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Information and communication technology utilization of farmers in erstwhile Karimnagar district

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Abstract

The present study was conducted in Jagtial, Karimnagar, Peddapalli and Rajanna Sircilla districts of Telangana state which were formerly part of erstwhile Karimnagar district to study the profile characteristics of ICT utilizing farmers. A total of 120 respondents were selected for the study. Ex-post-facto research design was used for the present study. It was found that among respondents majority of them fell under middle age category (57.50%), had high school education (26.66%), have semi medium land holding (35.00%), one third (35.00%) had 10 - 20 years of farming experience, majority (37.50%) had 15- 21 years of experience in usage of ICT tools, majority of the farmers (48.33%) had 1.0 to 2.5 lakh annual income, majority of the farmers (60.00%) possessed 3-5 ICT tools, had medium extension contact (70.00%), medium level of social participation (65.00%) and medium level of mass media exposure (55.00%)

Keywords: ICT tools, ICT services, respondents and profile characteristics

1. Introduction

Agriculture Extension has long been at the forefront of providing the farming community with the necessary information to raise productivity as well as their standard of living. Farmers face numerous dangerous and difficult decisions every day. Growing agricultural productivity among smallholders in developing nations remains significantly hampered by the availability, effectiveness, and affordability of agricultural information (Muriithi *et al*. 2009) [8]. One of the key components that made farm extension more engaging and practicable was information and communication technology (ICT).

A timely and trustworthy source of agricultural information is like magic for farmers and the agricultural industry. Computers, mobile phones, and television are just a few of the communication equipment and services available today to serve our farmers. Agriculture will benefit from the introduction of ICT, which will ensure that the necessary information is distributed at the appropriate moment.

ICT is transforming every aspect of human life; therefore, adopting it can significantly improve the lives of farmers. The construction of Kisan call centre, the Gyandoot project, the Bhoomi project, the Village knowledge centres, and AGMARKNET are just a few examples of ICT models in Indian agriculture that have significantly changed the way services are delivered in that sector. According to a Hindu survey from December 1, 2015, India is ranked 131st out of 167 countries in the ICT Global Index (IDI) for 2015 [3].

In agriculture, ICT significantly boosts productivity and efficiency. Now a days, farmers are using weather forecasting tools to make informed decisions, precision agriculture technologies like GPS and drones to optimize resource use, and farm management software to streamline operations. Mobile apps provide access to critical information and advisory services, while e-commerce platforms help farmers reach new markets directly. IoT devices, such as soil sensors and automated irrigation systems, further enhance efficiency by enabling real-time data collection and automated responses. These technologies collectively support smarter, more sustainable farming practices.

2. Materials and Methods

The study was carried out in the year 2023 in Telangana state. Ex-post facto research design was adopted for the study. The study was conducted in erstwhile Karimnagar district of Telangana, with 120 respondents selected randomly. Four districts - Jagtial, Rajanna Sircilla, Peddapalli and Karimnagar that were formerly part of the Karimnagar district were purposively chosen for the study since the researcher belongs to this region. One mandal from each district was randomly selected. Based on that Metpally mandal from Jagtial district, Vemulawada mandal from Rajanna Sircilla district, Julapalle mandal from Peddapalli district and Karimnagar mandal from Karimnagar district were selected. Three villages were selected randomly from each mandal, thus constituting twelve villages for the study. From the selected villages, 10 farmers were selected from each twelve village randomly thus, constituting 120 respondents for the study.

3. Results and Discussion

3.1 Age: From Table 1, it was evident that more than half of the farmers were in the middle age group (57.50%), followed by the young age group (27.50%) and the old age group (15.00%). This might be because individuals in the middle age group are more likely to communicate and have experience in a variety of professions. An individual's behavior can be changed by age through exposure to a variety of settings. The above findings were in consonance with the findings of Mukerjee (2021) [7].

Table 1: Distribution of the respondents based on their profile characteristics.

S. No.	Characteristics	Respondents (n=120)	
		Frequency	Percentage
1. Age			
	Young age (up to 35 years)	33	27.50
	Middle age (36-55 years)	69	57.50
	Old age (Above 55 years)	18	15.00
2. Education			
	Illiterate	6	5.00
	Functionally literate	7	5.83
	Primary school (1^{st} - 5^{th})	9	7.50
	Middle school (5^{th} - 7^{th})	12	10.00
	High school (7^{th} - 10^{th})	32	26.67
	Intermediate	21	17.50
	Graduation	24	20.00
	Post - Graduation	9	7.50
3. Landholding			
	Marginal (below 1 ha)	27	22.50
	Small (1-2 ha)	36	30.00
	Semi-medium (2-4 ha)	42	35.00
	Medium (4-10 ha)	12	10.00
	Large (above 10 ha)	3	2.50
4. Farming Experience			
	Up to 10 years	27	22.50
	10- 20 years	42	35.00
	21-30 years	30	25.00
	31-40 years	15	12.50
	41 years and above	6	5.00
5. Experience in usage of ICT tools			
	Up to 7 years	18	15.00
	7-14 years	42	35.00
	15-21 years	45	37.50
	Above 21 years	15	12.50
6. Annual Income			
	Up to 1.0 lakh	40	33.33
	1.0 to 2.5 lakh	58	48.33
	Above 2.5 lakh	22	18.33
7. Possession of ICT tools			
	a. ICT devices		
	At least 1 tool	6	5.00
	2 – 3 tools	39	32.50
	3 – 5 tools	72	60.00
	More than 5 tools	3	2.50
	b. ICT services		
	At least 1 service	9	7.50
	2- 3 services	60	50.00
	3-4 services	36	30.00
	More than 5 services	15	12.50
8. Extension contact			
	Low (< 12)	15	12.50
	Medium (12 – 24)	84	70.00
	High (> 24)	21	17.50
9. Social Participation			
	Low	27	22.50
	Medium	78	65.00
	High	15	12.50
10. Mass media exposure			
	Low	33	27.50
	Medium	66	55.00
	High	21	17.50

3.2 Education: From Table 1, it was observed that majority of the farmers (26.67%) had high school education followed by graduation (20.00%), intermediate (17.5%), middle school (10.00%), post- graduation (7.50%), primary school (7.50%), functionally literate (5.83), and illiterate (5.00%). This could be due to a lack of enthusiasm in learning, a lack of higher education options in their communities, or the farmers' difficult financial circumstances, which force them to work from an early age. The above findings were in accordance with Meena *et al* (2022) [6].

3.3 Landholding: It could be observed from Table 1, that nearly one third of the farmers (35.00%) had semi-medium land holding, followed by small (30.00%), marginal (22.5%), medium (10.00%) and large (2.50%). The conversion of agricultural fields into real estate, industry, and the ongoing population growth could be the cause, as well as the generational division of land holdings. The above findings were in consonance with the results of Kumar and Rathode (2013) [4].

3.4 Farming experience: The results illustrated in Table 1 show that more than one third farmers (35.00%) had 10- 20 years of farming experience, followed by 21-30 years (25.00%), up to 10 years (22.50%), 31-40 years (12.50%) and 41 years and above (5.00%). This could be because the bulk of farmers were in the middle-aged and older age range, meaning that younger people did not choose farming as a career and that their parents were the only ones who continued it. The above findings were in accordance with Ghosh *et al* (2022) [2].

3.5 Experience in usage of ICT tools: The results illustrated in Table 1 show that most of the farmers (37.50%) had 15- 21 years of experience in usage of ICT tools, followed by 7-14 years (35.00%), up to 7 years (15.00%) and 21 years and above (12.50%). This could be because farmers are likely to live close to cities and KVK, therefore majority of them are familiar with using the new ICT tools. The findings were similar to the findings of Bahubalendra (2020) [1].

3.6 Annual income: The data represented in Table 1, indicate that majority of the farmers (48.33%) had 1.0 to 2.5 lakh annual income, followed by one third respondents (33.33%) had up to 1.0 lakh and (18.33%) respondents had above 2.5 lakh annual income. The findings were in line with Senthil Kumar *et al*. (2019) [9]

3.7 Possession of ICT tools: From Table 1 it was evident that more than half of the farmers (60.00%) possessed 3-5 ICT tools, followed by 2-3 tools (32.50%), at least 1 tool (5.00%), and more than 5 tools (2.50%). One of the likely causes of this particular trend could be because majority of the farmers have large incomes, which enables them to buy new ICT tools. From ICT services it was evident that half of the respondents (50.00%) had 2-3 ICT services, followed by 3-5 services (30.00%), more than 5 services (12.5%) and at least 1 service (7.50%).

3.8 Extension Contact: From Table 1, it was observed that majority (70.00%) of the respondents had medium extension contact followed by high (17.50%) and low (12.5%). The reason might be because the majority of farmers seek assistance from extension agents in resolving issues and also because they were interested in taking part in extension activities to obtain up-to-date information and learn about ICT tools from the agents. The above findings were in accordance with Verma *et al* (2016) [12].

3.9 Social Participation: Humans cannot exist without belonging to any social organization in the community, as they are social elements. Table 1 reveals that more than half of the respondents (65.00%) had a medium level of social participation, continued by low participation (22.50%) and high (12.50%). The above findings were in accordance with Tomar *et al* (2016) [11].

3.10 Mass media exposure: Table 1 it was observed that more than half of the respondents (55.00%) had medium level of mass media exposure, followed by low (27.50%) and high (17.50%) had high level of mass media exposure. The findings were similar to the findings of Smaranika Patidar (2011) [10].

4. Conclusion

The study concluded that a significant proportion of the respondents come under medium category for most of the profile characteristics like age, mass media exposure, extension contact and social participation. Using ICT to improve knowledge and communication processes has become a key component of agriculture extension, with the aim of boosting rural and agricultural growth.

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