Constraints Faced by Farmers by Utilizing Information and Communication Technology (ICT) Tools in Agricultural Production

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Abstract

The present investigation is conducted in Tonk district of the Rajasthan state during 2021-2022 with the objective to study "Attitude of farmers towards use of information and communication technology tools on agricultural production and marketing". Three talukas namely Newai, Malpura and Deoli from Tonk district and five villages from each talukas were selected randomly for the study. From each selected village, ten farmers were selected randomly on the basis of awareness about ICT tools to acquire farm knowledge in this way total 150 respondents were considered for the study. An Ex-post-facto research design was followed for the study. Data was gathered using a well-structured interview schedule created with the study's objectives in mind. The collected data was analysed, classified and tabulated. Statistical tools such as frequency, percentage, mean, standard deviation, and coefficient correlation were used to interpret findings and draw conclusions. Among the 150 selected farmers various constraints faced by respondents while using the ICT tools and techniques were, Lack of awareness of proper functioning about ICT tools (69.33%), Lack of training of the farmers towards use of different ICT tools (68.00%), Inadequate internet supply (67.33%), Lack of uninterrupted power supply (66.00%), Difficulty in understanding the content language of ICT gadgets (66.67%), Lack of local language in handling and understanding of software (66.67%), Poor mobile/internet connectivity in rural areas (66.00%) and beyound this some other constraints also faced by farmers.

Introduction

Information and Communication Technology (ICT) can revolutionize Indian farming sector and can benefit all farmers including small landholders. Agriculture is the most important sector with the majority of the rural population in developing countries depending on it. The traditional approaches of agriculture being adapted, has numerous challenges in terms of production, marketing, profit etc.

In developing countries, ICT in agriculture provides farmers with vital information pertaining to sowing, crop protection, and improving soil fertility that enables them to improve agricultural productivity. Weather-related advisories and alerts help them prepare for sporadic events such as floods, drought, or even pest and disease outbreaks, thus preventing significant crop loss. ICTs also provide them with a reliable channel to seek the best market price in the local markets and other daily updates for their produce to ensure they receive fair returns. The increasing penetration of budget-friendly mobile phones and the internet is an added advantage for farmers living in remote areas in several emerging nations. Access to inexpensive mobile devices has now made it easier for them to acquire additional information and services that enable informed decision-making.

The challenges of the traditional agriculture are addressed significantly by using Information and Communication Technologies (ICT) that play an important role in uplifting the livelihoods of the rural small landholder farmers. ICT helps in growing demand for new approaches. It also helps in empowering the rural people by providing better access to natural resources, improved agricultural technologies, effective production strategies, markets, banking and financial services etc. to know the awareness of farmers on ICT and its impact on marketing and economic

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conditions in agriculture with the objectives to identify constraints faced by respondents for use of ICT tools in agriculture production.

Research Methodology

The present study is conducted in Tonk district of the Rajasthan state during 2021-2022. Krishi Vigyan Kendra, Tonk is implementing various programmes including use of ICT in agriculture since long to the benefit of the farming community since long. There are eight talukas in Tonk district out of which three talukas namely, Newai, Malpura and Deoli selected for present study. From each of the selected taluka, five villages were selected randomly. Thus fifteen villages were selected for the present study. From each selected village, ten respondents were selected randomly, those having mobile phones with internet facilities and engaged in agricultural operations were selected, in this way total one hundred fifty respondents were considered for the present study. "Ex-post-facto" research approach was used for study. Data was gathered using a well-structured interview schedule created with the study's objectives in mind. The collected data was analysed, classified and tabulated. Statistical tools such as frequency, percentage, mean, standard deviation, and coefficient correlation were used to interpret findings and draw conclusions.

1. Age

Most of the respondents *i.e.* (67.33) more than half were belonged to middle age group, followed by young group *i.e.* 17.33 percent and remaining 15.33 percent respondents belonged to old age group.

2. Education

Most of the respondents *i.e.* 24.00% of the respondents were educated up-to middle school level, while 16.00 percent of the respondents educated up-to primary school level followed by 12.67 percent of respondents were able to read and write only. Very few respondents were illiterate *i.e.* 9.33 percent.

3. Occupation

Maximum no of the respondents *i.e.* 24.00% of the respondents were educated up-to middle school level, while 16.00 percent of the respondents educated up-to primary school level followed by 12.67 percent of respondents were able to read and write only. Very few respondents were illiterate *i.e.* 9.33 percent.

4. Family size

Most of the respondents *i.e.* 40.00% belonging to large sized family, followed by small sized family

Table 1: Relationship between profile of respondents and constraints faced by respondents towards use of ICT in agricultural production and marketing

1. Age		
Age group	Frequency	Percentage
Young (Up to 28 years)	26	17.33
Middle (29 to 49 years)	101	67.33
Old (50 years & above)	23	15.33
2. Education		
Level of Education	Frequency	Percentage
Illiterate	14	9.33
Can read and write only	19	12.67
Primary school level	24	16.00
Middle school level	36	24.00
High school level	33	22
Graduate	24	16
Other	0	0
3. Occupation		
Type of Occupation	Frequency	Percentage
Farming	52	34.67
Dairy Farming	20	13.33
Goat Farming	9	6
Business	27	18.00
Service	28	18.67
Other	14	9.33
4. Family Size		
Family Size	Frequency	Percentage
Small (up to 4 members)	50	33.33
Medium (5 to 7 members)	40	26.67
Large (above 7 members)	60	40.00
5. Farming experience		
Farming experience	Frequency	Percentage
Low (up to 8 years)	31	20.67
Medium (9 to 30 years)	42	28.00
High (above 30 years)	77	51.33
6. Utility of ICT in extension		
Utility of ICT tools	Frequency	Percentage
Occasionally	16	10.67
Once in a week	19	12.67
Daily	115	76.67
7. Methods of learning ICT skills		
Methods of learning ICT skills	Frequency	Percentage
Low	71	47.33
Medium	53	35.33
High	26	17.33
8. Sources of awareness about ICT		
Source of awareness	Frequency	Percentage
Low (upto 6)	9	6.00
Medium (7-10)	116	77.33
High (Above 10)	25	16.67
9. Knowledge		
Level of Knowledge	Frequency	Percentage
Low (up to 4)	50	33.33
Medium (5 to 7)	91	60.67
High (7 & above)	9	6

10. Attitude of farmers towards ICT tools
Attitude of farmers towards ICT tools

	Frequency	Percentage
Less favourable (up to 60)	22	14.67
Moderately favourable (61 - 75)	111	74.00
Highly favourable (above 75)	17	11.33

33.33 percent and then medium sized family *i.e.* 26.67 percent.

5. Farming experience

Most of the respondents having high level of farming experience (51.33%), followed by medium level *i.e.* 28.00 percent and remaining respondents had low level of farming experience *i.e.* 20.67 percent.

6. Utility of ICT in extension

Most of the respondents utilize ICT daily (76.77%), followed by utility once in a week *i.e.* 12.67 percent and then 10.67 percent respondents utilized occasionally.

7. Methods of learning ICT skills

Most of the respondents get awareness about new technologies from e-learning, followed by workshops *i.e.* 35.33 percent and very few respondents get from conferences *i.e.* 17.33 percent.

8. Sources of awareness about ICT

Most of the farmers (77.33%) had medium source of awareness about ICT, followed by high level of awareness *i.e.* 16.67 percent and very few respondents near about 6.00 percent had low level of awareness about ICT.

9. Knowledge

Most of the respondents had medium level 60.67% of knowledge about ICT tools followed by low level of knowledge *i.e.* 33.33 percent and then high level of knowledge about 6.00 percent.

10. Attitude of farmers towards ICT tools

Majority of the respondents 74 % had moderately favourable attitude towards use of ICT tools in agriculture production followed by less favourable 14.67 % and highly favourable 11.33 % attitude towards use of ICT tools in agriculture production by the respondents.

Various constraints faced by respondents while using the ICT tools and techniques were, Lack of awareness of proper functioning about ICT tools (69.33%), Lack of training of the farmers towards use of different ICT tools (68.00%), Inadequate internet supply (67.33%), Lack of uninterrupted power supply (66.00%), Difficulty in understanding the content language of ICT gadgets (66.67%), Lack of local language in handling and understanding of software (66.67%), Poor mobile/internet connectivity in rural areas (66.00%) the above findings was in line with

Table 2: Constraints faced by farmers towards use of ICT

S. No.	Constraints	F	%	Rank
A) Socio-economic Constraints				
1	High cost of ICT tools like computers,smart phones etc.	88	58.67	i!c!
2	Lack of sufficient skills in usage of ICT tools by rural communities	90	60.00	k!'!
3	Poor economic condition of the rural people	101	67.33	c!
4	Lack of belief on e-sources	86	57.33	i!d!
5	Difficulty in understanding the content language of ICT gadgets	100	66.67	d!
B) Infrastructural Constraints				
1	Poor mobile/internet connectivity in rural areas	99	66.00	f!
2	Lack of awareness of proper functioning about ICT tools.	104	69.33	'!
3	Inadequate infrastructural facilities for maintenance of ICT tools	94	62.67	k!
4	Inadequate internet supply	101	67.33	b!
5	Lack of uninterrupted power supply	99	66.00	h!
C) Technical Constraints				
1	Lack of training of the farmers towards use of different ICT tools	102	68.00	a!
2	Untrained operators	96	64.00	j!
3	Lack of local language in handling and understanding of software	100	66.67	e!
4	Faulty communication between seller/operators and farmers about use of ICT tools	98	65.33	i!
5	Sometimes possibility of misleading information transmitted through internet	99	66.00	g!

Rebekka and Sravanan (2015) , Jamdhade (2015) and Mittal and Mehar (2016).

Nowadays some other problems beyond the common one also faced by respondents like Sometimes possibility of misleading information transmitted through internet (66.00%), Lack of uninterrupted power supply (66.00%), Faulty communication between seller/operators and farmers about use of ICT tools (65.33%), Untrained operators (64.00%), Inadequate infrastructural facilities for maintenance of ICT tools (62.67%), Lack of sufficient skills in usage of ICT tools by rural communities (60.00%), High cost of ICT tools like computers,smart phones etc (58.67%), Lack of belief on e-sources (57.33%). also, the above findings was in accordance with Naik (2018).

Conclusion

The major constraints faced by the farmers were lack of awareness of proper functioning about ICT tools, lack of training of the farmers towards use of different ICT tools, inadequate internet supply, lack of uninterrupted power supply, difficulty in understanding the content language of ICT gadgets, poor mobile/internet connectivity in rural areas. To overcome the constraints the major suggestions provided by farmers were provide uninterrupted power supply in rural area, agriculture marketing related information should be provide in local language, affordable cost of ICT gadgets like smartphone, computer *etc, pro*vide free of cost internet / wifi service in rural area. According to study, the major constraints were lack of training on uses, inadequate internet supply, difficulty in understanding the language of electronic gadget and so on, that's why it is necessary to arrange the training programme and also supply of uninterrupted power supply.

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