

International Journal of Agriculture Extension and Social Development

Volume 8; Issue 10; October 2025; Page No. 565-568

Received: 17-08-2025
Accepted: 19-09-2025

Indexed Journal
Peer Reviewed Journal

Usage of IoT and social media among farming community in Theni District

¹Sree Hari Kumar S, ²Jebapreetha D, ¹Agathiya S, ¹Azhaki M, ¹Bhuvaneshwari S, ¹Rithis Babu B and ¹Sanjeev SD

¹B.Sc., (Hons.) Agriculture, Krishna College of Agriculture and Technology, (Affiliated to Tamil Nadu Agricultural University), Madurai, Tamil Nadu, India

²Associate Professor, Department of Agricultural Extension, Krishna College of Agriculture and Technology, (Affiliated to Tamil Nadu Agricultural University), Madurai, Tamil Nadu, India

DOI: <https://www.doi.org/10.33545/26180723.2025.v8.i10h.2584>

Corresponding Author: Sree Hari Kumar S

Abstract

Agriculture in India is experiencing rapid digital transformation through the integration of Internet of Things (IoT) and social media. IoT technologies, including soil sensors, automated irrigation, and weather monitoring devices, provide real-time data for precision farming, while social media platforms facilitate peer-to-peer learning, knowledge dissemination, and access to market information. This study investigates the awareness, adoption, and utilization of IoT and social media among farmers in Theni district, Tamil Nadu. A purposive sampling method was employed to select 125 respondents across four blocks, and data were collected through structured interviews. Findings reveal that the majority of farmers demonstrate medium levels of awareness, knowledge, and usage of IoT and social media.

Keywords: IoT, social media, farming community, Theni district, precision farming

Introduction

Agriculture is the basis for food security and survival. Mankind living on the globe depends majorly on the agri based crops for their survival (Upendra RS *et al*, 2020) ^[1]. It is the backbone of the Indian economy. It is undergoing a profound transformation driven by the integration of digital technologies. Agriculture in India is rapidly embracing the digital age, with technologies like Internet of Things (IoT) and social media platforms in transforming traditional farming systems. The convergence of these tools is not only improving agricultural productivity and sustainability but also empowering farmers with real-time information, community networking, and access to market intelligence. Among these, the Internet of Things (IoT) and social media have emerged as powerful tools with the potential to revolutionize traditional farming practices. IoT enables farmers to monitor and manage agricultural operations through smart devices and sensors, while social media facilitates the rapid exchange of information, knowledge, and best practices among farming community. They offer opportunities for enhancing productivity, efficiency, and sustainability.

IoT is a network of Internet enabled objects, together with web services that interact with these objects (Zhao JC *et al*, 2010) ^[2]. Social media is a form of electronic communication through which users create online communities to share information, ideas, personal messages and other content (Ghosh MK *et al*, 2021) ^[3].

Theni District, located in the southern part of Tamil Nadu, is known for its diverse agricultural activities ranging from cultivation of food crops, cash crops and spices. In recent

years, there has been a growing interest in the use of digital tools to enhance productivity, improve decision-making, and bridge the information gap among farmers in the region with increasing smartphone penetration and expanding internet connectivity in the region, farmers are gradually adopting digital tools to enhance their farming practices. However, the extent of adoption, awareness levels, and perceived benefits of IoT and social media tools vary widely across different sections of the farming community.

Theni District, located in the southern part of Tamil Nadu, is known for its diverse agricultural activities ranging from cultivation of food crops, cash crops and spices. In recent years, there has been a growing interest in the use of digital tools to enhance productivity, improve decision-making, and bridge the information gap among farmers in the region with increasing smartphone penetration and expanding internet connectivity in the region, farmers are gradually adopting digital tools to enhance their farming practices. However, the extent of adoption, awareness levels, and perceived benefits of IoT and social media tools vary widely across different sections of the farming community.

Thus, this study analyzes the usage of IoT and social media among farmers in Theni district with the following objectives

1. To assess awareness and adoption of IoT and social media.
2. To study the utilization patterns of IoT and social media in agriculture.

Methodology

The study was undertaken in Theni district of Tamil Nadu.

Purposive sampling method was employed to select the blocks. Among the eight blocks, Bodinayakkanur, Cumbum, Periyakulam and Uthamapalayam blocks were purposively selected. Villages were selected by random sampling method and 125 respondents were purposively selected for the study. Pre-tested and well-structured interview schedule was used for data collection. The data was collected by personal interview during the months of May - July 2025. The collected data was analyzed using the statistical technique percentage analysis.

Results and Discussion

1. Profile of the Respondents

The socio-economic profile of respondents influences their access to, and adoption of social media and IoT technologies. Understanding these characteristics provides context for interpreting subsequent findings.

- The results showed that 37.6% of respondents were young (below 35 years), 32% were middle-aged (36-45 years), and 30.4% were above 45 years. This indicates that younger farmers, who generally have greater exposure to technology, form the largest segment of users.
- Education plays a key role in technology adoption. The majority (18.4%) had completed secondary or higher secondary education, followed by collegiate education and illiterate respondents (17.6% each). Only 14.4% had studied up to middle school.
- Half of the respondents (50.4%) were primarily engaged in agriculture, while the remaining 49.6% combined farming with non-agricultural occupations.
- Most farmers (64.8%) were small holders, while 35.2% were marginal farmers. No large-scale farmers were recorded, reflecting land fragmentation over time.
- Over half (56%) of respondents fell into the medium income category (₹1.11-3.50 lakhs), while 31.2% had low income and 12.8% had high income.
- Peri-urban farmers dominated the sample (60.8%), followed by rural (32%) and urban farmers (7.2%).

2. IoT Awareness and Adoption

IoT awareness and adoption specifies how far the farmers have awareness and how well they have adopted the IoT in farming and tells about their usage, convenience and shortcomings in adopting it. The results are depicted in the following table 1.

Table 1: Distribution of the respondents based on their IoT awareness and adoption (n=125)

S. No.	Category	Number	Per cent
1	Low awareness and adoption (3-4)	40	32
2	Medium awareness and adoption (5-6)	73	58.4
3	High awareness and adoption (>6)	12	9.6
Total		125	100

According to the table 1 majority (58.4%) of the farmers has medium level of IoT awareness and adoption followed by (32.00%) and (9.60%) has low and high level of awareness and adoption of IoT. Majority (90.40%) has low to medium level of awareness and adoption of IoT, as this is an emerging technology, farmers are not much aware about it.

3. Social Media Usage

Social media usage refers to how social media is used by the people and their advantages at farming level and how convenient is it to them. The results relevant to the social usage of farmers is depicted in the table 2

Table 2: Distribution of the respondents based on their social media usage

S. No	Category	Number	Per cent
1	Low usage of social media (<6)	34	27.2
2	Medium usage of social media (6-7)	70	56
3	High usage of social media (>7)	21	16.8
Total		125	100

It could be inferred from the above table that majority (56%) of the people falls under medium usage of social media followed by 27.2% with low usage followed by 16.8% with high usage of social media. This may be because people use social media for entertainment rather than information on agriculture.

4. IoT Device Usage

This depicts the usage, difficulties, how efficient is it to use IoT devices such as drones, sensors etc., The results thus gathered from the survey are depicted in the table 3 below.

Table 3: Distribution of the respondents based on their IoT device usage (n=125)

S. No.	Category	Number	Per cent
1	Low IoT usage (<6)	46	36.8
2	Medium IoT usages (6-7)	67	53.6
3	High IoT usage (>7)	12	9.6
Total		125	100

The table clearly indicates that the majority of farmers (53.6%) fall under the medium IoT usage category, indicating a moderate usage level—these users are likely experimenting with or selectively using IoT technologies. About 36.8% of the respondents reported low usage, suggesting limited access, awareness, or technical challenges in adopting IoT tools. Only 9.6% are in the high usage category, showing that a small segment of the farming community is highly engaged with IoT technologies. While IoT adoption is growing among farmers, the majority are still in the early to mid-stages of usage.

5. Initiation of Usage on Social Media Apps

It refers to the start or beginning point of using social media applications. It involves the procedure by which the respondents first become active on these platforms, setting up accounts and getting access to features. The distribution of respondents based on the initiation of usage on WhatsApp, YouTube and Facebook are explained in the Table 4.

Table 4: Distribution of the respondents based on their usage on social media apps (n=125)

S. No	Category	WhatsApp		YouTube		Facebook	
		No.	%	No.	%	No.	%
1	Within the last six months	4	3.2	4	3.2	4	3.2
2	Within a year	8	6.4	7	5.6	10	8
3	Between 2 to 4 years	66	52.8	60	48	54	43.2
4	More than 4 years	47	37.6	54	43.2	57	45.6
	Total	125	100	125	100	125	100

Most farmers began using these platforms between 2 to 4 years ago, with 52.8% for WhatsApp, 48% for YouTube, and 43.2% for Facebook. This indicates a significant growth in digital engagement in the recent past.

A considerable portion of respondents (37.6% to 45.6%) have been using these platforms for more than 4 years, showing that for many, social media has become a well-integrated part of their routine and communication practices. Only a small number of users (3.2% to 8%) have joined in the last year or six months, suggesting that while adoption continues, the majority of the farming community had already embraced these platforms earlier.

Social media usage among farmers is well-established, with most having adopted platforms like WhatsApp, YouTube, and Facebook 2 or more years ago. This indicates a mature stage of adoption, highlighting the potential for using these platforms effectively for agricultural knowledge sharing, and community engagement.

6. Frequency of using social media apps

The frequency of social media use describes how frequently users interact with social media platforms to find out information, ask questions and take part in conversations. Based on individual choices, interests and demands, the frequency can vary greatly. While some respondents use social media daily, others may use only sometimes. The distribution of respondents based on the frequency of using WhatsApp, YouTube and Facebook are explained in the Table 5.

Table 5: Distribution of the respondents based on their frequency of using social media apps (n=125)

S. No.	Category	WhatsApp		YouTube		Facebook	
		No.	%	No.	%	No.	%
1	Daily	53	42.4	42	33.6	48	38.4
2	Bi-weekly	37	29.6	42	33.6	41	32.8
3	Weekly	35	28	41	32.8	23	18.4
4	Monthly	0	0	0	0	9	7.2
5	More than a month/Rarely used	0	0	0	0	4	3.2
Total		125	100	125	100	125	100

The table discloses that WhatsApp is the most frequently used platform among 42.4% of the respondents daily, followed by 29.6% bi-weekly and 28% weekly. This shows its dominance as a real-time communication tool in farming communities. YouTube is also widely used by Equal proportions of farmers daily (33.6%) and bi-weekly (33.6%), while 32.8% use it weekly.

This balanced distribution suggests that farmers turn to YouTube frequently for educational or how-to do content. Facebook shows a more varied usage pattern that 38.4% use it daily, and 32.8% use bi-weekly. However, 7.2% use it monthly, and 3.2% use it rarely, making it the platform with the most occasional users.

Social media usage among farmers is active and frequent, especially on WhatsApp, which is the most consistently used platform. YouTube is a close second, likely due to its video-based educational value. Facebook, while still widely used, shows a slightly more sporadic usage pattern, possibly reflecting differences in content relevance or user preferences. Overall, this indicates strong potential for

digital outreach and engagement through these platforms in agricultural contexts.

7. Time spent per day

Time spent per day refers the daily amount of time a respondent spends interacting with different social media networks. The distribution of respondents based on the time spent per day in using WhatsApp, YouTube and Facebook are explained in the Table 6

Table 6: Distribution of the respondents based on their time spent per day on social media (n=125)

S. No.	Category	WhatsApp		YouTube		Facebook	
		No.	%	No.	%	No.	%
1	Less than 1hour	49	39.2	24	19.2	28	22.4
2	1 - 2 hours	45	36	59	47.2	87	69.6
3	2-3 hours	31	24.8	42	33.6	10	8
4	More than 3hours	0	0	0	0	0	0
Total		125	100	125	100	125	100

The above table makes it clear that 39.2% of the respondents used WhatsApp for t for less than 1 hour, 36% for 1-2 hours, and 24.8% for 2-3 hours. Nearly half of the respondents (47.2%) spend 1-2 hours, followed by 33.6% spend for 2-3 hours, and 19.2% spend less than 1 hour. Majority (69.6%) spend 1-2 hours, 22.4% spend less than 1 hour, and very few (8%) use it for 2-3 hours. No users reported spending more than 3 hours on any platform.

This usage pattern reflects both functional preferences and content engagement across platforms, with YouTube likely serving as an educational tool, WhatsApp as a communication hub, and Facebook as a casual or secondary platform.

This indicates that YouTube serves as a preferred platform for in-depth learning and content consumption

8. Preferred Format in accessing social media apps

Respondents use different formats like video, audio, text, images and a combination of all formats while using social media. The distribution of respondents based on the preferred format used in WhatsApp, YouTube and Facebook are explained in the Table 7.

Table 7: Distribution of the respondents based on their preferred format in accessing social media apps (n=125)

S. No.	Category	WhatsApp		YouTube		Facebook	
		No.	%	No.	%	No.	%
1	Audio	55	45.83	0	0	0	0
2	Videos	58	48.33	120	100	96	80
3	Texts	28	23.33	0	0	0	0
4	Images	32	26.67	0	0	54	45

*Multiple Responses

The table clearly elucidates that the respondents (48.33%) preferred Videos and (45.83%) Audio in WhatsApp followed by Images (26.67%) and Texts (23.33%). This indicates that WhatsApp is used for both multimedia sharing and brief textual communication. All respondents (100%) prefer videos in YouTube as it is a video-centric platform. Majority 80.00% also leans heavily towards video content in Facebook and a significant number (45.00%) preferred images of Facebook.

The result indicates that WhatsApp stands out as a multi-format platform, supporting audio, video, text, and images, reflecting its flexible and conversational use.

9. Language preferred

In order to effectively communicate ideas within the constraints of character counts and attention spans, it covers the use of brief, informal language, frequently utilizing abbreviations and internet slang. The distribution of respondents based on the language preferred in WhatsApp, YouTube and Facebook are explained in the Table 8

Table 8: Distribution of the respondents based on their Language preferred (n=125)

S. No.	Category	WhatsApp		YouTube		Facebook	
		No.	%	No.	%	No.	%
1	Tamil	125	100	125	100	125	100
2	English	53	42.4	58	46.4	72	57.6

*Multiple responses

As evident from the table, 100.00% of respondents prefer Tamil across all three platforms, indicating a strong regional language preference for communication and content consumption. A significant portion also uses English alongside Tamil (42.40% on WhatsApp, 46.40% on YouTube, and 57.60% on Facebook). This shows that many users are bilingual or comfortable switching between Tamil and English, depending on content or context and also based on farmer literacy level. Tamil is the dominant language, essential for effectively reaching and engaging the farming community.

Conclusion

This study confirms that farmers in Theni district are currently positioned in the medium stage of the digital adoption curve concerning both IoT and social media. While the high prevalence of social media usage, particularly on platforms like WhatsApp (42.4% daily use) and YouTube (33.6% daily use), demonstrates its established role as a key channel for information sharing and peer-to-peer learning, IoT adoption lags slightly behind. The data indicate that farmers are highly engaged with multimedia content, preferring video and audio formats in local Tamil across all platforms, underscoring the necessity of localization for effective digital extension.

Despite moderate adoption levels, the high percentage of users falling within the low to medium categories (over 90% for IoT and over 83% for social media usage) highlights a critical gap between awareness and sustained utilization. The challenge now lies not merely in introducing these technologies, but in transitioning farmers from casual users to skilled, high-usage adopters who can fully integrate these tools for precision farming. Future efforts must prioritize accessible training programs and localized digital content that leverage farmers' existing preference for visual and auditory media in Tamil, ensuring that these tools lead to tangible improvements in productivity and decision-making at the farm level.

References

1. Upendra RS, Umesh IM, Ravi Varma RB, Basavaprasad B. Technology in Indian agriculture-A

review. Indones J Electr Eng Comput Sci. 2020;20(2):1070-1077.
2. Zhao JC, Zhang JF, Feng Y, Guo JX. The study and application of IoT technology in agriculture. IEEE Publ. 2010;462-5.
3. Ghosh MK, Hasan SS, Maria U, Akon S, Ali H, Moheuddin *et al*. Social media in agricultural extension services: farmers and extension agents perspective. Eur J Humanit Soc Sci. 2021;1(5):36-43.
4. Yadav J, Yadav A, Misra M, Rana NP, Zhou J. Role of social media in technology adoption for sustainable agriculture practices: evidence from Twitter analytics. Commun Assoc Inf Syst. 2023;52(40):333-352.
5. Pandey A, Kumar A, Pujari P, Arora M. Strategic technology adoption of social media in Indian SMEs. Int Manag Rev. 2023;19(1):44-52.
6. Shehrawat PS, Aditya, Singh S, Arulmanikandan B. Farmers' awareness level and adoption regarding usage of ICT for crop production. Int J Agric Ext Soc Dev. 2024;7(11):167-173.
7. Paudel R, Baral P. Social media in agricultural extension. Agric Ext J. 2018;2(2):69-74.