Extension Journal

International Journal of Agriculture Extension and Social Development

Perceived effectiveness of KVK WhatsApp agro advisory services by Telangana farmers

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DOI: https://www.doi.org/10.33545/26180723.2025.v8.i5e.1933

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Abstract

The adoption of social media in Indian agriculture and its extension services has accelerated in recent years. Platforms like WhatsApp are not only facilitating direct connections between farmers and digital marketplaces but are also fostering critical networks of support, knowledge sharing, and timely information dissemination. Given India's Agro-ecological diversity, location-specific crop practices are common. However, many farmers still lack timely access to relevant information. The emergence of ICT tools, especially mobile-based platforms like WhatsApp, has significantly transformed the way farmers seek and receive agricultural information. This study, conducted in 2023–24, examined the effectiveness of WhatsApp-based Agro-advisory services and profiled 120 respondent farmers from three different Agro-climatic zones in Telangana. An ex-post-facto research design was employed. The socio-economic and psychological characteristics studied included age, education, landholding size, extension participation, innovativeness, achievement and economic motivation, information-seeking behavior, decision-making ability, and digital literacy. Results revealed that most respondents were middle-aged (53.33%) with small landholdings (41.66%). Educational attainment was highest at the secondary level (30.00%), while 17.50% were illiterate. Extension participation and other behavioral characteristics such as innovativeness (50.00% medium), achievement motivation (57.50% medium), economic motivation (51.70% medium), information-seeking behavior (45.83% medium), decision-making ability (44.10% medium), and digital literacy (48.33% medium) followed similar trends. These findings underline the increasing integration of digital tools into farming practices and highlight the role of WhatsApp as a promising platform for technology dissemination.

Keywords: WhatsApp, social media, Agro-advisory, ICT, digital literacy, agricultural extension

Introduction

Agriculture remains the backbone of the Indian economy, employing a large proportion of the population. With the aim of enhancing agricultural productivity and efficiency, there is an urgent need to introduce modern information technologies at the grassroots level. Information and Communication Technology (ICT) has the potential to disseminate agricultural innovations rapidly, affordably, and effectively.

The proliferation of smartphones and internet access in rural India has enabled farmers to access timely and relevant information, breaking traditional barriers of communication. Among various ICT tools, social media—particularly WhatsApp—has emerged as a dynamic platform that engages not only farmers but also rural youth and families, amplifying the impact of extension activities. Unlike conventional extension methods, ICT-based services offer real-time, location-specific, and actionable insights, thus empowering farmers to make better decisions.

WhatsApp enables farmers to interact with peers, seek expert advice, identify crop/livestock diseases, and access market information in real-time. As its user base continues

to grow, it is essential to explore the opportunities, benefits, and challenges associated with its use in agricultural extension. With this context, the present study was conceptualized.

Extension organizations such as ATMA, SAUs, KVKs, and research centers have increasingly adopted WhatsApp as an efficient tool for agro-advisory services. In Telangana, 16 Krishi Vigyan Kendras (KVKs) function under various administrative setups, including universities and NGOs. These KVKs actively disseminate agricultural technologies via digital means—websites, radio, television, mobile apps, SMS, and WhatsApp—alongside grassroots initiatives involving SHGs and farmers' clubs.

Methodology

The study was conducted in Telangana state during the agricultural year 2023–24. An ex-post-facto research design was adopted, as the intervention (use of WhatsApp-based agro-advisory services) had already occurred. Telangana, characterized by diverse agro-climatic zones, was chosen purposefully due to its active use of digital extension methods.

Three agro-climatic zones were selected for the study
1. Northern Telangana Zone
2. Central Telangana Zone
3. Southern Telangana Zone

From each zone, two districts were selected based on their agricultural prominence and active participation in WhatsApp groups facilitated by Krishi Vigyan Kendras (KVKs). From each district, two villages were randomly selected, making a total of 12 villages. A sample of 120 farmers (10 from each village) was selected using stratified random sampling. All respondents were active members of WhatsApp agro-advisory groups managed by KVKs or other agricultural extension organizations.

A structured interview schedule was developed and pre-tested to collect data. The schedule comprised items related to socio-economic and psychological variables, including:

- Age
- Education
- Landholding size
- Extension contacts
- Innovativeness
- Achievement and economic motivation
- Information-seeking behaviour
- Decision-making ability
- Digital literacy

Data were analyzed using descriptive statistics such as frequency, percentage, and mean scores to interpret the socio-economic profile and usage patterns of WhatsApp-based services.

Results and Discussion
In this study, 10 socio-personal characters of Respondents was studied. The findings are outlined below with appropriate categorizations (Table 1).

1. Age
Age was operationalized as the chronological age of the respondent in terms of the total number of years completed at the time of conducting the study. The results presented in Table 1 revealed that the majority (53.33%) of respondents belong to the middle age group, followed by 29.17 per cent in the old age group and 17.50 per cent in the young age group. This trend could be attributed to the fact that middle-aged and older farmers in rural areas are more likely to depend on agriculture as their primary livelihood, while younger individuals often seek other, more lucrative and less risky job opportunities outside agriculture. These findings align with those of Singh who observed a similar trend in rural farming populations.

2. Education
Education was operationally defined as the extent of formal educational level possessed by respondents at the time of investigation. The data in Table 1 indicated that 30.00 per cent of respondents had completed secondary schooling, followed by 25.00 per cent with Primary Schooling, 18.83 per cent who were intermediate, and the rest with various levels of schooling or higher education. The significant number of respondent farmers were educated up to

secondary education because of meagre resources and high facilities of higher education at village level and those with only primary education points to socio-economic barriers, such as the prioritization of agricultural work over formal schooling and the rural location of these communities. The relatively low levels of higher education (graduate and postgraduate) further suggest limited access to educational institutions in these areas.

3. Land Holding
Land Holding was operationally defined as the number of standard acres of land that the respondents owned at the time of conducting the study. The findings illustrated in Table 1 revealed that that 41.66 per cent of respondents had small land holdings, followed by 35.00 per cent with medium, 13.34 per cent with semi medium, 5.83 per cent with marginal and 4.17 per cent with large land holdings. The high percentage of small and medium landholders is likely due to the fragmentation of ancestral land from generation to generation.

4. Extension Participation
Extension Participation was operationalised as the extent of involvement by the respondents in different extension activities by different extension agencies. The data in Table 1 revealed that the majority 45.83 per cent of respondents had Medium extension contact, followed by 29.17 per cent respondents had high extension contact and 25.00 per cent of respondents had low extension contact. This extension participation highlights medium extension participation among whatsapp respondents is observed, indicating that users frequently engage with extension services through the platform and some respondents could be attributed to their proactive approach in seeking advice from higher officials.

5. Innovativeness
Innovativeness was operationalized as the degree to which an individual was earlier in adoption of technology. The data in Table 1 showed that 50.00 per cent of respondents had medium innovativeness, followed by 30.83 per cent having high innovativeness and 22.50 per cent of respondents of low innovativeness. This medium innovativeness can be attributed due to its ease of use and accessibility, ultimately empowering them to adopt new technologies and practices.

6. Achievement Motivation
Achievement motivation was defined as extent to which farmers pursue excellence to experience a sense of personal accomplishment. Table 1 illustrated observed that majority (57.50%) of the respondents had medium level of achievement followed by low (21.66%) and high (20.83%) achievement motivation respectively. The medium level of achieve motivation among 57.50 per cent of farmers suggests that many are desired to accomplish goals and achieve success but may be constrained by external factors such as perceived irrelevance, technical issues, and trust about credibility of the information. This could be due to factors like limited literacy, low access to information sources, or a traditional mindset that prefers sticking to familiar practices.

7. Economic motivation

Economic motivation was operationally defined as the extent to which farmers pursue excellence to experience a sense of personal accomplishment. Table 1 revealed that the majority (51.70%) of respondents have medium level of economic motivation, followed with high (39.20%) and low (9.20%) levels of economic motivation. The medium level distribution of economic motivation likely reflects that many are motivated by the potential to increase their income through efficient farming practices and cost effective management but may be constrained by external factors such as limited financial impact. Those with low levels might feel overwhelmed by the challenges of adopting new practices or inadequate support, technical issues and irrelevant information. High levels of economic motivation could stem from strong trust in supportive programmes being conducted that promote the use of technology for agricultural improvements and active involvement in disseminating information to others.

8. Information seeking behavior

Information seeking behaviour was operationalized as the degree to which the farmers maintained contact with the researchers and extension personnel of different organizations like agricultural and allied sectors. Table 1 showed that majority (48.33%) of the respondents had medium Information seeking behaviour followed by low (28.33%) and high (25.84%) Information seeking behaviour respectively. From the above results, it could be concluded that majority of the respondents had medium Information seeking behaviour .This trend could be because most of the farmers are proactive in seeking out new agricultural information, a significant portion may lack inadequate access to technology can hinder information seeking efforts. The lower levels of information-seeking behavior among others may also stem from a trust issues, time constraints and due to their lower education level in understanding the benefit from the modern farming practices and language barrier may also be a reason to understand the complexity of new information.

9. Decision making ability

Decision making ability was operationally defined as extension activities attended by the respondents organized by the scientists and extension officials. Table 1 revealed that respondents were distributed across levels of Decision making ability, with (44.10%) at a medium level, (40.00%) at a low level, and (15.9%) at a high levels of Decision making ability. From the above results, it could be concluded that the medium decision-making ability among 44.10 per cent farmers use WhatsApp for agricultural information, significantly embarrassing their decision making abilities. Farmers with lower decision-making ability may be due to limited digital literacy, limited interaction with experts, dependence on peer inputs and resources, while those with higher ability may be because of access to real time information, knowledge sharing, networking and benefit from more robust support networks. The findings were in accordance with those of Pawar (2023) [6].

10. Digital Literacy

Digital literacy was operationally defined as the degree to which farmers strive for excellence in order to feel a sense of personal achievement. Table 1 depicted that majority (48.33%) of the respondents had medium level of Digital literacy followed by the respondents with high level (29.16%) and low level (22.50%) of digital literacy respectively.

The medium digital literacy among 48.33 per cent farmers exhibit using WhatsApp for agricultural information may have recently gained access to smartphones and the internet. Farmers with lower digital literacy may be due to limited exposure to digital tools, lack of training, language and literacy barriers, infrastructure barriers while those with higher digital literacy may be because of access to real time information, increased smartphone penetration working and benefit from more robust support networks.

Table 1: Distribution of the respondents according to their profile characteristics

S. No.	Profile characteristics	Respondents (n=120)	
		Frequency	Percentage
1	**Age (Years)**		
	Young age (Up to 35 years)	21	17.50
	Middle age (35-50 years)	64	53.33
	Old age (Above 50 years)	35	29.17
2	**Education**		
	Illiterate	21	17.5
	Primary schooling (upto 5th class)	30	25
	Secondary schooling (upto 10th class)	36	30
	Intermediate	22	18.33
	Under graduation	11	9.16
	Post graduation	2	1.66
	Others	0	0
3	**Land holding**		
	Marginal farmers (< 1 ha)	7	5.83
	Small farmers (1-2 ha)	50	41.66
	Semi Medium farmers (2-4 ha)	42	35
	Medium farmers (4-10 ha)	16	13.34
	Large farmers (>10ha)	5	4.17
4	**Extension Participation**		
	Low	30	25
	Medium	55	45.83
	High	35	29.17
5	**Innovativenes**		
	Low	27	22.50
	Medium	60	50
	High	33	30.83
6	**Achievement motivation**		
	Low	26	21.66
	Medium	69	57.50
	High	25	20.83
7	**Economic motivation**		
	Low	11	9.2
	Medium	62	51.7
	High	47	39.2
8	**Information Seeking Behavior**		
	Low	34	28.33
	Medium	55	45.83
	High	31	25.84
9	**Decision Making Ability**		
	Low	48	40
	Medium	53	44.1
	High	19	15.9
10	**Digital Literacy**		
	Low	35	29.16
	Medium	58	48.33
	High	27	22.5

Conclusion

The study highlights the increasing role of WhatsApp as a powerful tool in agricultural extension, especially in disseminating timely, location-specific, and relevant information. The socio-economic profile of farmers indicates a growing acceptance and integration of digital tools into daily agricultural practices. The medium levels of innovativeness, motivation, decision-making ability, and digital literacy among farmers suggest a strong foundation for scaling up WhatsApp-based agro-advisory models.

For enhanced impact, it is recommended that agricultural extension services

- Focus on building digital literacy among farmers, especially those with limited formal education.
- Encourage the formation of more WhatsApp groups moderated by trained extension personnel.
- Develop and circulate content in local languages, using multimedia formats to aid understanding.
- Integrate WhatsApp groups with other ICT tools for a multi-channel approach.

Further research may explore the impact of such digital platforms on actual farming outcomes (yield, income, etc.) and assess gender-based differences in access and usage.

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