ASSESSMENT OF ADOPTION OF SOCIAL MEDIA MARKETING AMONG FARMERS IN NASARAWA STATE, NIGERIA

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ABSTRACT

This study examined the awareness, adoption, and constraints of social media usage among farmers in Nasarawa State, Nigeria. A descriptive research design was adopted, involving 260 randomly selected farmers from 13 local government areas. Data were collected through structured questionnaires and interviews, and analyzed using descriptive statistics. Findings revealed high awareness of platforms like WhatsApp (92.7%) and Facebook (95.8%), but actual adoption for marketing purpose was constrained by high costs of devices and data, poor infrastructure, inadequate training, and limited technical skills. Farmers primarily used social media for information sharing, networking, and accessing agricultural updates, while its use for extension services and marketing remained underutilized. Despite these challenges, farmers perceived social media as time-saving, cost-effective, and beneficial for broader communication. The study highlights the need for targeted interventions such as capacity building, improved infrastructure, financial support, and policy reforms to enhance social media adoption. By addressing these barriers, farmers can better leverage social media's potential to improve agricultural productivity, access to information, and rural livelihoods. This research underscores the transformative role of digital tools in modernizing agriculture and bridging the gap between farmers and vital resources in rural communities.

Keywords: Assessment, adoption, social media, marketing, farmers.

INTRODUCTION

Agriculture remains a cornerstone of Nigeria's economy, contributing significantly to employment, food security, and rural development (Olomola & Adesugba, 2015; Nwafor, Diao, & Alpuerto, 2011). However, the sector continues to face numerous challenges, including low productivity, limited market access, and inadequate adoption of modern technologies (Ayoola, Abiodun & Babajide 2011; Ekpo & Umoh, 2020). In response to these challenges, the advent of Information and Communication Technology (ICT) tools, particularly social media, has emerged as a transformative force in agricultural development (Aker & Mbiti, 2010; Ali, Sarkar & Singh, 2021). Social media platforms such as WhatsApp, Facebook, YouTube, X (Twitter), Instagram etc., are increasingly being used to enhance communication, facilitate knowledge sharing, and improve market linkages among farmers (Bello-Bravo, Lovett & Pittendrigh, 2017; Chukwunonso, Obi & Anya, 2022).

Social media marketing offers unique opportunities for farmers to connect directly with buyers, access real-time market information, and share best practices across vast networks (Olaoye & Zerihun, 2023). This digital revolution enables farmers to bypass traditional intermediaries, thereby increasing their profit margins and market competitiveness (Nwaobiala & Eze, 2018). Despite these advantages, the adoption of social media marketing remains uneven, particularly in rural areas such as Nasarawa State, where agriculture is largely dominated by smallholder farmers with limited access to ICT infrastructure (Eze & Ike, 2020; Abah, Solomon & Agbo 2021).

Several studies have highlighted the factors influencing ICT adoption in agriculture, including socio-economic characteristics, education, access to internet-enabled devices, and digital literacy (Mtega & Ronald, 2013; Agwu & Adeniran, 2019). Specifically, the Technology Acceptance Model (TAM) posits that perceived ease of use and usefulness are key determinants of technology adoption (Davis, 1989; Venkatesh & Bala, 2008). In the Nigerian context, these factors are compounded by infrastructural deficits, high costs of internet services, and low awareness of the potential benefits of digital tools for marketing (Ajani, 2020; Ugwu, Herrera & Gómez, 2021). However, there is limited empirical research focusing on the adoption of social media marketing among farmers in Nasarawa State, a state that is important in the Nigeria's agricultural output (Adewumi & Ogunleye, 2022).

The importance of assessing social media marketing adoption lies in its potential to address critical gaps in agricultural marketing. Studies have shown that effective use of social media can reduce transaction costs, improve price transparency, and enhance farmers' ability to compete in broader markets (Reardon *et al*., 2019). For example, WhatsApp groups enable farmers to share market prices and negotiate collectively, while YouTube provides visual learning opportunities on improved farming techniques (Chikoye, Ekeleme & Udensi, 2021). However, despite its growing relevance, many farmers in Nigeria remain unaware of how to fully harness the power of social media for agricultural marketing (Onyeka, Chikwe & Okeke 2023). This study seeks to fill this knowledge gap by assessing the adoption of social media marketing among farmers in Nasarawa State. Specifically, the study aims to: assess the level of social media awareness and adoption among farmers for marketing purposes, and examine the challenges faced by farmers in adopting social media marketing.

By focusing on these objectives, this research contributes to the growing body of literature on digital agriculture and provides actionable insights for policymakers, extension agents, and development practitioners. The findings are expected to inform strategies for promoting digital inclusion and improving the livelihoods of farmers in the study areas (Aker, Ghosh & Burrell, 2016; Adepoju & Alabi, 2021). Ultimately, this study underscores the transformative potential of social media in reshaping agricultural marketing in Nigeria and aligning with global efforts toward sustainable agricultural development (FAO, 2020).

Definition of Terms

Assessment: The process of evaluating or

measuring the extent, effectiveness, or impact of a specific phenomenon, practice, or intervention—in this case, the adoption of social media among farmers. (Oxford Learner's Dictionary, 2023)

Adoption: The process by which individuals or groups begin to use and integrate a new tool, technology, or practice into their daily activities. It involves stages such as awareness, interest, trial, and sustained usage (Rogers, 2003).

Social Media: Digital platforms and applications that facilitate the creation, sharing, and interaction with content, including text, images, and videos, for communication and networking purposes. Examples include Facebook, WhatsApp, Instagram and X (Twitter) (Kaplan & Haenlein, 2010).

Marketing: The process of identifying, anticipating, and satisfying customer needs and wants through the creation, promotion, and delivery of goods or services, with the aim of generating value and achieving organizational goals (Kotler & Keller, 2016).

Farmers: Individuals or groups engaged in agricultural activities such as crop production, livestock rearing, or aquaculture, typically for subsistence or commercial purposes (FAO, 2021).

Methodology

This study employed a descriptive research design to evaluate the awareness, adoption, and constraints associated with the use of social media by farmers in Nasarawa State, Nigeria. The approach was designed to systematically investigate the extent of social media utilization, identify barriers to its adoption, and recommend strategies for improving its use. The methodology consisted of clearly defined research questions, a focus on a specific study area, a robust sampling process, and structured data collection and analysis techniques.

Study Area

The study was carried out in Nasarawa State located in the North-central region and the Guinea Savannah belt of Nigeria. Nasarawa State lies between latitudes 7°N and 9°N and longitudes 7°E and 10°E' (Rahman, Onuk & Oyewole, 2013) and has a total land area of about 27,117 km^2. Nasarawa State shares boundary with the Federal Capital Territory (FCT) to the north-west, Kaduna and Plateau states to the north-east, Benue state to the south, Kogi State to the west, and Taraba State in the south-east (Salau & Attah, 2012). Nasarawa State has 13 Local Government areas namely Akwanga, Awe, Doma, Karu, Keana, Kokona, Lafia, Nasarawa, Nasarawa Eggon, Obi, Toto, Wamba and Keffi with its headquarters in Lafia. The people of Nasarawa state include among others the; Gwandara, Alago, Eggon, Gbagi, Egbira, Migili, Kantana, Fulani, Hausa, Kanuri, Tiv, Afo, Gade, Nyankpa, Koro, Jukun, Mada, Ninzam, Buh, Basa, Agatu, Arum, Kulere and also settler groups like the Igbo, Yoruba and Hausa.

Nasarawa State has a population of about 1,863,275 with an annual growth rate of 3% (National Population Commission, [NPC], 2007; National Bureau of Statistics [NBS], 2019). The economy state is predominantly agrarian, with the population primarily engaged in crop farming, livestock rearing, and trading. Livestock farming in the area largely involves cattle, sheep, and goats. Nasarawa State experience both dry and rainy season during the year, the climate is characterized by tropical sub-humid condition, according to Koppen's classification. The dry season starts from November to February and between the month of March and April, the temperature becomes very high. The rainy season lasts for seven months (April and October) with average annual rainfall of about 226mm (Binbol & Marcus, 2008).

Crops grown in the study area include; cereals like rice, sorghum and millet which are produced in abundance; roots and tubers produced are yams, cassava, potato and sweet potato; oil seed include: pigeon pea, sesame seeds and groundnuts, while tree crops include: citrus, mango, oil palm, guava, cashew as well as sugar cane.

Sampling Technique and Data Collection

The study adopted a simple random sampling of twenty farmers from each of the thirteen local government areas to ensure an unbiased representation of the target population. A sample size of 260 farmers was selected from various communities within Nasarawa state. This sampling approach provided a diverse pool of respondents, capturing a wide range of experiences, practices, and challenges related to social media utilization.

Data were collected using a structured questionnaire supplemented with scheduled interviews. The questionnaire was carefully designed to elicit detailed responses on key aspects of the study, including demographic characteristics of the farmers, awareness of social media, adoption levels, and constraints hindering its use. The questionnaire consisted of both closed-ended and open-ended questions to allow for quantitative and qualitative data collection.

Since many of the respondents were illiterate, interviews were incorporated to ensure inclusivity and enhance the reliability of the data. The interviews allowed respondents to provide additional context to their responses and enabled the researcher to capture nuanced perspectives that might not be easily expressed in written form.

Data Analysis

The data collected were analyzed using descriptive statistical tools, including frequencies, percentages, and tabulations, to summarize and present the findings. Awareness and adoption levels were calculated to provide an overview of the penetration of social media among the farmers. Garrett's Ranking Technique was applied to study the constraints faced by farmers in adopting social media platforms for marketing of their produce. The main advantage of this technique over simple frequency distribution is that the constraints are arranged based on their severity from the point of view of the farmers. The formula is stated as:

$$\text{Percent position} = \frac{100(Rij-0.5)}{Nj}$$

Where

Rij = Rank given for the i^{th} variable by j^{th} respondents

Nj = Number of variable ranked by j^{th} respondents

This analytical framework allowed the study to isolate the most pressing barriers to social media adoption and identify areas where intervention is critically needed.

Ethical Considerations

The study was carried out in adherence with ethical research standards. Respondents were informed of the aim of the study and assured of the confidentiality of their responses. Participation was voluntary, and the respondents had the right to withdraw at any stage of the research process without repercussions.

Results and Discussion

Demographics of respondents

Table 1: Demographics of respondents

Class	Category	F	%
Gender	Male	208	80
	Female	52	20
Age (years)	<25	12	4.6
	25-45	105	40.4
	>45	143	55
Marital status	Married	223	85.8
	Unmarried	8	3.1
	Divorced	18	6.9
	Widowed	11	5.5
Level of education	None	73	28
	Primary	94	36.2
	Secondary	51	19.6
	Tertiary	42	16.2
Household size	<3	78	30
	3-6	118	45.4
	>6	64	24.6

F = Frequency, % = Percentage N = 260 Source: Field survey 2024

Male farmers constituted 80% of the respondents, indicating a male-dominated farming sector. Women's lower participation suggests potential cultural or structural barriers to technology adoption, highlighting the need for gender-sensitive approaches in social media adoption initiatives. With 55% of respondents aged above 45 years, older farmers dominate the sector. Older farmers are generally less inclined to adopt new technologies due to lower digital literacy as noted by Afande, Maina & Maina, (2015), while the younger population, which is more digitally inclined, remains underrepresented. A significant percentage (28 and 36.2) of farmers had little or no formal education. This lack of good formal education limits the farmers' ability to understand and adopt social media marketing, underscoring the need for training and literacy programs. The demographic profile reveals structural

limitations to social media adoption, including age, gender, and educational disparities. Tailored interventions such as targeted training for older farmers, women-focused programs, and basic digital literacy campaigns are therefore necessary to address these gaps.

Socio-economic characteristics

Table 2: Socio-economic characteristics

CLASS	Category	F	%
Farming	<5	66	25.4
experience (years)	5-9	83	31.9
	10-20	61	23.5
	>20	50	19.2
Member of	Yes	151	58.1
cooperative group	No	109	41.9
Number of visit by	None	157	60.4
extension agent per	Once	82	31.5
month	Twice	15	5.8
	More than twice	6	2.3
Access to Credit	Yes	88	33.8
facilities	No	172	66.2
Type of farming	Livestock	57	21.9
activity	Crop farming	149	57.3
	Both	54	20.8
Purpose of	Subsistence	77	29.6
production	Commercial	183	70.4

F = Frequency, % = Percentage Source: Field survey 2024

Farmers with more than 20 years of experience constituted 19.2%, while 25.4% had less than five years of experience. Experienced farmers might resist new technologies, preferring traditional methods, while less experienced farmers may be more open to social media adoption, interestingly, this scenario is supported by Idu, Ajah, Alabi & Nnaji, (2021), who confirmed a significant negative relationship between farming experience and social media usage. 60.4% had no interaction with extension agents which is disadvantageous to adoption of innovation as noted by Agwu, Uche-Mba & Akinnagbe (2008) who

highlighted that poor extension-farmer linkages is a barrier to innovation dissemination, this is also in congruence with Kondylis, Mueller & Zhu, (2017), who reported that extension services and training programs often fail to reach farmers with appropriate and timely information. Only 33.8% had access to credit. Limited access to credit and weak extension services are significant barriers, preventing farmers from investing in new tools like social media marketing. A majority (58.1%) of the respondents were members of cooperatives. Cooperatives can facilitate collective adoption of technology, making them a key leverage point for promoting social media use. as noted by Jack (2013), who stated that membership in social groups enhances access to information and resources, but lack of credit remains a persistent challenge for adoption of innovation. The findings emphasize the need to strengthen credit access, improve extension services, and use cooperatives as platforms for promoting social media adoption. Interventions must address financial and institutional barriers that hinder farmers' ability to adopt innovative technologies.

Distribution of respondents based on their awareness and adoption of the social media platforms for marketing

Table 3: Distributionof respondentsbased on their Awareness of the social media platforms

Platform	Aware F (%)	Not aware F (%)
WhatsApp	241 (92.7%)	19 (7.3%)
Facebook	249 (95.8%)	11 (4.2%)
Instagram	116 (44.6%)	144 (55.4%)
X (Twitter)	123 (47.3%)	137 (52.7%)
Youtube	158 (60.8%)	102 (39.2%)
Tiktok	107 (41.2%)	153 (58.8%)
Telegram	137 (52.7%)	123 (47.3%)
Snapchat	98 (37.7%)	162 (62.3%)
Linkedln	54 (20.8%)	206 (79.2%)

Source: Field survey 2024, F = Frequency N = 260

Table 4: Distribution of respondents based on their utilization (adoption) of social media for marketing of produce

Social media platforms	Use	Do not use
WhatsApp	178 (68.5%)	82 (31.5%)
Facebook	186 (71.5%)	74 (28.5%)
Instagram	61 (23.5%)	199 (76.5%)
X (Twitter)	72 (27.7%)	188 (72.3%)
YouTube	121 (46.5%)	139 (53.5%)
Tiktok	49 (18.8%)	211 (81.2%)
Telegram	64 (24.6%)	196 (75.4%)
Linkdln	29 (11.2%)	231 (88.8%)

Source: Field survey 2024 N = 260

Platforms like Facebook (95.8%) and WhatsApp (92.7%) had the highest awareness levels, while LinkedIn (20.8%) and TikTok (37.7%) were less familiar to farmers. The uneven awareness indicates a need to focus on platforms that farmers already know and use. On adoption rates; Facebook (71.5%) and WhatsApp (68.5%) were the most adopted platforms, reflecting their ease of use and relevance. Platforms like Instagram (23.5%) and LinkedIn (11.2%) showed lower adoption, suggesting a gap in understanding their utility for marketing. The findings align with Odediran & Ojebiyi (2017), who observed that high awareness does not guarantee high adoption rates. The study findings align with Suchiradipta & Saravanan (2016); Kimani, Nyang'anga & Mburu, (2019), Ifejika, Asadu, Enibe, Ifejika & Sule, (2019); Abuta, Agumagu, & Adesope, (2021) who in their study reported that Whatsapp and Facebook were among the most popular platforms among farmers. High awareness of Facebook and WhatsApp presents an opportunity for scaling their use in agricultural marketing. However, farmers need guidance on leveraging other platforms with unique marketing advantages, such as Instagram for visual branding and LinkedIn for professional networking.

Distribution of respondents based on their other uses of social media platforms

Table 5: Distribution of respondents based on their other uses of social media platforms

Purpose of usage	Users Frequency	Tools used by farmers
Sourcing agricultural information	211 (81.2%)	Whatsapp, Youtube, Tiktok, X (Twitter)
Connecting with extension agents relevant institutions	88 (33.8%)	Whatsapp, Facebook, Instagram, Linkedln,
Finding news updates and events	209 (80.4%)	Whatsapp, Facebook, X (Twitter), Youtube
Sharing information	167 (64.2%)	Whatsapp, Facebook, X (Twitter), Instagram, Tiktok
Connecting with other farmers and clients	155 (59.6%)	Whatsapp, Facebook, Instagram, X (Twitter), Linkedln
Personal interest	210 (80.8%)	Whatsapp, Facebook, X (Twitter), Instagram, Tiktok, Youtube, Linkedln

Source: Field survey 2024 N = 260

From the result on how these platforms serve the marketing needs of the farmers, the majoritty (81.2%) used platforms like WhatsApp and YouTube to access agricultural information. This highlights the potential of social media as an information dissemination tool. This is in line with Inegbedion, Inegbedion, Asaleye, Obadiaru & Asamu, (2020) who reported that mobile phones have significantly contributed to the empowerment of farmers in developing countries through digital marketing. A smaller proportion of farmers (59.6%) used social media to connect with clients and other farmers. This indicates an underutilization of social media for market access and professional networking. Social media's potential for branding, product promotion, and sales remains largely untapped, with fewer farmers adopting these functions. Farmers primarily use social media for information and personal communication rather than marketing. Training programs should focus on teaching farmers how to use social media for branding, sales, and networking to fully realize its marketing potential.

Distribution of respondents based on the constraints to adoption of social media for marketing farm produce.

Table 6: Distributionof respondentsbased on the constraintsto adoption of social media for marketingfarmproduce

Constraint	Ranksgiven by the Respondents				
	1st	2nd	3rd	4th	5th
High cost of internet facilities and data charges	111	69	55	13	12
Poor network coverage and internet connectivity	128	77	23	14	18
Low social media awareness	55	77	98	10	20
High cost connecting devices and accessories such as cell phone, laptop, table etc.	169	60	16	1	14
High cost of maintenance	79	81	61	12	27
Inadequate infrastructure to support use	57	25	10	55	113
Lack of technical skills and capacity to use the devices and apps	117	43	13	37	50
Lack of exposure and training	75	66	32	25	62
Privacy concerns and risks	125	77	29	18	11
Lack of accuracy of provided information and data on social media.	88	72	61	23	16

Source: Field survey 2024

Table2: Percentpositions andGarretValues

S/N	100(Rij-0.5)/ Nj	CalculatedValue	GarretScore
1	100(1-0.5)/ 10	5	81
2	100(2-0.5) /10	15	70
3	100(3-0.5) /10	25	63
4	100(4-0.5)/ 10	35	58
5	100(5-0.5) /10	45	52

Table3: The calculationof Garretscore and rankingof constraintsfaced by farmersin adoptingsocial media platformsfor marketing

Constraint	Ranks given by the Respondents							
	1st	2nd	3rd	4th	5th	Total	Average	Rank
High cost of internet facilities and data charges	8991	4830	3465	754	624	18664	71.78462	4th
Poor network coverage and internet connectivity	10368	5390	1449	812	936	18955	72.90385	3rd
Low social media awareness	4455	5390	6174	580	1040	17639	67.84231	8th
High cost connecting devices and accessories such as cell phone, laptop, table etc.	13689	4200	1008	58	728	19683	75.70385	1st
High cost of maintenance	6399	5670	3843	696	1404	18012	69.27692	7th
Inadequate infrastructure to support use	4617	1750	630	3190	5876	16063	61.78077	10th
Lack of technical skills and capacity to use the devices and apps	9477	3010	819	2146	2600	18052	69.43077	6th
Lack of exposure and training	6075	4620	2016	1450	3224	17385	66.86538	9th
Privacy concerns and risks	10125	5390	1827	1044	572	18958	72.91538	2nd
Lack of accuracy of provided information and data on social media.	7128	5040	3843	1334	832	18177	69.91154	5th

Source: Field survey 2024

The high cost of devices, internet data, and maintenance ranked as the top constraints, making social media inaccessible to many farmers. This is in congruence with Singh, Sankhwar & Pandey (2015), Kimani *et al.* (2019) who noted that the high cost of accessing information has been cited as a major barrier to the adoption of agricultural innovations. Poor network infrastructure and weak internet connectivity, especially in remote areas, limits farmers' ability to access and use social media effectively. Many farmers lack the technical skills required to use social media platforms, compounded by limited access to training programs. Farmers also expressed concerns about data security and the accuracy of information on social media platforms, further discouraging adoption. Addressing these constraints therefore requires a multifaceted approach that includes subsidizing ICT devices and internet access, improving rural network infrastructure, conducting regular training sessions on digital literacy and ensuring reliable and accurate information dissemination. This will ensure sustainable agricultural production and thereby improve the rural livelihoods of the farmers as noted by Erickson (2011) and Nwachukwu, Pam, Anaeto & Igboneme, (2023)

Summary

The study explored social media awareness, adoption, and constraints among farmers in Nasarawa State, Nigeria, using a descriptive research design. Data were gathered from 260 randomly selected farmers through structured questionnaires and interviews. Findings showed that while awareness of platforms like WhatsApp (92.7%) and Facebook (95.8%) was high, actual adoption remained low due to constraints such as high costs of devices and data, poor infrastructure, inadequate training, and low technical skills. Social media platforms were primarily used for information sharing, networking, and accessing agricultural updates. However, their use for extension services, marketing, and financial transactions was minimal. Farmers perceived social media as time-saving and effective for communication, with broader coverage compared to traditional methods. Educational attainment played a significant role in enhancing ease of use and adoption levels.

Despite its potential to improve productivity and linkages in agriculture, the study highlighted several barriers, including limited credit access, lack of technical knowledge, and poor infrastructure. Addressing these issues through targeted interventions, such as capacity building, subsidized ICT tools, improved internet connectivity, and policy support, could significantly enhance social media adoption.

Conclusion

The study concluded that while social media awareness among farmers in Nasarawa State is high, its adoption remains constrained by socioeconomic and infrastructural challenges, including high costs of devices and data, inadequate training, poor internet connectivity, and limited access to credit. Farmers predominantly use platforms like WhatsApp and Facebook for information sharing and networking but underutilize them for extension services, marketing, and financial transactions. Despite these limitations, farmers recognize the potential benefits of social media in enhancing communication, accessing agricultural information, and improving productivity. Addressing these barriers through capacity building, financial support, and improved infrastructure is essential for maximizing the transformative potential of social media in agriculture.

Recommendations

The following are the recommendation from the study:

I. There should be capacity building in the form of training programs to improve farmers' technical skills in using social media platforms effectively. Digital literacy initiatives should target farmers with little or no formal education to enhance their ease of use.

ii. There should be expanded internet coverage in rural areas and subsidized data packages should be provided to ensure affordability. ICT infrastructure should be strengthened to support seamless connectivity for social media utilization.

iii. Affordable credit facilities should be provided to enable farmers to acquire ICT tools and cover data costs. Also government-backed subsidies should be introduced for smartphones and other necessary devices.

iv. Farmers should be trained on using social media for e-commerce and connecting with agricultural institutions, encouraging them to explore online markets to boost their farm incomes and expand their networks.

v.

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