



Role of Social Media in Disseminating Agricultural Information to Farmers: Evidence from Southern Districts Telangana

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Abstract

Demographic and behavioral factors significantly shape satisfaction with social media, with females and tenant farmers reporting higher satisfaction, while usage behaviour such as frequency, time spent, and trust in content strongly predicts overall satisfaction.

Educational qualifications influence perceptions of social media problems, as individuals with lower education levels reported more issues, whereas gender showed no significant effect on problem perception, highlighting the role of education in shaping concerns.

With the rapid expansion of information technology and increased internet penetration in the 21st century, the use of social media platforms has grown significantly. Technological advancements have reached rural populations as well, leading to a steady rise in social media usage. In Telangana, approximately 65.5% of people are using at least one social media platform. It is also evident that there has been an increase in the use of social media for agricultural activities. This study focuses on the role of social media in promoting agricultural activities among farmers in the southern districts of Telangana. A valid sample size of 586 respondents has been considered, and statistical techniques such as the chi-square test are used to examine the relationship between independent and dependent variables. Social media platforms like Facebook and WhatsApp play a major role in disseminating information among farmers.

Keywords: Disseminating Agricultural Information; Farmers; Telangana

Abbreviations

TAM: Technology Acceptance Model; PEOU: Perceived Ease of Use; PU: Perceived Usefulness; BITU: Behavioral Intention to Use.

Introduction

With the rapid development of technology and information industry 4.0 digital marketing tools has revolutionized traditional marketing strategies. Digital marketing technologies such as SEO, social media, and email

have transformed communication processes and brand promotion in agriculture [1]. These tools effectively connect businesses with customers, improve outreach, and adapt to the evolving needs of modern consumers. Social media platforms like YouTube, WhatsApp, and Facebook provide easy access to information, enabling small-scale farmers to enhance their learning and management skills. These platforms serve as tools for knowledge sharing, with features that facilitate the creation, sharing, and preservation of agricultural content. Youth in rural areas increasingly use social media for information exchange, subscribing to agriculture-based channels on YouTube and participating in WhatsApp groups

to discuss agricultural topics [2]. The entertainment value of social media platforms is a key determinant of their widespread usage. Studies reveal that users perceive social media as fun, exciting, and engaging, which encourages content creation and sharing [3]. Entertainment drives users to spend more time online, significantly impacting behaviour across personal, social, and economic domains Davis, et al. The Impact of social media on young people is significant and becoming the part of life by tweeting, checking the tweet of the friends and family. These factors make social media a powerful tool in agriculture, enhancing its adoption among farmers and rural youth. Agriculture's role extends beyond individual livelihoods, influencing economic growth, food security, and environmental sustainability.

The present day organisations are putting efforts to creating a new social media content to attract consumers.

Social Media's Role in Knowledge Dissemination

Social media platforms provide the flexibility to share a variety of content, including photos, videos, and written articles. Incorporating multimedia elements is an effective way to grab the audience's attention. Engaging or humorous videos often resonate most with users, and these platforms frequently serve as the starting point for viral videos that gain widespread popularity across the internet. Social media

platforms like YouTube, WhatsApp, and Facebook provide easy access to information, enabling small-scale farmers to enhance their learning and management skills. These platforms serve as tools for knowledge sharing, with features that facilitate the creation, sharing, and preservation of agricultural content. Youth in rural areas increasingly use social media for information exchange, subscribing to agriculture-based channels on YouTube and participating in WhatsApp groups to discuss agricultural topics. Apps like PAU Mobile and digital newspapers such as khedi Sandesh further enrich this ecosystem, offering specialized content for farmers.

Social Media Adoption through Entertainment

The entertainment value of social media platforms is a key determinant of their widespread usage. Studies reveal that users perceive social media as fun, exciting, and engaging, which encourages content creation and sharing [4]. Entertainment drives users to spend more time online, significantly impacting behaviour across personal, social, and economic domains. These factors make social media a powerful tool in agriculture, enhancing its adoption among farmers and rural youth. By providing an engaging platform for information dissemination, social media can enhance its adoption among farmers and rural youth, ultimately contributing to the advancement of agricultural practices.

Characteristic	Description	Icon/Symbol Suggestion
Accessibility	Effortless to use and accessible to almost anyone. Enables communication across demographics.	Mobile device or user icon
Speed	Allows instantaneous sharing of content and real-time updates.	Stopwatch or fast-moving arrow
Interactivity	Facilitates two-way communication and engagement among users.	Speech bubbles or handshake icon
Longevity/Volatility	Content can remain indefinitely available online unless deleted.	Calendar with infinity symbol
Reach	Connects users globally, enabling sharing without geographical restrictions.	Globe with interconnected nodes
Customization	Offers personalized experiences based on user preferences and activity.	Gear icon with sliders
Virality	Content can spread rapidly, reaching millions in a short time.	Upward exponential arrow
Community Building	Encourages formation of online groups and collaboration.	Diverse individuals in a circle
Multimedia Integration	Supports text, images, videos, live streams, and more for engagement.	Multimedia icons (text, image, video)
Real-Time Analytics	Provides insights on engagement, reach, and content performance.	Graph with metrics
Global Influence	Amplifies voices and influences public opinion on a global scale.	Megaphone and world map
Integration	Connects seamlessly with other platforms and tools.	Linked app icons

Table 1: Social media and its Characteristics.

Social Media Usage

Attitudes towards social media usage have been extensively researched in recent decades, with studies emphasizing its influence on individual behaviour and technology acceptance [5]. In agriculture, social media reporting has the potential to alter farmers' attitudes and enable them to cope with challenges such as sudden weather changes. Moreover, social media plays a critical role in knowledge sharing, decision-making, and promoting sustainable agricultural practices, particularly in developing economies like Pakistan, where agriculture significantly contributes to GDP, employment, and export earnings [6].

Social Media and Agricultural Transformation

Social media enables two-way communication, fostering inclusivity for marginalized farmers and farm women. With the internet penetrating even the most remote villages, there is no excuse for farmers not to be familiar with the most efficient livestock technology. Ease of use and usefulness are critical factors influencing farmers' adoption of social media for agricultural communication and information sharing like YouTube, Facebook, and WhatsApp are essential for disseminating agricultural information in various formats, allowing farmers to access the latest technologies and practice [7]. These tools have the potential to transform agriculture by improving management and decision-making capabilities, ultimately contributing to increased productivity and sustainable development. Social media facilitates access to modern livestock and cultivation technologies, empowering farmers to implement timely precautions against climate challenges. By fostering innovation and collaboration, social media can play a pivotal role in addressing global agricultural challenges, ensuring resilience, and promoting long-term growth. Social media is becoming an essential platform in agriculture for information seeking, sharing information, selling and buying agricultural commodities.

The study "Social media reporting on agricultural adaptation to climate change in Pakistan: Measures and implications for sustainability [8] explores how social media influences farmers' attitudes towards crop selection, land management, and water storage. It also assesses the impact of social media on the adoption of advanced agricultural

practices. Surveying 120 male farmers in Punjab, Pakistan, the study uses online questionnaires and analyses data through SPSS-21. The findings show that social media significantly affects farmers' behaviour and decision-making, promoting the adoption of practices that enhance resilience to climate change.

Gurdeep Singh and colleagues aimed to assess the use patterns and preferences of rural youth regarding social media as a source of agricultural information, and its impact on agricultural practices. They conducted a survey during 2018-19, randomly selecting 200 young farmers from the South-Western Mansa district of Punjab, utilizing questionnaires to collect data on social media usage and its effects on farming. The study concluded that social media platforms like YouTube, WhatsApp, and Facebook are widely used by young farmers for agricultural information, leading to improved crop management practices and increased adoption of recommended crop varieties [9].

A Perspective of Digital Marketing in Rural Areas: A Literature Review [10,11]," the authors aim to identify factors influencing users' willingness to adopt digital marketing over traditional methods. They employ a comprehensive review of quantitative and qualitative analyses, along with case studies from databases like Web of Science and Scopus, to understand the topic better. The study concludes that digital marketing is more effective than traditional marketing, with users showing a greater willingness to adopt digital marketing tools.

The adoption of social media, particularly WhatsApp, by farmers was analysed using the Technology Acceptance Model (TAM) in a study conducted by Gandasari and colleagues. The objectives were to analyse the constructs of perceived ease of use (PEOU), perceived usefulness (PU), and behavioral intention to use (BITU) in the context of social media acceptance. A cross-sectional survey was conducted with 111 sheep farmers in Sukabumi, West Java, using stratified sampling and a structured questionnaire. The findings revealed that PEOU significantly influences PU, and PU positively impacts BITU, confirming that ease of use and usefulness are crucial factors for social media adoption. However, the study highlighted limitations, including the sample size, geographic focus, and lack of comparative analysis by age or across other social media platforms.

Author(s)	Title	Journal	Objectives	Methods Used	Conclusions
Vincent Soullignac, François Pinet, Mathilde Bodelet, H������ Gross (2025)	The Use of Digital Social Media in Agriculture	<i>International Journal of Agricultural and Environmental Information Systems</i>	To review literature on social media in agriculture since 2015, identifying actors, technologies, and themes.	Literature review of 21 articles using bibliographic research and thematic organization.	Social media in agriculture spans multiple countries and actors, showing diverse uses and technologies.
Sandeep Guntukogula Patabhi, Pasunoori Prashanth, Middel Sreenivasulu, Anne Madavilata (2023)	Effectiveness of Social Media Agricultural Information on Farmer's Knowledge	<i>Economic and Commercial Journal</i>	To assess the effect of agricultural information via social media on farmers' knowledge in Telangana, India.	Ex-post facto design; 120 respondents; knowledge measured pre- and post-social media use.	Farmers' knowledge improved significantly; factors like digital literacy and media use influenced learning.
Ignatius Eduafo, Collins Kwabena Osei, John-Eudes Andivi Bakang, Enoch Kwame Tham-Agyekum (2024)	Could Social Media Be a Game-Changer in Improving Agricultural Extension Delivery in Ghana?	<i>Heliyon</i>	To examine the role of social media in transforming agricultural extension services in Ghana.	Quantitative study; descriptive and inferential statistics; 374 cocoa farmers surveyed.	Social media helped increase yield and pest control; high data costs remain a barrier for farmers.
P.M. Ramavhale, E.M. Zwane, A. Belete (2024)	The Benefits of Social Media Platforms Used in Agriculture for Information Dissemination	<i>South African Journal of Agricultural Extension (SAJAE)</i>	To highlight the benefits of social media for agricultural information dissemination among farmers.	Literature review using sources from Google Scholar, Scopus, Science Direct, and university databases.	Social media reduces isolation, enhances networking and marketing; recommends training and digital support.

Table 2: Review of Literature.

Research Gaps and Future Directions

The current research primarily focuses on farmers' acceptance of specific social media platforms, such as WhatsApp, while overlooking usage patterns across different age groups and comparative analyses with other platforms. Additionally, there is a gap in research examining the impact of social media on sustainable agriculture, particularly in regions like Punjab, Pakistan. Future studies should address these gaps by analysing usage behaviours, evaluating platform effectiveness, and exploring the broader implications of digital tools in agricultural value chains. More research is needed on the comparative use of these platforms. This research aims to explore how rural youth and small-scale farmers use digital tools to improve agricultural practices and productivity, the role of these tools in promoting sustainable agriculture and resilience to climate change, and how digital marketing tools compare to traditional methods in rural areas, particularly regarding farmers' willingness to

adopt them for agricultural transformation.

Objectives

- To identify the various social media channels used for promoting agricultural information among farmers in the southern districts of Telangana.
- To analyse the role of social media in promoting agricultural practices and creating awareness among farmers in the southern districts of Telangana.
- To assess the impact of social media channels in fostering better farming practices and enhancing agricultural productivity for farmers in the southern districts of Telangana.
- To compare the effectiveness of different social media marketing channels in promoting agricultural production among farmers in the southern districts of Telangana.

Variables	Sub- Variables	Frequency
Gender	Male	466
	Female	134
Education qualification	1-5 th Class	46
	6-10 th Class	109
	Up to Intermediate	89
	Graduate	180
	Post-Graduate	176
type of farmer	Agricultural owner	345
	Tenant farmers	126
	Both	129
Land holding	2-5 Acres	437
	5.1-10 Acres	119
	10.1- and above	44
Type of Crop	Paddy	346
	Commercial crops	54
	Both paddy and commercial	188
	Others	12

Table 3: Demographic Frequency.

From the above table out of 600 sample respondents mostly male farmers (77.7%), with 77.7% identifying as male and 22.3% as female. A significant portion of the sample holds at least a graduate-level education, with 59.3% having completed their education up to the graduate or post-graduate level. In terms of farming, the majority of respondents are agricultural owners (57.5%), followed by tenant farmers (21.0%) and those involved in both owning and tenant farming (21.5%). Regarding land holdings, most farmers have between 2-5 acres of land (72.8%), while a

smaller percentage own land in the range of 5.1-10 acres (19.8%) or greater than 10 acres (7.3%). When it comes to crop cultivation, the majority of farmers grow paddy (57.7%), while others cultivate both paddy and commercial crops (31.3%). A small group of respondents grows other types of crops (2.0%). These results suggest that the sample is largely composed of educated male farmers with a tendency towards agricultural ownership, smaller landholdings, and a primary focus on rice farming.

Facebook	225
WhatsApp	515
Twitter	75
YouTube	388
Instagram	139
Other social media platforms	41

Table 4: Preferred Social Media Platform by each respondent.

The above table represents the social media platform usage among the 600 respondents shows that WhatsApp is the most commonly used platform, with 515 users (85.8%) reporting usage, while only 85 users (14.2%) do not use it. YouTube follows closely with 388 users (64.7%) using the platform, while 212 respondents (35.3%) do not. Facebook is used by 225 respondents (37.5%), with 375 (62.5%) not using it. Instagram is less popular, with only 139 users (23.2%), while 461 (76.8%) do not use it. Twitter is the least used platform, with just 75 respondents (12.5%) using it, while a significant 525 users (87.5%) do not engage with Twitter. Other social media platforms are used by only 41 respondents (6.8%), with 559 (93.2%) not using them. Overall, WhatsApp and YouTube dominate social media usage among the respondents, while platforms like Twitter and Instagram are less commonly used.

Purpose	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
For News	262 (43.7%)	187 (31.2%)	70 (11.7%)	59 (9.8%)	22 (3.7%)
Chit Chat (Family & Friends)	124 (20.7%)	156 (26.0%)	246 (41.0%)	63 (10.5%)	11 (1.8%)
Agriculture Related	255 (42.5%)	145 (24.2%)	125 (20.8%)	60 (10.0%)	15 (2.5%)
Business	102 (17.0%)	124 (20.7%)	99 (16.5%)	228 (38.0%)	47 (7.8%)
Entertainment	110 (18.3%)	117 (19.5%)	100 (16.7%)	84 (14.0%)	189 (31.5%)

Table 5: Frequency distribution of Time spent on Social Media.

The table presents the frequency distribution of respondents' purposes for using social media. It is observed that a majority of users engage with social media for news and agriculture-related content, with 74.8% (262 strongly agree and 187 agree) and 66.7% (255 strongly agree and 145 agree) respectively supporting these uses. These results indicate

that social media is widely recognized as a valuable source of information, especially in these areas. On the other hand, the use of social media for business and entertainment shows a more divided opinion. A significant number of respondents disagree with using social media for business (228 disagree and 47 strongly disagree), while entertainment has the

highest level of rejection with 189 respondents strongly disagreeing. This implies lower engagement or trust in social media for these purposes. The responses for chat with friends and family are more neutral, with 246 respondents

selecting “Neutral.” This suggests a mixed perception or possibly that users do not see it as a primary use but still engage with it passively for personal connections.

Hypothesis	Chi-Square Value	df	p-value	Result	H-Result
No significant association between education qualification and trust on content	56.488	16	0	Significant –	Reject H_0
No significant association between type of farmer and use of social media for agri knowledge	30.03	8	0	Significant –	Reject H_0
No significant association between gender and trust on social media content	11.196	4	0.024	Significant –	Reject H_0

Table 6: Hypothesis testing.

The chi-square tests reveal significant associations between education qualification, type of farmer, and gender with their respective attitudes towards social media content and its use for agricultural knowledge. All three hypotheses were rejected, as p-values were below the

0.05 threshold, indicating that these demographic factors influence perceptions and trust in social media platforms. This suggests that educational background, farming type, and gender significantly shape how farmers engage with and benefit from social media for agriculture.

Group Statistics									
		Gender	N	Mean	Std. Deviation	Std. Error Mean			
Social media and Satisfaction		Male	466	1.99	0.66	0.031			
		Female	134	2.28	0.767	0.066			

Independent Samples Test									
F		Levene's Test for Equality of Variances		t-test for Equality of Means					
		Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Social media and Satisfaction	Equal variances assumed	7.993	0.005	-4.28	598	0	-0.288	0.067	-0.419
	Equal variances not assumed			-3.941	193.22	0	-0.288	0.073	-0.431

Table 7: Level of satisfaction of social media usage between male and female farmers.

To examine whether there is a significant difference in the level of satisfaction of social media usage between male and female farmers among sample farmers independent samples t-test was conducted. The results from Levene's Test for Equality of Variances showed a significant value ($F = 7.993$, $p = 0.005$), indicating that the variances between the two groups are not equal. Therefore, the results from the

row “Equal variances not assumed” should be considered. The t-test results reveal a statistically significant difference in the mean satisfaction levels between males and females ($t = -3.941$, $df = 193.220$, $p < 0.001$). The mean satisfaction score for male farmers is 1.99, whereas for female farmers it is higher at 2.28. The mean difference is -0.288 with a 95% confidence interval ranging from -0.431 to -0.144. This

suggests that female farmers experience significantly higher satisfaction from the use of social media in agriculture-related aspects compared to male farmers. Thus, gender

plays a significant role in determining satisfaction levels with social media usage in the agricultural context.

Group Statistics					
	type of farmer	N	Mean	Std. Deviation	Std. Error Mean
Social media and Satisfaction	Agricultural owner	345	1.97	0.696	0.037
	Tenant farmers	126	2.17	0.66	0.059

Table 8: Level of satisfaction from social media usage between agricultural owners and tenant farmers.

An independent samples t-test was conducted to examine the difference in satisfaction derived from social media usage between agricultural owners and tenant farmers. The Levene's Test for Equality of Variances indicated that the assumption of equal variances was met ($F = 0.527$, $p = 0.468$). Therefore, the row "Equal variances assumed" is considered for interpretation. The results show a statistically significant difference in mean satisfaction levels between the two types of farmers ($t = -2.810$, $df = 469$, $p = 0.005$). Agricultural owners reported a lower mean satisfaction score of 1.97, while tenant farmers reported a higher mean of 2.17. The mean difference of -0.201 is statistically significant, with a 95% confidence interval ranging from -0.341 to -0.060. This suggests that tenant farmers experience significantly greater satisfaction from using social media in agriculture-related matters compared to agricultural owners, indicating that the type of farmer plays a role in influencing satisfaction levels with social media.

The descriptive statistics further support this observation, showing a mean value of 1.85, with a median and mode of 2, suggesting that the typical response leans towards "No" regarding problems with social media. The standard deviation is 0.354, indicating a relatively low variation in responses. Overall, the findings suggest that

most respondents do not face or recognize issues with social media, implying a generally positive perception of its functionality and impact.

Problems in Social Media Adoption in Agriculture

Despite its growing importance, challenges persist in the adoption of social media in agriculture. Despite their potential, the adoption of digital tools often faces barriers such as poor connectivity, lack of training, and limited trust in new technologies. Issues such as technological limitations, poor infrastructure, lack of awareness, and mistrust of digital tools hinder progress. Additionally, research reveals that factors like adaptability, quality, trust, and willingness influence social media usage. A significant portion of farmers remains unreached, highlighting the need for targeted interventions to bridge this gap and enhance inclusivity.

The respondents' views regarding problems associated with social media use. Out of 600 valid responses, a significant majority-85.3% (512 respondents)—reported that they did not perceive any problems with social media. On the other hand, only 14.7% (88 respondents) acknowledged experiencing problems related to social media.

Test Description	Sum of Squares (Between Groups)	df (Between Groups)	Mean Square (Between Groups)	F-Value	Sig. (p-value)	Result
Overall groups comparison	0.425	1	0.425	3.406	0.065	Not Significant ($p > 0.05$) – Null Hypothesis Accepted
Educational groups comparison	1.683	4	0.421	3.41	0.009	Significant ($p < 0.05$) – Null Hypothesis Rejected

Table 9: Descriptive Statistics and One-Way ANOVA Results on Perceived Problems of Social Media by Demographic Groups.

The data reveals that the majority of respondents do not perceive problems associated with social media. Descriptive statistics support this, showing a mean of 1.85, with both the median and mode at 2, suggesting most responses leaned toward "No" regarding social media problems. The standard deviation of 0.354 indicates minimal variation in

responses. Furthermore, 85.3% (512 respondents) reported no issues, while only 14.7% (88 respondents) acknowledged experiencing problems. This suggests a generally positive perception of social media's functionality and impact. A One-Way ANOVA test was conducted to assess whether different groups perceive social media problems differently.

The results showed an F-value of 3.406 and a p-value of 0.065, which is greater than 0.05, indicating that there is no statistically significant difference among the general groups. Hence, the null hypothesis is accepted, confirming that perceptions remain largely consistent across these groups. However, when the One-Way ANOVA was applied to educational qualification groups, a significant difference emerged, with an F-value of 3.410 and a p-value of 0.009. As this p-value is below 0.05, the null hypothesis is rejected, indicating that educational qualification does influence how social media problems are perceived. The Tukey HSD Post-Hoc test further identified significant pairwise differences. Specifically, individuals with 1–5th class education perceived more problems than those with Intermediate ($p = 0.040$) and Post-Graduate education ($p = 0.006$). No other comparisons showed statistically significant differences.

Conclusions

The overall analysis reveals that demographic and behavioral factors significantly influence satisfaction and perceptions related to social media. Females and Tenant farmers reported higher satisfaction compared to males and agricultural owners, respectively, with these differences being statistically significant. Regression analysis indicated that usage behaviour, including frequency, time spent, and trust in content, strongly predicts satisfaction with social media. Although the majority of respondents (85.3%) did not report problems with social media, educational qualifications significantly influenced perceptions of these issues. Specifically, individuals with only 1–5th class education perceived more problems compared to those with higher education levels, as confirmed by ANOVA and Tukey HSD tests. In contrast, gender did not significantly affect the perception of social media-related problems. Overall, the findings highlight that both demographic characteristics and usage patterns play a crucial role in shaping individuals' experiences and concerns regarding social media.

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