Asian Journal of Agricultural Extension, Economics & Sociology

39(10): 113-120, 2021; Article no.AJAEES.73010
ISSN: 2320-7027

Assessing the Information Communicatyion Technology (ICT) Knowledge Levels of the Moth Bean Growers in Churu District of Rajasthan, India

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/AJAEES/2021/v39i1030671
Editor(s):
(1) Dr. Ian McFarlane , University of Reading, UK.
Reviewers:
(1) Griffith Petrus Hadebe, South Africa.
(2) Mohamed Paul Ngegba, Njala University Campus, West Africa.
Complete Peer review History: https://www.sdiarticle4.com/review-history/73010

Original Research Article

Received 28 June 2021
Accepted 08 September 2021
Published 13 September 2021

ABSTRACT

Now a days new technologies introducing in agriculture and it reduce the role of man power. Globally, in this informative era, information, communication and technology (ICT) play vital roles in creating awareness about new innovations in every field of life, especially in agriculture. ICTs can make agriculture more innovative, attractive and productive occupation through providing latest useful information. In this study, ICTs is operationalized as the use of communication tools like, WhatsApp group, SMS, Telephone helpline to reach farmers. It saves money, time and efforts and reduces dependency on so many factors in the chain of extension. In this present study, majority of respondents were had medium level of knowledge regarding ICT.

Keywords: Agriculture; communication; helpline; ICT; knowledge and technology.

1. INTRODUCTION

India has a population of 1.33 billion, making it second to China in term of the world population. Seventy percent of the India population lives in the rural area and depends on agriculture for their livelihood. Amongst these, 70 per cent live in rural area and their main occupation is

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agriculture. The agricultural sector of Idea contributes to the GDP of the country by 17.7%. A sustainable livelihood of the farmers and the agricultural labours are very important in the overall human development of the country as it leads to improve agricultural productivity. It is therefore, very essential to update the India farmers on the latest and most relevant ICTs applications to their farms [1,2,3]. This so because these farmers need adequate Knowle and the skills necessary for improving their farm operations including use of new farm inputs, like equipment and tools, and the market information. Sustainable prosperity of the farmers and the agricultural labours holds the key for improving the overall human resource development scenario in the country [4,5-7]. There is a need to increase production and productivity of agriculture. Hence, the Indian farmers need to be updated with the latest knowledge about new techniques of farming, new cultivars, farm machinery, market, trade situation etc. ICT is flexibility in providing information related to the different farming practices in crops, livestock, processing commodities and enterprises., pricing related technologies for tracking global competition [8-11].

It also links research to extension, extension, the market and development professional and entrepreneurs Thus, the ICT play an increasingly important role in linking the research- extension-market continuum towards developing professional competencies and entrepreneurial capabilities among specialists and farming communities respectively [12-15]. Information and Communication Technology (ICT) is a global term that includes all technologies for the manipulation and communication of information encompassing: radio, television, computers, internet, cell phones, network hardware, satellite systems and so on, as well as various services and application associated with them. ICTs can directly support farmers access to timely and relevant information, as well as empower the creation and sharing of knowledge of the farming community itself. ICTs in agriculture have the potential to facilitate greater access to information that drive or support knowledge sharing. ICTs essentially facilitate the creation, management, storage, retrieval, and dissemination of any relevant data, knowledge, and information that may have been already been processed and adapted [16-19]. In this study ICTs is operationalzed as the use of communication tools like, WhatsApp group, Text Messages, Telephone helpline So, ICTs can make agriculture more remunerative and a fruitful occupation by providing latest information. It saves money, time and efforts and reduces dependency on so many factors in the chain of extension. Keeping in mind the above background, the present study entitled the knowledge level of farmers regarding Information Communication Technology (ICT) has been taken.

2. MATERIALS AND METHODS

The present study required a standardized Knowledge test to measure quantitatively the knowledge level of respondents about ICT. For selection of respondents, district wise list of registered farmers during the year 2015 to 2017 received from the KVK Sardarsahar, Churu and IKSL Jaipur. From the list so prepared total 10 ICT users were selected randomly for each ICT tool from each selected panchayat samity. This way 40 ICT users were selected from each panchayat samiti comprising a sample of 80 respondents from selected district To constitute other half of sample (i.e.80 ICT non-users) same number of farmers were selected from the selected panchayat samities. While selecting ICT non-user farmers, the personal characteristics of ICT users were taken into consideration.

3. RESULTS AND DISCUSSION

In this study ICT denotes four tools namely: WhatsApp, Message, KVK help line and IKSL help line. Based on the level of knowledge regarding ICT, respondents were categories in three categories *viz*; low, medium and high.

The data depicted in table of gram producers clearly shows that majority 65.00 per cent, 27.50 per cent and 07.50 per cent ICT users were belonged to medium, high and low category of knowledge regarding information communication technology (ICT) respectively. For non-users 57.50 per cent, 36.25 per cent and 06.25 per cent had medium, low and high knowledge regarding information communication technology (ICT) respectively. All moth bean growers had 61.26 per cent, 21.87 per cent and 16.87 per cent medium, low and high knowledge regarding information communication technology (ICT) respectively.

All growers 320 (160 gram and 160 moth bean) had medium knowledge regarding information communication technology (ICT) and ICT users of both crops (gram and moth bean) had more

knowledge regarding information communication technology (ICT) as compare to non-users. ICT users used these four ICT tools and got more valuable and up to date information about gram and moth technologies.

Conclusion: Knowledge level of ICT user and ICT non-user of gram and moth bean farmers regarding Information Communication Technology (ICT) Majority of the respondents were having medium level of knowledge about ICT.

3.1 Statement wise Knowledge Level of Moth Bean Farmers Regarding ICT

The main focus of study was on knowledge about important statements regarding ICT namely, ICT provide retrievable information, ICT provide information regarding crop production, protection, post harvest technologies and other allied activities, ICT provide marketing and storage information of agriculture, ICT is quick mode of communication, ICT provide accurate and timely weather information, ICT provide quick information regarding crop insurance and government programmes, ICT is easy to use, Minimum skill is required for the use of ICT, Communicate pictures through WhatsApp, share short films through WhatsApp, Use internet for getting agricultural information, Use internet for getting agricultural information, WhatsApp provide location sharing, documents sharing, voice notes and broadcast facilities, Text message can be share MMS facility, Knowledge about voice message and also tried to assess the knowledge of respondents regarding important statements of ICT. The statement - wise results have been presented in below table.

The knowledge level of ICT user and non-user respondents regarding information communication technology were calculated in terms of Mean Percent Score (MPS). Data shows that ICT user respondents were had very good knowledge compare to non-user respondents.

In case of ICT users (Above 85.00%) about ICT is quick mode of communication with 93.35 MPS, ICT provide information regarding crop production, protection, post harvest technologies and other allied activities with 85.00 MPS and Knowledge about voice message with 82.88 MPS awarded with first, second and third rank respectively with excellent knowledge about ICT. After that (Above 70.00%) had very good knowledge about ICT like, ICT provide accurate and timely weather information with 78.28 MPS, and Minimum skill is required for the use of ICT with 72.30 and occupied fourth and fifth rank respectively. After that good knowledge about ICT is easy to use, CT provide marketing and storage information of agriculture with, 61.76 and 61.36 MPS and got sixth and seventh rank respectively. Next had medium knowledge (Above 50.00%) about Communicate pictures through WhatsApp, share short films through WhatsApp, ICT provide retrievable Information ICT provide quick information regarding crop insurance and government programmes with 59.96, 58.39, 57.28 and 53.36 MPS and got eighth, ninth, tenth and eleventh rank respectively. Great concerned with Use internet for getting agricultural information, WhatsApp provide location sharing, documents sharing, voice notes and broadcast facilities, Text message can be share MMS facility with 39.63, 33.91 and 32.00 MPS and got twelfth, thirteenth and fourteenth rank respectively.

Similarly in case of ICT non-users of moth bean respondents were had excellent knowledge about ICT is quick mode of communication and ICT provide accurate and timely weather information with 91.52 and 88.64 MPS secured first and second rank respectively and had medium knowledge about ICT provide accurate and timely weather information, Knowledge about voice message and, ICT provide information regarding crop production, protection, post harvest technologies and other allied activities with 52.98, 52.78 and 51.36 MPS and got third, fourth and fifth rank respectively. Great concerned about ICT provide retrievable information , The great concerned about ICT provide retrievable information, Communicate pictures through WhatsApp, share short films through WhatsApp, ICT provide marketing and storage information of agriculture, ICT provide quick information regarding crop insurance and government programmes, ICT is easy to use, ICT provide marketing and storage information of agriculture, ICT provide quick information regarding crop insurance and government programmes , Use internet for getting agricultural information, WhatsApp provide location sharing, documents sharing, voice notes and broadcast facilities and Text message can be share MMS facility with 35.32, 34.25, 33.63, 32.61, 30.28, 28.91, 13.96, 11.69 and 08.33 MPS and got sixth, seventh, eighth, ninth, tenth, eleventh, twelfth, thirteenth and fourteenth rank respectively.

An efforts were also made to laid down the relationship between the ranks assigned by ICT users and non-users of moth bean grower respondents by enforcing rank correlation test. The value of rank correlation (r_s) was 0.9715 which was shows positive correlation, the significance level of r_s was tested through t test and it was indicated that calculated t value (12.3461) was higher than its tabulated value. In the case of similar ranks occupied by ICT users and non-users about knowledge of ICT shows that there was difference in magnitude of Mean Percent Score of ICT users and non- users respondents of moth bean.

Overall concluded that the ICT users respondents in the study area subservient more about ICT. The above conversation shows that the extent of knowledge in ICT user respondents was from 30.00 to 93.35 MPS. Whereas, in the case of non-users respondents the range of knowledge was observed to be from 08.33 to 91.52 MPS in all the aspects of ICT.

3.2 Statement wise Comparison between Moth Bean ICT Users and Non-users about Knowledge of ICT

In addition to study of level of knowledge of ICT users and non-users of moth bean respondents about the ICT. Subsequently efforts were made to study the difference between ICT users and non users respondents about ICT. Z test was applied to search out the variation in the knowledge of respondents. The findings are shows in below table.

The data reveled to knowledge level of both ICT users and non-users respondents of moth bean shows in the table indicated that calculated value of Z was higher than the its tabulated value at 1 percent level of significance in four statements of ICT knowledge. Based on the results, four statements of ICT knowledge *viz*, ICT provide information regarding crop production, protection, post harvest technologies and other allied activities, ICT provide marketing and storage information of agriculture, ICT is easy to use and Knowledge about voice message. ICT users and non-users respondents had wide distinction in their knowledge level. It means that ICT users respondents subservient more knowledge as compared to the non-users respondents in the above mentioned four statements as well as overall knowledge of ICT users and non- users respondents about ICT knowledge and seven statements significant at 5 per cent level of significant like, ICT provide accurate and timely weather information, ICT provide quick information regarding crop insurance and government programmes, Communicate pictures through WhatsApp, share short films through WhatsApp, WhatsApp provide location sharing, documents sharing, voice notes and broadcast facilities and Text message can be share MMS facility, In remaining three statements of ICT knowledge viz. ICT provide retrievable information ,ICT is quick mode of communication and Minimum skill is required for the use of ICT the value of z test was found non-significant. That means there is no difference between both categories of moth respondents related to the knowledge ICT.

Table 1. Distribution of respondents according to knowledge level of information communication technology

N=320

S. N	Level of Knowledge of ICT	Gram Growers						Moth Growers					
		ICT users (n=80)		ICT non-users (80)		TOTAL (n=160)		ICT users (n=80)		ICT non-users (n=80)		TOTAL (n=160)	
		F	%	F	%	F	%	F	%	F	%	F	%
1	Low (below 4.48)	07	08.75	32	40.00	39	24.38	06	07.5	29	36.25	35	21.87
2	Medium (from 4.48 to 12.12)	50	62.50	44	55.00	94	58.75	52	65.00	46	57.50	98	61.26
3	High (above 12.12)	23	28.75	04	05.00	27	16.87	22	27.50	05	06.25	27	16.87

Mean=8.30, S.D. =3.82

Table 2. Statement wise knowledge level of moth bean farmers regarding ICT

N=160

S.N.	Gram Practices	ICT users (n=80)		ICT non-users (n=80)		Overall (160)	
		MPS	Rank	MPS	Rank	MPS	Rank
1.	ICT provide retrievable information	57.28	X	35.32	VI	46.30	VII
2.	ICT provide information regarding crop production, protection, post harvest technologies and other allied activities	85.00	II	51.36	V	68.18	III
3.	ICT provide marketing and storage information of agriculture	61.36	VII	32.61	IX	46.99	VI
4.	ICT is quick mode of communication	93.35	I	91.52	I	92.44	I
5.	ICT provide accurate and timely weather information	78.29	IV	52.98	III	59.70	V
6.	ICT provide quick information regarding crop insurance and government programmes	53.36	XI	30.28	X	41.82	XI
7	ICT is easy to read	61.76	VI	28.91	XI	45.33	IX
8.	Minimum skill is required for the use of ICT	72.30	V	88.64	II	80.47	II
9.	Communicate pictures through WhatsApp	59.96	VIII	34.25	VII	46.01	VIII
10	Share short films through WhatsApp	58.39	IX	33.63	VIII	43.01	X
11	Use internet for getting agricultural information	39.63	XII	13.96	XII	26.80	XII
12	WhatsApp provide location sharing, documents sharing, voice notes and broadcast facilities	33.91	XIII	11.69	XIII	22.80	XIII
13	Text message can be share MMS facility	32.00	XIV	08.33	XIV	20.16	XIV
14	Knowledge about voice message	82.88	III	52.78	IV	67.83	IV
	Pooled	**62.10**		**40.44**		**50.56**	

$r_{s\,=}$ Rank Correlation
MPS= Mean Percent Score
Significant at 0.01% level of probability

$r_{s=}$ 0.9715
t =12.3461**

Table 3. Statement wise comparison between moth bean ICT users and non-users about knowledge of ICT

N=160

S. N.	Statements	ICT users (n=80)		ICT Non users (n=80)		Z Value
		Mean ±	S.D.	Mean ±	S.D.	
1.	ICT provide retrievable information	00.57	00.49	00.41	00.49	01.14^{NS}
2.	ICT provide information regarding crop production, protection, post harvest technologies and other allied activities	00.85	00.35	00.51	00.50	03.25**
3.	ICT provide marketing and storage information of agriculture	00.62	00.49	00.31	00.47	02.81**
4.	ICT is quick mode of communication	00.93	00.24	00.91	00.28	00.30^{NS}
5.	ICT provide accurate and timely weather information	00.78	00.41	00.52	00.50	02.39*
6.	ICT provide quick information regarding crop insurance and government programmes	00.53	00.50	00.30	00.46	02.16*
7.	ICT is easy to use	00.61	00.49	00.28	00.45	02.98**
8.	Minimum skill is required for the use of ICT	00.72	00.44	00.88	00.31	-01.65^{NS}
9.	Communicate pictures through WhatsApp	00.60	00.49	00.33	00.47	02.38*
10.	share short films through WhatsApp	00.58	0049	00.33	00.47	02.27*
11.	Use internet for getting agricultural information	00.40	00.49	00.13	00.34	02.56*
12.	WhatsApp provide location sharing, documents sharing, voice notes and broadcast facilities	00.33	00.47	00.11	00.31	02.25*
13.	Text message can be share MMS facility	00.33	00.47	00.10	00.30	02.40*
14.	Knowledge about voice message	00.82	00.38	00.52	00.50	02.85**
	Overall	**00.61**	**00.41**	**00.40**	**00.41**	**02.00**

*** Significance at 0.01 percent level of probability*
SD. = Standard Deviation
NS= Non Significant

4. CONCLUSION

The value of mean further indicates that ICT user respondents had higher knowledge than non-users respondents regarding ICT. This difference in the knowledge level of moth respondents might be due to the reason that ICT user respondents had more contact through different ICT tools with different sources and increase the knowledge. The significant difference between ICT users and non-users respondents about ICT and clearly indicated that there was positive effect of use of ICT tool on ICT user respondents with regard to enhanced the knowledge level of ICT in the study area.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Peer-review history:
The peer review history for this paper can be accessed here:
https://www.sdiarticle4.com/review-history/73010