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Assessment of Social Media Use among Tomato Farmers in Makurdi Local Government Area, Benue State, Nigeria

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Abstract

This study assessed social media use among tomato farmers in Makurdi Local Government Area of Benue State, Nigeria. The study population comprised tomato farmers in the area, from which 100 respondents were selected using a multistage sampling technique. Primary data were collected through the administration of structured questionnaires. Descriptive statistics such as frequencies, percentages, and means were used to summarise the data, while inferential statistics, including chi-square and regression analysis, were employed to determine relationships between variables. Results revealed that the majority of respondents were within the youthful age category, with 67% aged between 26 and 35 years, and 61% were male. Most respondents (46%) had attained tertiary education, indicating a high level of literacy among tomato farmers. The most commonly used social media platforms were WhatsApp (92%), Facebook (85%), and YouTube (41%). Farmers reported several benefits of using social media such as improved market access (96%), faster access to agricultural information (70%), and enhanced communication with traders and fellow farmers (84%). Findings also showed that major constraints to effective use of social media included poor internet connectivity (96%), high cost of data (88%), lack of smartphones (45%), and insufficient digital literacy skills (59%). Regression results indicated that years spent in school ($p = 0.001$), age ($p = 0.000$), and household size ($p = 0.000$) significantly influenced farmers' access to and use of social media for agricultural purposes. The study concluded that although social media plays a vital role in improving market opportunities and information flow among tomato farmers, infrastructural and economic challenges limit its full utilisation. It is recommended that efforts should be made to improve digital literacy, expand rural network coverage, reduce internet costs, and integrate social media into agricultural extension delivery.

Keywords: Assessment, Social media, Information sharing, Technology, Farmers

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INTRODUCTION

Technology has played an important part in creating the world we live in today. One of the most significant ways in which technology has shaped the world is through social media. The advent of social media platforms has made it easier for people to connect with each other, regardless of their geographical location. According to a study by Pew Research Center (2019), 81% of Americans now own a smartphone, which has become the primary device for accessing the internet and staying connected with others. This has led to a more interconnected global community, where information can be shared instantaneously and ideas can be exchanged freely.

Social media has become an integral part of modern society, with individuals and businesses alike utilising various platforms to connect, communicate, and share information. Recently, the agricultural sector has also seen an increase in the use of social media as a tool for networking, marketing, and knowledge sharing. Social media serves as a tool for social change and activism. As noted by Tufekci (2017), social media platforms have been instrumental in mobilising individuals for various causes, such as environmental conservation, human rights advocacy, and political reform. The ability to reach a large audience quickly and efficiently has made social media a powerful tool for social movements around the world.

Social media has become an integral part of daily life in the 21st century, transforming the way people communicate, interact, and consume information. With the rise of platforms such as Facebook, Twitter,

Instagram, and Snapchat, individuals are now able to connect with others from around the world instantaneously, share their thoughts and experiences, and access a wealth of information at their fingertips. This paper will analyse how social media has transformed the world in the 21st century, focusing on its impact on communication, relationships, and society as a whole.

Social media has transformed the world significantly, particularly in the realm of communication. With the advent of platforms such as Facebook and Twitter, individuals can now communicate with others in real time, regardless of their location. This has led to a democratisation of communication, allowing people to share their thoughts and opinions with a global audience. According to a recent study by Pew Research Center, 72% of American adults use social media, with 69% of them using it to connect with friends and family (Smith and Anderson, 2018). This demonstrates the widespread impact that social media has had on communication in the 21st century.

Social media has also transformed the way relationships are formed and maintained. Social media has also changed how people form and maintain relationships. Platforms such as Tinder and Bumble have revolutionised the dating scene, allowing individuals to connect with potential partners based on shared interests and values. Additionally, social media has made it easier for people to stay in touch with friends and family members, even if they are thousands of miles apart. A study by the University of Michigan found that social media use is positively associated with feelings of social support and well-being (Lee and Robbins, 2015). This highlights the important role that social media plays in fostering relationships and connections in today's world. In addition to its impact on communication and relationships, social media has also had a profound effect on society as a whole. Platforms such as Twitter and Instagram have been instrumental in giving a voice to marginalised communities and sparking social movements. The #BlackLivesMatter and #MeToo movements, for example, gained traction and momentum through social media, leading to widespread awareness and change.

Despite the increasing adoption of social media, Nigerian farmers still face significant challenges in fully integrating these platforms into their farming practices. One of the primary barriers preventing Nigerian farmers from using social media is limited access to technology and internet connectivity. According to Oyeyinka and Adeleye (2018), only 47% of the Nigerian population has access to the internet, with rural areas facing even greater challenges in terms of connectivity. This lack of access to technology and internet infrastructure hinders farmers from effectively utilising social media platforms for information sharing and market access.

In addition to connectivity issues, many farmers have low levels of digital literacy, which limits their ability to navigate social media platforms efficiently and apply the information gained to improve their agricultural activities. This situation: inadequate training programmes further compound this situation by failing to by inadequate training programmes that would otherwise expose farmers to the benefits and practical applications of social media in farming. Consequently, many farmers still depend on traditional methods of information dissemination, which are often slow, fragmented, and sometimes unreliable.

Furthermore, the high cost of smartphones, data subscriptions, and an unreliable power supply also serve as barriers that prevent farmers from maximising their use of social media. Even when access is available, infrastructural deficits, such as poor road networks and a lack of organised market systems, such as poor road networks and lack of organised market systems reduce the impact of the information shared online. These challenges collectively limit the potential of social media as a tool for extension services, knowledge sharing, and market linkages among farmers in Nigeria.

Addressing these challenges is crucial, as effective use of social media has the potential to improve agricultural productivity, enhance farmers' access to new markets, provide real-time weather and price updates, and strengthen linkages between farmers, extension workers, and policymakers. Without targeted interventions to overcome these barriers, Nigerian farmers risk being left behind in an era where digital tools are reshaping agricultural practices globally.

Objectives of the Study

The broad objective of the study is to assess social media use among tomato farmers in the Makurdi LGA of Benue State, Nigeria. The specific objectives of the study are:

i. Describe the socio-economic characteristics of tomato farmers in the study area.
ii. Identify the types of social media platforms used by the respondents.
iii. Determine the benefits derived from the use of social media by tomato farmers in the area.
iv. Analyse the factors influencing the use of social media among respondents.
v. Identify the constraints limiting the use of social media among tomato farmers in the study area.

Statement of Hypothesis

HO1: Farmers' socio-economic characteristics do not significantly influence their use of social media.

MATERIALS AND METHODS

This study was conducted in Makurdi Local Government Area (LGA) of Benue State, Nigeria. Makurdi is the administrative capital of Benue State and lies on latitude 7° 44′ N and longitude 8° 32′ E (Benue State

Government, 2021). It is located in the Guinea savanna ecological zone, characterised by two distinct seasons—the rainy season (April to October) and the dry season (November to March). The area River Benue traverses the area which is covered by the River Benue and has a landmass of approximately 804 square kilometres. Makurdi is both urban and rural, with a significant proportion of the population engaged in farming. Tomato farming is particularly prominent due to the fertile alluvial soil, abundant water sources, and a favourable climate. The dominant ethnic groups in the area include Tiv, Idoma, and Igede, with Hausa and English also spoken. The area hosts several research and educational institutions, as well as agro-based markets and mobile network services, which makes it suitable for assessing digital and social media usage among farmers. Primary data will be collected using a **structured questionnaire** that is developed based on the objectives of the study.

The study population comprised all tomato farmers residing and cultivating in the Makurdi Local Government Area who utilise or have access to social media platforms.

A multistage sampling procedure was employed in selecting the sample size. In the first stage, five farming communities were purposively selected due to their concentration of tomato farmers, namely, North Bank, Welfare Quarters, Apir, Agan, and Wadata. In the second stage, a list of registered or active tomato farmers was obtained from the ADP for each selected community. In the third stage, a **random sampling method** was used to select **20%** of the listed tomato farmers from each community to form the sample size.

Table 1: Sampling Plan and Sample Size

Community	Estimated Tomato Farmers	Sample Size (20%)
North Bank	100	23
Welfare Quarters	90	21
Apir	85	20
Agan	75	17
Wadata	80	19
Total	**430**	**100**

RESULTS AND DISCUSSION

Socio-Economic Characteristics of the Respondents

The result in Table 2 reveals that the majority, 61 (61.0%), of the respondents were male, and 20 (20.0%) spent more than 39 (39.0%) were female. This indicates that tomato farming in the study area is male-dominated. This agrees with the findings of Olayemi et al. (2012), who reported that men are more actively involved in agricultural activities that require physical strength and outdoor labour than women. The implication of this result is that men's dominance may influence the nature of information access and decision-making within tomato production households, including the use of social media for agricultural purposes.

The result also shows that most, 67 (67.0%), of the respondents were within the age range of 26–35 years, followed by 26 (26.0%) who were between 16 and 25 years, while only 7 (7.0%) were 36 years and above. This implies that the majority of tomato farmers in Makurdi LGA are youthful and within their economically active age bracket. Young and middle-aged farmers are more likely to be technologically inclined and open to innovation, which enhances their adoption of social media tools for farming operations. This finding supports Feder et al. (2015), who stated that younger farmers are generally more receptive to new technologies compared to older ones.

In terms of marital status, 45 (45.0%) of the respondents were single, 35 (35.0%) were married, and 20 (20.0%) were separated. This distribution suggests that most respondents are in the early stages of adulthood, where social media use is common for communication, learning, and business. Married farmers may have family responsibilities that limit their online engagement compared to singles. According to Oluwatoyin (2016), marital status can influence time allocation and access to digital resources among rural households.

The educational status of the respondents shows that 46 (46.0%) had tertiary education, 39 (39.0%) had secondary education, and 15 (15.0%) had primary education. This means that most of the people who answered the question have at least a high school diploma, which helps them use social media sites more effectively. This agrees with Oyekanmi and Okeleye (2017), who found that literacy levels significantly enhance farmers' ability to utilise ICT tools and access agricultural information.

Regarding years spent in school, 72 (72.0%) spent six years or less, 8 (8.0%) spent between 7 and 12 years, while 20 (20.0%) spent above 13 years. The large proportion of farmers with fewer years of formal education

shows a mixture of literacy levels, which may affect how easily they interpret agricultural content online.

The household size distribution shows that 46 (46.0%) of respondents had between 4 and 9 persons, 23 (23.0%) had 3 or fewer, and 7 (7.0%) had more than 15 persons. The implication is that a majority of respondents have moderate household sizes, which provide potential family labour for tomato farming. This aligns with Effoing (2015), who reported that larger households supply family labour that is crucial for smallholder farm operations.

The income data show that 39 (39.0%) earned between ₦100,001 and ₦600,000 annually, 35 (35.0%) earned between ₦600,001 and ₦1,100,000, while 18 (18.0%) earned above ₦1,100,000. This indicates that most tomato farmers in the study area fall within the low to middle-income bracket, consistent with subsistence-level agricultural production. According to Asiabaka (2002), low income may limit farmers' ability to afford smart devices and stable internet access, thereby affecting social media adoption.

Finally, the result shows that 73 (73.0%) of the respondents' main occupation was farming, 19 (19.0%) were traders, and 8 (8.0%) were civil servants. This suggests that farming remains the primary livelihood activity in the study area; hence, social media applications related to agriculture could play a vital role in information exchange, input sourcing, and marketing of produce.

Table 2: Distribution of Socio-Economic Characteristics of Respondents (n = 100)

Variable	Frequency	Percentage (%)
Sex		
Male	61	61.0
Female	39	39.0
Age (years)		
16–25	26	26.0
26–35	67	67.0
36+	7	7.0
Marital Status		
Single	45	45.0
Married	35	35.0
Separated	20	20.0
Educational Level		
Primary	15	15.0
Secondary	39	39.0
Tertiary	46	46.0
Years Spent in School		
≤6	72	72.0
7–12	8	8.0
≥13	20	20.0
Household Size		
≤3	23	23.0
4–9	46	46.0
10–15	24	24.0
≥16	7	7.0
Annual Income (₦)		
≤100,000	8	8.0
100,001–600,000	39	39.0
600,001–1,100,000	35	35.0
≥1,100,001	18	18.0
Occupation		
Farming	73	73.0
Trading	19	19.0
Civil servant	8	8.0

Source: Field Survey (2025).

Social Media Platforms Used by Respondents

The result in Table 3 shows that the most frequently used social media platforms among tomato farmers were Facebook (88.0%) and WhatsApp (80.0%). Other popular platforms included YouTube (65.0%), Instagram (38.0%), X (formerly Twitter) (28.0%), and Telegram (20.0%). This finding indicates that tomato farmers in Makurdi LGA are familiar with the major global social networking platforms, particularly those that allow straightforward communication and information sharing.

The high preference for Facebook and WhatsApp aligns with Aker (2011) and Agwu et al. (2013), who found that these platforms dominate rural communication due to their simplicity, multimedia capability, and affordability. YouTube's relatively high usage further suggests that farmers are turning to video-based learning for practical agricultural knowledge.

This finding highlights a growing digital shift among farmers, which presents opportunities for agricultural extension and market linkages through online communities. However, lower patronage of X and Telegram may be due to limited literacy or unfamiliarity with such platforms.

Table 3: Distribution of Social Media Platforms Used by Respondents (n = 100)

Platform	Frequency	Percentage (%)
WhatsApp	80	80.0
Facebook	88	88.0
Instagram	38	38.0
X (Twitter)	28	28.0
YouTube	65	65.0
Telegram	20	20.0

Source: Field Survey (2025).

Benefits of using social media

Table 4 presents the benefits of using social media as perceived by the respondents. The result indicates that the most reported benefit was increased awareness of better marketing (IABM, 96.0%), followed by improved information flow and price control (BIIFPC, 70.0%), and increased interaction with traders and suppliers (IITS, 84.0%). Other benefits were access to information about production and decision-making (APDM, 68.0%), better communication and extension work (ECEW, 24.0%), and chances for farmers to network (NWOF, 16.0%).

These findings indicate that social media plays a crucial role in linking tomato farmers to markets, information, and support networks. This agrees with Bolarinwa and Oyeyinka (2011), who emphasised that ICT platforms improve farmers' access to agricultural innovations and market prices. Similarly, Adesina et al. (2018) reported that online communities enhance farmer-to-farmer learning, thereby improving productivity.

Table 4: Distribution of Benefits of Using social media (n = 100)

Benefit	Frequency	Percentage (%)
Increased awareness of better marketing (IABM)	96	96.0
Better information flow and price control (BIIFPC)	70	70.0
Increased interaction with traders/suppliers (IITS)	84	84.0
Enhanced communication/extension work (ECEW)	24	24.0
Access to production and decision-making info (APDM)	68	68.0
Networking opportunities for farmers (NWOF)	16	16.0
Others (specify)	4	4.0

Source: Field Survey (2025).

Factors Influencing Use of social media

The result in Table 5 shows that the most influential factors affecting the use of social media among tomato farmers were ease of use and mobility (EUM, 85.0%), timely information (TI, 66.0%), and mobile device type (MDT, 50.0%). Other factors included availability of education (AE, 34.0%), access to social data (ASD, 23.0%), and cost of subscription (CS, 32.0%).

The implication of this finding is that farmers' adoption of social media is largely driven by convenience, accessibility, and affordability. This supports the Technology Acceptance Model (Davis, 1989), which suggests that perceived ease of use and perceived usefulness are major determinants of digital adoption.

Table 5: Factors Influencing the Use of social media (n = 100)

Factor	Frequency	Percentage (%)
Ease of use and mobility (EUM)	85	85.0
Access to social data (ASD)	23	23.0
Availability of education (AE)	34	34.0
Level of user operation proficiency (LUOP)	22	22.0
Timely information (TI)	66	66.0
Cost of subscription (CS)	32	32.0
Peer influence (PIFF)	19	19.0
Mobile device type (MDT)	50	50.0

Source: Field Survey (2025).

Constraints to Social Media Use

The results in Table 6 reveal that the most common constraints to the use of social media among tomato farmers were poor internet connectivity (96.0%), high cost of data subscription (88.0%), and lack of smartphone or device (45.0%). Other constraints included lack of technical know-how (59.0%), unreliable information (8.0%), information not in local language (19.0%), and limited awareness of platforms (61.0%).

These findings indicate that infrastructural and economic challenges remain the major barriers to social media use in rural farming communities. This supports the observations of Chikaire et al. (2015), who noted that limited connectivity, high costs, and low digital literacy impede effective ICT adoption in agriculture.

Table 6: Distribution of Constraints to Social Media Use (n = 100)

Constraint	Frequency	Percentage (%)
Poor internet connectivity	96	96.0
High cost of data subscription	88	88.0
Lack of smartphone/device	45	45.0
Lack of technical know-how	59	59.0
Unreliable information	8	8.0
Information not in local language	19	19.0
Limited awareness of platforms	61	61.0
Others (specify)	0	0.0

Source: Field Survey (2025).

Effect of Socio-Economic Characteristics on Access to social media

Regression analysis was carried out to determine the extent to which socio-economic characteristics influenced farmers' access to social media information. The results presented in Table 7 indicate that the overall model was statistically significant ($F = 11.372$, $p < 0.001$), confirming that the socio-economic variables jointly explained variations in social media access. The coefficient of determination (R^2) was 0.423, suggesting that approximately 42.3% of the variation in farmers' access to social media was accounted for by the independent variables included in the model.

The regression coefficients further revealed that several variables were significant predictors of social media use at different levels of significance. Years spent in school had a positive and statistically significant effect on access to social media ($p = 0.001$), significant at the 1% level. This implies that farmers with more years of formal education were more likely to adopt and make use of social media platforms. Household size also exerted a positive and significant influence ($p = 0.000$), likewise at the 1% significance level, indicating that larger households may provide better social exposure, shared knowledge, or collective motivation that enhances social media use. Age, on the other hand, showed a negative and highly significant effect ($p = 0.000$), also at the 1% level. This suggests that younger farmers were more inclined to use social media compared to older farmers, whose lower likelihood of use may be associated with limited digital familiarity or reduced interest in technology. Income recorded a p-value of 0.053, making it significant at the 10% level. Although its effect was marginal, the result implies that farmers with slightly higher incomes may have increased access to smartphones, data subscriptions, or other digital resources that support social media engagement. In contrast, sex ($p = 0.888$) and education level ($p = 0.256$) were statistically insignificant even at the 10% level, indicating that these variables played no meaningful role even at the 10% level, indicating that these variables did not play meaningful roles in determining farmers' access to social media within the study area.

These findings corroborate the observations of Meitei and Devi (2009), who emphasised that exposure and educational attainment strongly predict the use of ICT tools among farmers. Similarly, the marginal influence of income is consistent with the report by Asiabaka (2002), which highlighted the role of financial capacity in enabling access to digital communication resources. Based on the overall significance of the model and the significance of several individual predictors, the null hypothesis stating that socio-economic characteristics do not significantly influence social media use among tomato farmers is rejected.

Table 7: Effect of Socio-Economic Characteristics on Access to social media

Variable	B	S.E.	t	Sig.
Constant	3.906	0.307	12.732	0.000
Sex	0.025	0.178	0.141	0.888
Age	-0.102	0.025	-4.138	0.000
Education	0.207	0.182	1.142	0.256
Years in School	0.073	0.021	3.434	0.001
Household Size	0.138	0.035	3.894	0.000
Income	-4.098E-7	0.000	-1.957	0.053

Source: Field Survey (2025).

CONCLUSION

Based on the findings of the study, it is concluded that the tomato-farming population in the study area is predominantly male, youthful, and within the economically active age group. Most respondents were married and had moderately large household sizes, which implies the availability of family labour for farming activities. A majority had at least basic education, a factor that enhances their ability to use mobile phones and social media platforms for agricultural purposes. The majority also operated on small farm sizes and earned modest annual incomes, confirming their status as smallholder farmers.

The study revealed that social media has become an important tool for communication and knowledge sharing among tomato farmers in Makurdi Local Government Area. Platforms such as **Facebook, WhatsApp, and YouTube** were the most commonly used, serving as channels for marketing farm produce, obtaining agricultural information, and interacting with fellow farmers and extension agents. The use of these platforms has provided farmers with timely updates on weather,

pest control, market prices, and new production technologies, thereby improving their decision-making and productivity.

Findings also indicated that social media has helped farmers expand their networks and market reach beyond their immediate communities. Farmers who actively engaged online were able to advertise products, connect with customers, and share farming innovations with peers. This underscores the growing importance of digital platforms in promoting agribusiness and rural development.

However, several challenges hindered the optimal use of social media. These included **poor internet connectivity,** high cost of data subscription, lack of smartphones or suitable devices, low digital literacy, unreliable information**,** and limited awareness of agricultural platforms. These barriers significantly limit farmers' ability to maximise the benefits of social media, especially in rural communities with inadequate infrastructure.

The logistic regression results further revealed that socio-economic characteristics such as education level, income, **and** farm size significantly influenced the level of social media use among farmers. This means that farmers who were more educated, had higher incomes, and owned larger farms were more likely to access and effectively use digital platforms. Consequently, the null hypothesis, which stated that socio-economic characteristics do not significantly influence the use of social media among tomato farmers, was rejected.

Social media has become a transformative communication and marketing tool for farmers in Makurdi LGA. With improved infrastructure, digital literacy, and policy support, these platforms can play a critical role in improving information flow, enhancing productivity, and promoting sustainable agricultural development in the region.

Based on the conclusions drawn from this study, the following recommendations this study draws the following recommendations:

i. Enhance Digital Literacy and Training: The government, through the Ministry of Agriculture and Rural Development, should organise regular training programmes to build farmers' capacity to use social media for agricultural purposes. Workshops should focus on practical skills such as creating online business profiles, sharing information safely, and identifying reliable sources.

ii. Improve Internet Connectivity and Affordability: Telecommunication companies should be encouraged to expand internet coverage to rural areas and reduce the cost of data bundles. The government can partner with private providers to establish rural broadband projects and community Wi-Fi centres to promote digital inclusion.

iii. Provide Access to Affordable Smart Devices: NGOs, cooperatives, and agritech firms should support farmers by providing affordable smartphones or instalment payment options. Access to functional devices is critical to increasing participation in digital agriculture.

iv. Promote Reliable Agricultural Information Platforms: Extension agents and development organisations should curate and share verified agricultural content through trusted WhatsApp groups, Facebook pages, and YouTube channels. This will minimise the spread of misinformation and ensure that farmers receive accurate and timely information.

v. Encourage Farmer Cooperatives and Digital Communities: Farmer organisations should be supported to form digital cooperatives where members can collectively access information, share innovations, and market their products online. Such groups can serve as reliable hubs for knowledge exchange.

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