultural
University, Ranchi, Jharkhand,
India

Dr. Amandeep Ranjan
Assistant Professor Cum Junior
Scientist, Department of
Agricultural Extension Education,
Birsa Agricultural University,
Ranchi, Jharkhand, India

Amrita soni
M.Sc. (Ag), Department of
Agricultural Extension Education,
Birsa Agricultural University,
Ranchi, Jharkhand, India

Corresponding Author:

Dr. BK Jha
Head of Department, Department
of Agricultural Extension
Education, Birsa Agricultural
University, Ranchi, Jharkhand,
India

Awareness and learning sources of ICT tools among scientists of agricultural universities

Priya Pallavi, BK Jha, Amandeep Ranjan and Amrita soni

DOI: <https://www.doi.org/10.33545/2618060X.2026.v9.i6Sa.5676>

Abstract

Information and communication technology (ICT) has emerged as a critical contributing factor in agricultural education, research and extension. In recent years, scientists doing teaching, research and knowledge transfer in agricultural universities have become dependent on computer-based information and communication tools. The study was conducted at three purposely selected agricultural universities i.e., Birsa Agricultural University, Ranchi, Dr. Rajendra Prasad Central Agricultural University- Pusa Samastipur; and Bihar Agricultural University Sabour Bhagalpur. A total of Sixty scientists (20 from each university) have been chosen for the study. The data were collected using a structured questionnaire and then appropriate statistical tools were used for analysing the data. Print media was found to be the principal source of awareness about ICT tools, friends and relatives came second, and the third place went to television. The extent of awareness about selected ICT tools among scientists was moderate. For major ICT tools, the main treasurer of learning was Office/Institution/College. This implies the need of important and vital institution support in upgrading methods by providing more training and exposure programs for awareness only to learn about ICTs by scientists from agricultural universities.

Keywords: ICT tools, awareness, resource for learning, scientists; agricultural universities; sources of information

Introduction

Technology ICT support efforts to reinforce systems: education, research and extension. ICT enables prompt access to scientific information, digital resources, online databases and communication platforms that facilitate the more efficient delivery of teaching, research and knowledge dissemination activities. Availability of ICT tools in agricultural universities has provided opportunities for scientists to update their information, collaborate with fellow scientists and increase productivity also.

In an era of constant change in agriculture, agricultural scientists will be required to remain up-to-date. ICT tools such as internet services, digital libraries, expert systems, video conferencing, geographical information systems and agricultural applications are examples that effectively provide professional development and scientific communication support. The effective use of these tools highly relies on the users and from where they learn about ICT tools.

Awareness is the first step towards adopting and using any technology effectively. Likewise, the origin of learning impacts the level in which users become skilled and confident on working with ICT tools. It is important to know not only the level of awareness but also learning sources regarding ICT tools among scientists so that appropriate intervention strategies might be planned in order to reinforce ICT-based research and educational efforts.

Considering these facts, the present study was conducted with an aim to assess the awareness of ICT tools among scientists working in selected agricultural universities and to know important sources of awareness and learning about ICT tools.

Materials and Methods

The study was conducted in three purposely selected agricultural universities namely Birsa Agricultural University, Ranchi; Dr. Rajendra Prasad Central Agricultural University, Pusa, Samastipur; and Bihar Agricultural University, Sabour, Bhagalpur. Twenty scientists from each

university were selected as respondents. Thus, the total sample size comprised 60 scientists.

The research design adopted for the present study was ex-post facto, since the phenomenon had already occurred. A structured and pre-tested questionnaire was used for collection of data. In addition to this, observation, interaction and group discussion techniques were also employed to supplement the information collected from the respondents.

The ICT tools selected for the study were Internet/Web Services, Mobile Map Technology, Digital Storytelling, Radio/Community Radio, Video Conferencing, Teleconferencing, Digital Library, Expert System, Kiosks, Kisan Call Centre, Satellite Telecommunication (SATCOM), Interactive Multimedia Compact Disc (IMCD), Geographical Information System (GIS) and Agricultural Applications.

Awareness was operationalized as the extent to which the respondents were familiar with and had knowledge regarding the selected ICT tools. The awareness level of respondents was

categorized into low, medium and high categories on the basis of the total awareness score obtained. Information regarding source of awareness and source of learning of ICT tools was also collected from the respondents.

Frequency, percentage, mean score and weighted mean score were used for analysis and interpretation of data. Ranking was assigned to different ICT tools on the basis of weighted mean scores.

Results and Discussion

Source of Awareness of ICT Tools among Scientists

Awareness serves as the first step towards adoption and effective utilization of any technology. The source through which individuals become aware of a technology plays a significant role in influencing their knowledge and subsequent use of the technology. The source of awareness of ICT tools among scientists is presented in Table 1.

Table 1: Distribution of source of awareness of ICTs tools by scientists of agricultural universities

Sl. No.	Categories	Scientists						Respondents
		BAU, Ranchi		Dr. PCAU, Pusa		BAU, Sabour		Total n=60
		F	%	F	%	F	%	
1	Radio	1	5	2	10	0	0	3(5)
2	TV	4	20	3	15	4	20	11(18.33)
3	Print media	8	40	7	35	8	40	23(38.33)
4	Friends/Relatives	5	25	6	30	6	30	17(28.33)

The findings revealed that print media emerged as the major source of awareness regarding ICT tools among scientists of agricultural universities, accounting for 38.33 per cent of the respondents. This was followed by friends and relatives (28.33%), television (18.33%) and radio (5.00%). In BAU, Ranchi and BAU, Sabour, 40.00 per cent of the scientists reported print media as their major source of awareness, while in Dr. RPCAU, Pusa, 35.00 per cent of the scientists identified print media as their primary source of awareness.

The results indicate that scientists largely depend upon formal information sources such as journals, magazines, newsletters and other printed publications for obtaining information regarding

ICT tools. The comparatively higher reliance on print media may be attributed to the professional nature of scientists, who regularly consult scientific and technical publications for updating their knowledge. Friends and relatives also played an important role in creating awareness regarding ICT tools among the respondents.

Awareness Level of ICT Tools among Scientists

The awareness level of scientists regarding selected ICT tools was assessed and categorized into low, medium and high awareness levels. The distribution of respondents according to their awareness level is presented in Table 2.

Table 2: Awareness level of ICT tools by scientists of Agricultural Universities

Sl. No.	Awareness categories of scientists	Scientists						Total N=60
		BAU Ranchi (n=20)		DRPCA Pusa (n=20)		BAU Sabour (n=20)		
		F	%	F	%	F	%	
1	Low (<19)	1	(5)	3	(15)	1	(5)	5(8.33)
2	Medium (19-20)	11	(55)	10	(50)	12	(60)	33(55)
3	High (>20)	8	(40)	7	(35)	7	(35)	22(36.66)

The findings revealed that the majority of scientists (55.00%) belonged to the medium awareness category, followed by high awareness (36.66%) and low awareness (8.33%). Similar trends were observed across the selected agricultural universities. In BAU, Ranchi, 55.00 per cent of the scientists belonged to the medium awareness category, whereas 40.00 per cent possessed high awareness. In Dr. RPCAU, Pusa, half of the respondents (50.00%) exhibited medium awareness, while 35.00 per cent showed high awareness. Likewise, in BAU, Sabour, 60.00 per cent of the scientists belonged to the medium awareness category.

The predominance of medium awareness may be attributed to limited exposure to certain specialized ICT tools such as Mobile

Map Technology, SATCOM, IMCD and GIS. Although scientists regularly use common ICT tools, awareness regarding some advanced ICT applications remains comparatively moderate.

Source of Learning of ICT Tools among Scientists

The source of learning plays an important role in developing competency and confidence in the utilization of ICT tools. Scientists acquire knowledge regarding ICT tools through multiple channels such as self-learning, institutions, training programmes, camps, cyber cafés and friends or colleagues. The major source of learning of selected ICT tools among scientists is presented in Table 3.

Table 3: Distribution of source of learning of ICT tools through different sources by scientists

SI No	ICT tools	Source of learning					
		Self	Office/In-situation/college	Through training	Through summer/winter camps	Cyber café	Through friends/colleague
1	Internet /web services	10 (16.66)	22 (36.66)	3 (5)	5 (8.33)	3 (5)	15 (25)
2	Mobile Map technology	7 (11.66)	23 (38.33)	5 (8.33)	7 (11.66)	-	22 (36.66)
3	Digital story telling	11 (18.33)	40 (66.66)	7 (11.66)	10 (16.66)	-	35 (58.33)
4	community radio station	12 (20)	45 (75)	11 (18.33)	11 (18.33)	4 (6.66)	30 (50)
5	Video conferencing	10 (16.66)	35 (58.33)	13 (21.66)	12 (20)	3 (5)	32 (53.33)
6	Teleconferencing	7 (11.66)	35 (58.33)	7 (11.66)	7 (11.66)	4 (6.66)	22 (36.66)
7	Digital library	15 (25)	45 (75)	5 (8.33)	11 (18.33)	2 (3.33)	15 (25)
8	Expert system	17 (28.33)	37 (61.66)	5 (8.33)	13 (21.66)	7 (11.66)	22 (36.66)
9	Kiosks	13 (21.66)	35 (58.33)	3 (5)	12 (20)	2 (3.33)	30 (50)
10	Kisan call center	12 (20)	45 (75)	11 (18.33)	10 (16.66)	4 (6.66)	23 (38.33)
11	Satellite telecommunication (SATCOM)	11 (18.33)	45 (75)	10 (16.66)	7 (11.66)	5 (8.33)	35 (58.33)
12	Interactive Multimedia Compact Disc (IMCD)	10 (16.66)	40 (66.66)	5 (8.33)	12 (20)	3 (5)	26 (43.33)
13	Geographical information System (GIS)	12 (20)	35 (58.33)	4 (6.66)	5 (8.33)	5 (8.33)	27 (45)
14	Agricultural Apps	18 (30)	37 (61.66)	7 (11.66)	3 (5)	4 (6.66)	35 (58.33)

Note: 1. Figures in the parenthesis indicate percentage

2. Multiple responses are possible

The results revealed that Office/Institution/College emerged as the major source of learning for most of the selected ICT tools. Internet/Web Services were primarily learned through Office/Institution/College (36.66%), followed by friends and colleagues (25.00%). Mobile Map Technology was mainly learned through Office/Institution/College (38.33%), whereas Digital Storytelling (66.66%), Community Radio Station (75.00%), Video Conferencing (58.33%), Teleconferencing (58.33%), Digital Library (75.00%), Expert System (61.66%), Kiosks (58.33%), Kisan Call Centre (75.00%), Satellite Telecommunication (75.00%), Interactive Multimedia Compact Disc (66.66%), Geographical Information System (58.33%) and Agricultural Applications (61.66%) were predominantly learned through Office/Institution/College.

The findings clearly indicate that educational and research institutions play a crucial role in enhancing the knowledge and learning of ICT tools among scientists. Institutional exposure, availability of ICT infrastructure, academic requirements and professional responsibilities may have contributed to the dominant role of universities and research organizations as learning sources for ICT tools.

Conclusion

The study concluded that print media was the major source of awareness regarding ICT tools among scientists of agricultural universities, followed by friends and relatives and television. A majority of the scientists (55.00%) possessed a medium level of awareness regarding selected ICT tools, while 36.66 per cent exhibited a high level of awareness. Office/Institution/College emerged as the predominant source of learning for most ICT tools, indicating the significant role of educational and research

institutions in enhancing ICT knowledge among scientists. The findings emphasize the need for continuous exposure, institutional support and capacity-building programmes to improve awareness and learning of advanced ICT tools among scientists. Strengthening ICT infrastructure and organizing regular training programmes may further enhance the effective utilization of ICT tools in agricultural education, research and extension activities.

References

- Balaji V, Meera SN, Dixit S. ICT-enabled knowledge sharing in support of extension: Addressing the agrarian challenges of the developing world. SAT e-Journal. 2007;4(1):1-14.
- Chenoweth JE, Price JD. The science and technology of information age education. Educational Technology Review. 1997;8(2):45-52.
- Okauru IO. Information and communication technology and education development. International Journal of Educational Development. 2011;31(4):321-327.
- Meera SN, Jhamtani A, Rao DUM. Information and communication technology in agricultural development: A comparative analysis of three projects from India. Agricultural Research and Extension Network Paper No. 135. London: Overseas Development Institute; 2004.
- Mohan B. Utilization of information technology by agricultural professionals. Indian Journal of Extension Education. 2000;36(1&2):45-49.
- Oliver R. The role of ICT in higher education for the 21st century: ICT as a change agent for education. In: Proceedings of the Higher Education for the 21st Century

Conference; 2002; Perth, Australia: Curtin University of Technology.

7. Saravanan R. ICTs for agricultural extension: Global experiments, innovations and experiences. New Delhi: New India Publishing Agency; 2010.
8. Sharma V. Role of information and communication technology in higher education. International Journal of Research and Analytical Reviews. 2020;7(2):456-461.
9. UNESCO. Information and communication technologies in teacher education: A planning guide. Paris: UNESCO; 2002.