

Original Research Article

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Constraints and Suggestions for the Effective Utilization of Social Media among Farmers in Tiruchirappalli District: An Analysis

P. Sanjith Kumar^{1*}, S. Poonguzhali², S. Priyadharshini² and T. Sudharshana²

¹Department of Agricultural Extension, Imayam Institute of Agriculture and Technology, Thuraiyur, India

²Imayam Institute of Agriculture and Technology, Thuraiyur, India

**Corresponding author*

ABSTRACT

Information and Communication Technologies (ICTs) have significantly transformed the way information is created, shared and accessed across various sectors, including agriculture. Among these technologies, social media platforms have emerged as effective communication tools, enabling the rapid dissemination of agricultural information and facilitating interaction among farmers, researchers, extension personnel and other stakeholders. In recent years, the adoption of social media for agricultural communication has been increased considerably due to its accessibility, cost-effectiveness and ability to provide real-time information. However, several barriers continue to limit its effective utilization among farming communities. The present study was undertaken to identify the major constraints faced by farmers in using social media for accessing agricultural information and to document their suggestions for improving its effectiveness as a communication medium. Primary data were collected from 120 farmers selected from different blocks of Tiruchirappalli District, Tamil Nadu, using a structured interview schedule. The findings revealed that the major constraints reported by the respondents were a lack of awareness of innovative agricultural technologies (78.33 per cent), the high cost of internet data packages (76.67 per cent), and an irregular electricity supply (70.83 per cent), which adversely affected their access to social media platforms. These challenges hinder the timely acquisition and utilization of agricultural information, thereby reducing the potential benefits of digital communication technologies. The study also documented farmers' suggestions for enhancing the effective utilization of social media, including improving digital literacy, ensuring affordable internet connectivity, strengthening rural infrastructure, and providing reliable electricity supply. The findings offer valuable insights for policymakers, agricultural extension agencies and information providers in designing appropriate interventions to promote the effective use of social media for agricultural information dissemination and to improve farmers' access to timely, accurate and relevant agricultural knowledge.

Keywords

Social Media,
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Introduction

Agriculture is one of the most important sectors of the

Indian economy, providing employment and livelihood opportunities to a large proportion of the rural population. The success of agricultural production

largely depends on farmers' access to timely, accurate and reliable information regarding improved crop production technologies, pest and disease management, weather forecasts, market prices, input availability and government support programmes. Traditionally, agricultural information has been disseminated through extension personnel, Krishi Vigyan Kendras (KVKs), agricultural universities, radio, television, newspapers and farmer meetings. Although these conventional extension methods continue to play an important role, they are often constrained by limited outreach, inadequate manpower and delays in information delivery. Consequently, there is an increasing need for innovative communication approaches that can rapidly reach a large number of farmers with relevant and location-specific information.

The rapid development of Information and Communication Technologies (ICTs) is transforming agricultural communication by enabling faster and more efficient dissemination of knowledge. Among various ICT tools, social media has emerged as a powerful and interactive platform that facilitates the exchange of information among farmers, researchers, extension professionals, input dealers, policymakers and other stakeholders. Popular social media applications such as WhatsApp, YouTube, Facebook, Telegram and Instagram are increasingly being used to share agricultural advisories, demonstration videos, success stories, weather updates, pest and disease alerts, market intelligence and government scheme information. Unlike traditional communication channels, social media supports two-way communication, allowing farmers to seek expert advice, exchange experiences with fellow farmers and participate actively in agricultural learning networks. These features have made social media an important component of modern agricultural extension systems.

In recent years, the adoption of smartphones and affordable internet services is accelerating the use of social media among rural communities in India. Farmers increasingly rely on digital platforms to obtain instant agricultural information and to make informed decisions regarding crop production, input management and marketing. Social media also enables farmers to access multimedia content, including photographs, videos, voice messages and live demonstrations, which enhances their understanding of complex agricultural practices. Furthermore, these platforms encourage peer-to-peer learning, strengthen farmer networks and reduce the

communication gap between research institutions and farming communities. As a result, social media has become an effective complement to the conventional agricultural extension system.

Despite these advantages, the effective utilization of social media among farmers is influenced by several socio-economic, technological and infrastructural constraints. Limited digital literacy, inadequate awareness of innovative technologies, poor internet connectivity, high internet data costs, irregular electricity supply, language barriers and the spread of unverified or misleading information often restrict farmers from fully benefiting from digital communication platforms. In addition, variations in educational level, age, farming experience and access to digital devices significantly influence the adoption and effective use of social media for agricultural purposes. These challenges highlight the need to identify the specific constraints experienced by farmers and to formulate suitable strategies for improving digital agricultural communication.

Tamil Nadu is one of the progressive agricultural states in India and Tiruchirappalli District has a diverse farming community engaged in the cultivation of paddy, banana, sugarcane, maize, pulses, vegetables and horticultural crops. The increasing penetration of smartphones and internet connectivity has created new opportunities for farmers in the district to access agricultural information through social media. However, the extent to which farmers effectively utilize these platforms and the challenges they encounter remain important research questions. Understanding these issues is essential for strengthening digital extension services and enhancing farmers access to reliable agricultural knowledge.

The present study was undertaken to analyse the major constraints faced by farmers in the effective utilization of social media for agricultural information dissemination in Tiruchirappalli District and to document their suggestions for improving its use. The findings of the study are expected to provide useful insights for policymakers, agricultural extension agencies, research institutions and digital service providers in designing farmer-centric communication strategies. The study will also contribute to the development of more inclusive, accessible and effective social media-based extension programmes that can support sustainable agricultural development and improve farmers' decision-making capabilities.

Materials and Methods

The present study was conducted in Tiruchirappalli District of Tamil Nadu. Three blocks, namely Musiri, Mannachanallur, and Thuraiyur, were purposively selected based on their agricultural importance and the prevalence of farming activities. From these selected blocks, six villages were chosen for the investigation. Thiruthalaiyur and Kottathur villages were selected from Musiri Block, Ayyampalayam and Valaiyur from Mannachanallur Block, and Nagalapuram and Pagalavadi from Thuraiyur Block. Out of the 102 village panchayats in the selected blocks, these six villages were selected because of their predominantly agrarian nature, making them suitable for assessing the utilization of social media among farmers.

Since it was difficult to identify farmers possessing smartphones and actively using social media through conventional sampling procedures, the snowball sampling technique was adopted. Snowball sampling is a non-probability sampling method that is particularly useful for identifying respondents who possess specific characteristics or belong to hard-to-identify populations. In this approach, the initial respondents referred other eligible participants, thereby facilitating the identification of additional respondents with similar characteristics. In addition to snowball sampling, secondary sources of information were utilized to identify eligible respondents. Agricultural Officers, officials of the Agricultural Technology Management Agency (ATMA), members of Farmers' Clubs, and conveners of farmers' discussion groups were consulted to prepare a comprehensive list of farmers who owned smartphones and regularly used social media for agricultural purposes. This approach ensured the inclusion of respondents who actively utilized digital communication platforms for accessing agricultural information. Based on the availability of respondents and considering the time available for the study, a sample of 120 farmers was selected from the six villages. The selected respondents constituted the final sample for the investigation.

To identify the constraints faced by farmers in utilizing social media for agricultural information, an exhaustive list of possible constraints was prepared through an extensive review of literature, expert consultation, and preliminary discussions with farmers. A structured interview schedule was developed, and respondents were asked to indicate whether they experienced each constraint using a dichotomous response pattern (Yes or

No). Responses were quantified by assigning a score of 2 for "Yes" and 1 for "No." In addition, respondents were encouraged to report any other constraints not included in the schedule.

The collected data were coded, tabulated and analyzed using frequency and percentage analysis to determine the prevalence of each constraint. Based on the percentage of responses, the constraints were ranked in descending order to identify the major barriers affecting the effective utilization of social media for agricultural information dissemination. To obtain suggestions for improving the utilization of social media in agriculture, respondents were asked open-ended questions. Their suggestions were recorded, classified into appropriate categories, and analyzed using frequency and percentage. The suggestions were subsequently ranked according to their frequency of occurrence to identify the most important recommendations for enhancing the effectiveness of social media as a source of agricultural information.

Results and Discussion

In the context of social media, constraints refer to the limitations or barriers that influence users' ability to access, utilize and benefit from social media platforms effectively. The constraints experienced by the respondents in using social media for agricultural purposes were identified and analyzed to understand the factors limiting its effective utilization. These Constraints are presented below in the table 1.

From the Table 1 revealed that lack of awareness of innovative technologies (78.33 per cent) was the most prominent constraint reported by the respondents. This finding indicates that many farmers have limited knowledge of emerging digital technologies and are not fully aware of the potential benefits of social media for accessing agricultural information. Furthermore, farmers' reluctance to adopt new technologies due to fear of failure, inadequate technical skills, and dependence on conventional farming practices further restricted the effective utilization of social media. The high cost of internet data packages (76.67 per cent) was identified as the second most important constraint. Most farmers have limited and uncertain incomes, making expenditure on internet services an additional financial burden after meeting essential household and agricultural expenses. Consequently, regular access to social media platforms becomes difficult, thereby limiting the timely acquisition of agricultural information. Another major constraint

reported by the respondents was the irregular supply of electricity (70.83 per cent). Frequent power interruptions prevent farmers from charging their smartphones and other digital devices, resulting in limited and interrupted access to social media platforms. This adversely affects the timely receipt and dissemination of agricultural information, particularly during critical stages of crop production.

A considerable proportion of respondents (68.33 per cent) reported poor network connectivity and inadequate mobile coverage as significant barriers. Weak internet signals, low network speed, and frequent connectivity interruptions reduced the effectiveness of digital communication and discouraged farmers from consistently using social media as a source of agricultural information. More than half of the respondents (57.50 per cent) identified the non-availability of laptops or tablets as a constraint. Although smartphones are widely used, laptops and tablets provide better access to online training programmes, technical publications, educational videos, webinars, and other digital learning resources. The absence of these devices limits farmers' ability to effectively utilize digital agricultural information. The lack of Local Area Network (LAN) facilities (43.33 per cent) was another important constraint, indicating inadequate broadband infrastructure in rural areas. As a result, respondents largely depended on mobile internet services, which are comparatively more expensive and often less reliable than broadband connections.

Further, technical difficulties in using social media applications (38.33 per cent) also affected the respondents. Problems such as application errors, software malfunctions, device compatibility issues, and limited technical support reduced the convenience and efficiency of using social media for agricultural communication. Among the comparatively less reported constraints, the lack of a suitable environment for using digital devices (26.66 per cent) affected farmers who did not have a convenient place to access online information. Similarly, the limitations of older smartphone models (24.16 per cent) restricted the installation and use of advanced applications and updated social media features. In addition, the high cost of broadband or cable internet services (20.00 per cent) discouraged respondents from subscribing to fixed internet connections, thereby increasing their dependence on mobile data services.

Multiple responses

As shown in Table 2, the most frequently suggested measure by the respondents was to improve mobile network connectivity in rural areas, as reported by 98 respondents (81.67 per cent). Farmers emphasized that poor internet connectivity remains one of the major barriers to accessing timely agricultural information through social media. They felt that better network coverage would enable them to receive market prices, weather forecasts, government scheme updates and expert advisories without interruption, thereby improving the effectiveness of social media as an agricultural information source.

The second most important suggestion was to conduct training programmes on the use of social media for agricultural information, expressed by 92 respondents (76.67 per cent). The respondents believed that regular training programmes would improve their digital literacy and help them use different social media platforms more effectively. They also felt that such training would enhance their ability to identify reliable information, communicate with agricultural experts and participate in online farming communities.

A total of 87 respondents (72.50 per cent) suggested increasing awareness about reliable agricultural information available on social media. The respondents expressed concern over misinformation and unverified content circulating on digital platforms. They believed that awareness programmes would help farmers identify authentic information sources and make better farming decisions based on accurate recommendations.

Further, 83 respondents (69.17 per cent) recommended ensuring timely updates and verified agricultural information through social media platforms. According to the respondents, timely dissemination of reliable information regarding weather conditions, pest and disease management, market prices and improved farming practices would support informed decision-making and reduce production risks.

Another important suggestion offered by 78 respondents (65.00 per cent) was to provide agricultural content in regional (local) languages.

Table.1 Constraints Faced by Farmers in the Effective Utilization of Social Media

S. No	Constraints	Frequency	Percentage (%)	Rank
1	High cost of internet data packages	92	76.67	II
2	Improper distribution of electricity	85	70.83	III
3	Lack of awareness about innovation technology	94	78.33	I
4	Non availability of laptops/ tablets	69	57.5	V
5	Problem of network and its coverage	82	68.33	IV
6	Unavailability of LAN (Local Area Network)	52	43.33	VI
7	Technical glitches in usage of social media	46	38.33	VII
8	Lack of suitable places for using devices	32	26.66	VIII
9	High cost of cable data network	24	20.00	X
10	Limitation of old model of a mobile set	29	24.16	IX

Table.2 Suggestion expressed by farmers effective utilization of social media platforms.

S. No	Suggestions	Frequency	Per cent	Rank
1	Improve mobile network connectivity in rural areas	98	81.67	I
2	Conduct training on the use of social media for agricultural information	92	76.67	II
3	Increase awareness about reliable agricultural information on social media	87	72.50	III
4	Ensure timely updates and verified agricultural information	83	69.17	IV
5	Provide agricultural content in regional (local) languages	78	65.00	V
6	Develop user-friendly mobile applications and digital platforms for farmers	74	61.67	VI

The respondents felt that information presented in their native language would be easier to understand, improve knowledge retention and encourage greater utilization of social media for agricultural purposes.

Finally, 74 respondents (61.67 per cent) suggested developing user-friendly mobile applications and digital platforms for farmers. The respondents believed that simple interfaces, easy navigation and locally relevant content would make digital platforms more accessible, particularly for farmers with limited digital skills, thereby increasing the adoption and effective utilization of social media.

Overall, the findings indicate that strengthening digital infrastructure, improving digital literacy, ensuring the

availability of reliable and timely agricultural information, promoting regional language content and developing user-friendly digital platforms are essential measures for enhancing the effective utilization of social media among farmers. These suggestions provide useful guidance for extension agencies, policymakers and other stakeholders in designing appropriate interventions to promote digital agriculture and improve farmers' access to agricultural information.

The study concludes that social media has emerged as an important platform for disseminating agricultural information among farmers in Tiruchirappalli District. However, its effective utilization is constrained by several technological, infrastructural, economic, and knowledge-related factors. The major constraints

identified were a lack of awareness of innovative technologies, the high cost of internet data packages, irregular electricity supply, poor network connectivity, and limited access to digital devices. These barriers restrict farmers from accessing timely and reliable agricultural information through social media. The respondents suggested improving digital literacy, providing affordable internet services, strengthening rural telecommunication infrastructure, ensuring an uninterrupted electricity supply, and offering timely technical support through verified social media platforms. Addressing these constraints will significantly enhance the effectiveness of social media as a digital extension tool, enabling faster dissemination of agricultural information, improving farmers' decision-making, and contributing to sustainable agricultural development. The findings are consistent with earlier studies on digital agricultural extension, which emphasize the importance of strengthening digital infrastructure and farmers' ICT competencies for effective technology adoption.

Author Contributions

P. Sanjith Kumar: Investigation, formal analysis, writing—original draft. S. Poonguzhali: Validation, methodology, writing—reviewing. S. Priyadharshini:—Formal analysis, writing—review and editing. T. Sudharshana: Investigation, writing—reviewing.

Data Availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethical Approval Not applicable.

Consent to Participate Not applicable.

Consent to Publish Not applicable.

Conflict of Interest The authors declare no competing interests.

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