

Training Needs of Agricultural Extension Personnel of Kerala about Information and Communication Technologies

Helen S.,¹ Mridula N.,² and Smitha Baby³

1. Professor & Head, 2 & 3. Assistant Professors, Central Training Institute
Kerala Agricultural University, Mannuthy, Thrissur-680651
Corresponding author's email: helen.s@kau.in

ABSTRACT

An investigation was carried out to assess the training needs of the agricultural extension personnel of Kerala on Information and Communication Technologies (ICTs). Randomly selected 150 agricultural officers from the different districts of Kerala constituted the study sample. The data collected were analysed using techniques such as Training Need Index(TNI), 't' test and Spearman's correlation. The findings of the study revealed that most of the respondents were females, and more than two-third of the extension personnel (71.33%) had only medium level of innovation proneness. Almost three-fourth (74.66%) of the extension personnel did not receive training related to ICTs. With regard to the attitude towards ICTs, majority (86.66%) of the extension workers indicated favourable attitude. 'Sources of web based agricultural information' was perceived as the most important training need related to knowledge level, with a TNI of 84.66, followed by 'agricultural related websites (TNI=80) and basics of computer hardware and software (TNI=75.16). Regarding the skill level training needs, highest TNI was obtained for 'preparation of excel sheets and calculations' (TNI=76) followed by 'usage of agri portals' with an index of 74.66 and 'fertilizer recommendation systems' (TNI=74.16).

Key words: Information and Communication Technologies, Extension personnel, Agricultural Extension, Training Needs

Agricultural extension, in the current scenario of a rapidly changing world, has been recognized as an essential mechanism for delivering information and advice as an input for modern farming. Information and Communication Technologies (ICTs) in agriculture can focus on the enhancement of agricultural and rural development in many countries. ICTs in agriculture promote farming information and knowledge since they are essential for facilitating agricultural and rural development bringing about social and economic changes. There is a growing recognition that the farmers and members of rural communities need appropriate information and learning methods that are not being delivered as per their requirements. The agriculture sector can leverage the ICTs to disseminate the right information in the right place at the right time. The cost factor in traditional information dissemination and the difficulties in reaching the target audience have necessitated the introduction of ICTs in agriculture.

ICTs offer opportunities to reach more people and to carry out various functions within extension systems more effectively and efficiently. They can provide easy access to local or global information and knowledge, and are simple

channels for two-way communication. ICT has lots of scope in future extension strategies, especially at the awareness and interest stages of adoption process. The training and capacity building of huge manpower in ICT is a gigantic task, which needs to be focussed adequately. The scientific institutions like SAUs and ICAR Institutes have a great scope for updating technical competence of the SMSs and middle level extension functionaries in a systematic way (Sadamate, 2018).

Extension professionals who become the direct link between farmers and other actors in the extension of agricultural knowledge and information systems are equipped to make use of the ICTs to access expert knowledge or real time information that could help to facilitate the farmers' routine activities. It could be understood that in modern times ICTs are one of the strongest linkages between research and extension system and it becomes imperative to study the training needs of agricultural extension personnel regarding the use of ICTs in extension system. Therefore an attempt was made in this paper to assess the training needs of agricultural extension personnel of Kerala for ICT usage.

METHODOLOGY

Five districts of Kerala viz; Kannur, Wayanad, Thrissur, Thiruvananthapuram and Alappuzha were selected randomly for the study. From each district 30 agricultural officers were selected using simple random sampling method, constituting 150 respondents. A total of 15 ICT tools which have the potential to be used by the extension personnel for the purpose of extension activities were selected for the study. The ICT tools includes radio, television, land phone, mobile phone, computer, internet, e-mail, web based search engine, web based agriculture information portals, Decision Support System, video conferencing, agri-kiosks, e-newspaper, e-journals and e-agricultural magazines. A detailed pre-tested questionnaire was prepared to analyse the training needs of the officers

under study. The appropriate responses were collected from the respondents through mailed questionnaires. Likert Scale was used to measure innovation proneness and attitude towards ICTs. Statistical measures namely standard deviation, 't' test, and Spearman's rank order correlation were utilized for the data analysis using SPSS software.

Training Need Index: In order to assess the training needs, responses of the respondents were rated on five point continuum viz., mostly needed, more needed, needed, less needed and not needed by assigning a score of 5,4,3,2 and 1, respectively. The Training Need Index (TNI) was computed with the help of following formula (Patil and Kokate, 2011).

$$\text{Training Need Index (TNI)} = \frac{\text{Total scores obtained}}{\text{Total possible score}} \times 100$$

Profile characteristics of the extension personnel

Table 1
Distribution of respondents according to their profile characteristics (n=150)

SI No	Variable	Frequency	Percentage
1. Age			
i	Below 35 years	25	16.66
ii	35-45 years	73	48.66
iii	Above 45 years	52	36.66
2. Gender			
I	Male	51	34.00
ii	Female	99	66.00
3. Educational status			
i	Diploma	8	5.34
ii	Degree	4	2.66
iii	B.Sc. Agriculture	71	47.33
iv	M.Sc. Agriculture	62	41.34
v	PhD	5	3.33
4. Experience			
i	Less (<5.05 years)	33	22.00
ii	Medium(5.05-19.57 years)	93	62.00
iii	High (>19.57 years)	24	16.00
Mean: 12.31		SD: 7.26	

5. Trainings received on ICTs			
i	Yes	38	25.33
ii	No	112	74.66
6. Mass media utilization			
i	Low (<23.45)	25	16.66
ii	Medium(23.45-30.03)	92	61.33
iii	High (>30.03)	33	22
Mean: 26.74		SD: 3.29	
7. Innovation proneness			
i	Low (<19.42)	21	14
ii	Medium(19.42-23.38)	107	71.33
iii	High (>23.38)	22	14.66
Mean: 21.4		SD: 1.98	
8. Attitude towards ICTs			
i	Low (<16.77)	19	12.66
ii	Medium(16.77-19.23)	130	86.66
iii	High (>19.23)	1	0.66
Mean: 18		SD: 1.23	

From Table 1, it is observed that nearly half the percentage of the selected extension personnel (49%) belonged to the age group of 35-45 years and 34.66 per cent of them were above 45 years. Two-third (67%) of the extension personnel of Kerala were females and there remaining were males. Most of the extension personnel of Kerala had B.Sc. Agriculture (47%) and M.Sc. Agriculture (41%) degrees. The remaining extension personnel obtained diploma (5%), degree (3%) and PhD (3%).

Majority of the extension workers (62%) were having five to 20 years of experience in their profession. Only 22 per cent of the extension personnel were less experienced (less than five years) in their profession followed by 16 per cent highly experienced (more than 20 years) officers. About 75 per cent of the extension personnel did not attend any training programmes related to ICTs. Majority (61.33%) of the respondents were under medium level mass media utilization followed by

high (22%) and low level (16.66%) of mass media utilization. These findings derived support from the results of Dhaka and Chayal (2010).

High level of innovation proneness was noted among less than one-fourth of the extension personnel (14.66%). More than two-third of the extension personnel (71.33%) had medium level of innovation proneness. Majority of the extension workers (86.66%) had favourable attitude towards ICT tools. It can be derived that more than three-fourth (76%) of the extension personnel had adequate infrastructure and other resource facilities and the remaining 24 per cent had high level of infrastructure and other resource facilities. The findings are in conformity with the findings of Manty (2011).

Table 2
Distribution of respondents according to their Training Needs in using ICT tools (n=150)

Sl. No.	Training Need	Training Need Index
Knowledge level		
1	Availability of agricultural information from different sources	84.16
2	Agricultural related websites	80.00
3	Use of agricultural expert system	75.83
4	Basics of computer hardware and software	75.16
5	Understanding different market information techniques	73.16
6	General idea about the computer	62.33
7	Different Operating systems (Windows, Linux)	62.33
8	Installation and customization of software	60.33
Skill level		
1	Preparation of excel sheets and calculations	76.00
2	Usage of agri portals (eg, KAU agri InfoTech portal, TNAU portal...)	74.66
3	Fertilizer recommendation systems	74.16
4	Sending and checking e-mails	70.66
5	Audio/video sharing/webcasting (e.g., Flickr, Skype, YouTube)	70.33
6	Online market information providers	68.66
7	Email/instant messaging/Chat	68.33
8	Discussion groups (e.g. Google/Yahoo! Groups)	68.33
9	Decision support system usage and application	68.33
10	Use of videos captured by other agencies/ by self	67.33
11	To access e-journals	67.66
12	Social networking (e.g., Face book, Google+)	67.00
13	Preparation of good power point presentations	66.50
14	Online publishing of extension work	65.33
15	Group messaging through mobiles	62.00
16	Downloading and copying video clippings from internet	62.00
17	Making word documents of reports	61.00
18	Typing Malayalam reports	60.66
19	Script writing for radio	60.33
20	Making pdf documents of reports	58.83
21	Blogging (e.g., Twitter, weblogs)	54.16

Training needs of extension personnel in using ICTs

1. Knowledge level

From the Table 2 it is noted that the highest Training Need Index for gaining knowledge was indicated for 'availability of agricultural information from different sources' (84.16), 'agricultural related websites' (80) and 'basics of computer hardware and software' (75.16). Extension personnel might have realized the importance of gaining knowledge on latest technologies. The highest training need index was recorded for the 'availability of agricultural information from different sources' and 'agricultural related websites', may be because they lacked knowledge on the latest sources. In this context, the capacity building programmes for extension personnel in ICTs must include syllabus on the 'availability of agricultural information from different sources', agricultural related websites, 'application of agricultural expert system', 'techniques on understanding different market information' and 'basics of computer hardware and software'.

2. Skill level

It is also identified from the Table 2 that the highest Training Need Index was given to the 'preparation of excel sheets and calculations' (76) followed by 'usage of agri portals' (74.66) and 'fertilizer recommendation systems' (74.16). Least Training Need Index was recorded for the subject areas of skills on 'Blogging (e.g., Twitter, weblogs'

(54.16). Extension personnel might have felt that blogging did not have direct application in their day to day official duty.

The reason for the highest training need index towards the preparation of excel sheets and calculations might be that majority of the extension personnel were middle and old aged. These categories of extension personnel might not have received the exposure on the applications of spread sheet software during their graduation or during in-service training. But, in practical situation, they might have felt the need for the application of excel documents during the implementation of various schemes and maintaining the files related to financial dealings, supply of inputs to farmers, maintenance of stock and stores etc.

The probable reason behind the second largest training need index towards the use of agricultural portals might be from the fact that extension professionals who were in direct contact with the farming community had to be equipped and updated themselves on the latest technologies which were readily available in the agricultural portals maintained by Kerala Agricultural University and Tamil Nadu Agricultural University. In agriculture, cognitive skills to make better decisions, technical skills for handling various ICT tools and inter personal skills are required for exchange and dissemination of farm related information. (Bhattacharyya and Anirban, 2019).

Table 3
Comparative evaluation of training needs of extension personnel in using ICT tools and selected independent variables

Sl. No.	Independent variables	Mean Training Need Index	t value
i)	Gender		
a	Male	59.84	0.284 ^{NS}
b	Female	60.42	
ii)	Educational status		
a	B.Sc. Agriculture	59.94	0.016 ^{NS}
b	M.Sc. Agriculture	59.95	
iii)	Trainings received on ICTs		
a	Yes	60.00	-0.42 ^{NS}
b	No	59.73	

NS= Non Significant

Comparative evaluation of training needs of extension personnel on ICT tools and selected independent variables

The results of comparative analysis of the training needs of extension personnel on ICT tools and the selected independent variables are shown in Table 3. It showed that there was no significant difference among the extension personnel in terms of independent variables such as gender, educational status and even training received on ICTs and their training needs about ICT tools. The training needs of extension personnel on ICTs remained same irrespective of their gender and educational qualification as they received similar kind of exposure during their education as well as during their work situation.

It is interesting to note that there was no significant difference between the extension personnel who had already received training on ICTs and those who did not receive any training on ICTs. The probable reason might be that the extension personnel who had already received training on ICTs demanded further advanced training on ICTs. Therefore it is essential to categorise the extension personnel into two groups viz; those who need training on basics of ICTs and those who require training on advanced ICTs. Separate modules may be prepared for these two groups of extension personnel and training programmes may be organized separately for each group of extension personnel.

Table 4
Correlation between training needs of extension personnel and independent variables

Sl. No.	Independent variables	Correlation Coefficient
1	Age	0.196*
2	Educational status	0.005
3	Experience	0.152+
4	Innovation proneness	-0.012
5	Mass media utilization	0.018
6	Attitude towards ICTs	-0.060

*Significant at 5% level

+ Significant at 10% level

The results in Table 4 reveal that out of the selected independent variables, age and experience were positively and significantly related with training needs on ICT tools among the extension personnel with 'r' values of 0.196 at 5% level of significance and 0.152 at 10% level of significance respectively.

Age and experience were the important attributes influencing the utilization of ICT tools. It is true that the field of ICTs experience fast and frequent changes which urge users to readily accept and accommodate themselves to keep pace with the rapid changes. But the aged and experienced extension personnel neither received exposure on

ICTs during their graduation nor received in-service trainings, on the latest ICTs. Therefore the extension personnel who were aged and experienced demanded more training on ICTs with hands on experience.

CONCLUSION

To assess the training needs of agricultural extension personnel for ICT usage, data collection was done among 150 selected agricultural extension personnel of Kerala. The highest Training Need Index at the knowledge level in using ICTs by extension personnel was observed for 'availability of agricultural information from different sources', 'and agricultural related websites' 'basics of

computer hardware and software'.The highest Training Need Index at the skill level in using ICTs by extension personnel was noticed in the preparation of excels sheets and related calculations followed by visit to various agricultural portals and fertilizer recommendation and calculation software. The study indicated low level of operational knowledge of ICT tools and skill gap in using ICTs

among the extension personnel. Hence, systematic hands-on training on efficient operation of modern ICTs should be organised for the extension personnel of the Department of Agriculture Development and Farmers' Welfare of Kerala state.

Paper received on 10.06.20

Accepted on 28.08.20

REFERENCES

- Bhattacharyya Sangeeta and Anirban Mukherjee (2019). Importance of Skill Development in Indian Agriculture. ICT and Social Media for Skill Development in Agriculture (2019): 47-62 Editors: Om Prakash, Anirban Mukherjee and Pratibha Joshi. Today & Tomorrow's Printers and Publishers, New Delhi - 110 002, India Online: <https://www.researchgate.net/publication/333843371> [25.08.2020]
- Dhaka, B. L. and Chayal, K. (2010). Farmers experience with ICTs on transfer of technology in changing agri-rural environment. *Indian Res.J.Extn. Edu.*10(3):22-2
- Manty H. (2011). Access and use of ICT tools by extension personnel for transfer of technology in North Karnataka. *M.Sc Thesis (Unpublished)*. University of Agricultural Sciences, Dharwad. 111.
- Patil, S. S. and Kokate, K.D. (2011). Training need assessment of subject matter specialists of Krishi Vigyan Kendras. *Indian Res. J. of Extn. Edu.* 11 (1): 18-22.
- Sadamate V. V. (2018). Innovative Agricultural Extension Strategies / Reforms for Doubling Farmers' Income: An Emerging Indian Scenario. Int. Con.2018 on Doubling the Income of Farmers of SAARC Countries: Extension Strategies and Approaches. Kathmandu, Nepal. Lead Paper-5: 31-40.

.....