IJAAR PUBLISHING®

African Journal of Sustainable Agricultural Development | ISSN: 2714-4402
Vol. 5, Number 1 (January-March, 2024) | www.ijaar.org/ajsad

Impact of Digital Marketing on Agricultural Product Sales: A Case Study of Smallholder Farmers in Nigeria

Associate Professor Udegbe Scholastica Ebarefimia, PhD.
Lagos State University, Faculty of Management Sciences, Department of Marketing, Nigeria.
scholastica.udegbe@lasu.edu.ng

Olufemi Aina Ajose, PhD.
Lagos State University, Faculty of Management Sciences, Department of Marketing, Nigeria.
olufemi.ajose@lasu.edu.ng

Adekunle Azeez Aliu
The Federal Polytechnic, Ilaro, Ogun State, Nigeria.
azeez.aliu@federalpolyilaro.edu.ng

Tijani Usman Moyosore
Lagos State University, Faculty of Management Sciences, Department of Marketing, Nigeria.

Abstract.

The aim of this research was to examine the impact of digital marketing on agricultural product sales through a case study of smallholder farmers in Nigeria. Nigeria is coping with a number of legal, cultural, political, social, and economic challenges. Many people still live in abject poverty and inhabitable conditions. Utilising digital marketing is made more difficult by the fact that the majority of Nigeria's smallholder farmers operate in areas without reliable internet access or the internet. Likewise, the household farmers, apart from lacking funds and resources, most of them are low in computer proficiency and also lack trustworthy staff to manage online marketing and sales. Hence, despite the potential of digital marketing to boost incomes and improve the supply chain, it has no serious impact on agricultural product sales. However, it is also evident researchers have not fully assessed or placed enough focus on the level at which digital marketing influences agricultural product sales. Therefore, the goal of this study is to close that disparity. To test the application of the researched "constructs," a contextualised and literature-based research instrument was used in this study. Applying the survey approach, 100 respondents from Ogun State, Nigeria, provided sample data for the study. All of the administered questionnaires were deemed viable, indicating an effective response rate of 100%. Positive proof of the research instrument's validity and reliability was shown. The study's conclusion makes it abundantly evident that, even if digital marketing has the ability to increase earnings and enhance the supply chain, it has little effect on Nigerian smallholder farmers' sales of agricultural products. The results will aid in comprehending the extent to which Nigerian household farmers prioritise digital marketing to improve agricultural product sales. The study will also serve as a manual for scholars and practitioners in other developing nations.

Keywords: Digital marketing; agricultural product sales; smallholder farmers; Nigeria.

Ebarefimia, S. U., Ajose, A. O., Aliu, A. A & Moyosore, U. T. (2024). Impact of Digital Marketing on Agricultural Product Sales: A Case Study of Smallholder Farmers in Nigeria. *African Journal of Sustainable Agricultural Development*. 5(1), 30-40.

Introduction.

Digital marketing has revolutionised the agricultural sector by promoting products, streamlining supply chains, and connecting producers with consumers. It has significantly transformed the agricultural sector, enhancing farmers' and agribusinesses' engagement with the market (Fraser and Campbell 2019; Stackhouse 2019; Basso and Antle, 2020). It uses various online channels, technologies, and data-driven strategies to promote agricultural products, streamline supply chains, and connect producers with consumers. Digital platforms include websites, e-commerce platforms, social media, mobile apps, and email marketing. Digital marketing contributes to community building by fostering online communities around agricultural interests. Likewise, agriculture marketing involves activities to satisfy the needs of agriculture products sold in the markets. It identifies the unfulfilled needs and wants of targeted consumers for purchasing vegetables, food grains, fruits, and commercial crops.

Over the past six decades, urbanisation and rising income levels have altered the farm-selling sector. Digital media platforms like WhatsApp, Facebook, Twitter, YouTube, and phones are used by farmer associations and farmers to sell their agricultural products. Farmers are able to supply fresh goods at consistent pricing and find various purchasers, both of which contribute to their increased income.

Smallholder farmers are people or families that work in small-scale agriculture and typically cultivate a small plot of land to support themselves. They frequently engage in subsistence farming due to lack of capital, resources, and financial means. They are more susceptible to market and climate risks, and they cultivate a wider range of crops in an effort to mitigate those risks. Notwithstanding these challenges, smallholder farmers contribute significantly to local food security, boost rural economies, and supply food locally.

Supporting smallholder farmers includes providing them with the resources, knowledge, and technology they require to boost their productivity, profitability, resilience food security, and fight against poverty. The rural development can all be enhanced by policies and initiatives that support smallholder farmers. Challenges faced by farmers include limited digital literacy among farmers, inadequate internet infrastructure in rural areas, and cybersecurity measures to secure sensitive agricultural data (Jakku et al., 2019);Miles 2019; Duncan et al., 2021).

The adoption of digital marketing practices among smallholder farmers in Nigeria is not well understood, despite its potential to enhance their incomes and streamline the supply chain. However, challenges like limited digital literacy and inadequate internet infrastructure in rural areas hinder the adoption of digital marketing practices among smallholder farmers in Nigeria (Higgins et al., 2017; Eastwood and Renwick, 2020). This study aims to fill this gap by providing insights on the impact of digital marketing on agricultural product sales among smallholder farmers in Nigeria.

Objectives of the study:

The primary goal of this study is to assess the impact of digital marketing on agricultural product sales among Nigerian smallholder farmers. Smallholder farmers in Nigeria face challenges in reaching markets, achieving fair prices, and ensuring sustainable livelihoods due to limited market access, inefficiencies in traditional marketing, technological barriers, a lack of information on best practices, and potential marginalisation in the digital era. Traditional marketing methods are characterised by inefficiencies, delays, and a lack of transparency, while digital marketing can help overcome these issues. However, the rapid

evolution of digital marketing practices may inadvertently marginalise smallholder farmers who lack the resources and knowledge to participate effectively in the digital marketplace.

Nonetheless, the specific objectives of this research are:

1. To look into how easily available digital technologies are to Nigerian smallholder farmers.
2. To find out if smallholder farmers in Nigeria use the main digital marketing platforms and strategies.
3. To find out if the market exposure of Nigerian smallholder farmers is impacted by digital marketing.
4. To find out if digital marketing has a significant effect on the sales of agricultural products by Nigerian smallholder farmers.

Research questions

The following research questions were created in order to meet the study's objectives:

1. Nigerian smallholder farmers have easy access to digital technologies. (Are you in agreement?)
2. Smallholder farmers in Nigeria do use the main digital marketing platforms and strategies. (Are you in agreement?)
3. The market exposure of Nigerian smallholder farmers is impacted by digital marketing. (Are you in agreement?)
4. Digital marketing has a significant effect on the sales of agricultural products by Nigerian smallholder farmers. (Are you in agreement?)

Research hypotheses

Hypothesis I:

H_o: Nigerian smallholder farmers have no easy access to digital technologies.

H_1: Nigerian smallholder farmers have easy access to digital technologies.

Hypothesis II

H_o: Smallholder farmers in Nigeria do not use the main digital marketing platforms and strategies.

H_1: Smallholder farmers in Nigeria do use the main digital marketing platforms and strategies.

Hypothesis III

H_o: The market exposure of Nigerian smallholder farmers is not impacted by digital marketing.

H_1: The market exposure of Nigerian smallholder farmers is impacted by digital marketing.

Hypothesis 1V

H_0: Digital marketing has no significant effect on the sales of agricultural products by Nigerian smallholder farmers.

H_1: Digital marketing has a significant effect on the sales of agricultural products by Nigerian smallholder farmers.

Literature Review

The agricultural sector is vital for economic development and poverty reduction in developing countries (Nebo & Ejionueme, 2017; Fraser & Campbell, 2019; Stackhouse, 2019).

Agriculture's e-commerce technologies are revolutionising the distribution of food, consumer access, and negotiation of sales (Fraser & Campbell, 2019; Stackhouse, 2019; Basso & Antle, 2020).

As the industry grows, businesses can now choose between traditional outreach channels or online marketing practices. Digital marketing offers businesses the opportunity to increase visibility and generate business-to-business leads more efficiently (Bahn et al., 2021; Fountas et al., 2020; Lajoie-O'Malley et al., 2020). Traditional marketing channels, such as print and electronic media, are reshaping the agriculture sector due to climate change, migration, and economic growth. However, the agricultural sector has the lowest adoption rate of digital marketing at 78%. Digital marketing can improve organic site traffic, search engine rankings, and industry expertise. Google Analytics tools can help businesses track traffic sources and develop more precise digital marketing strategies.

Google Analytics allows digital marketing in the agriculture industry to track website growth and traffic, enabling businesses to monitor visitor interest and expand their online presence. Google's Search Console provides comprehensive statistics on website performance, helping marketers understand and refine digital marketing strategies. Paid-ad digital marketing can help businesses expand online visibility and improve revenue quickly. Paid search targeting high-value keywords offers faster results than organic optimisation, generating revenue and gaining site traffic. Social media-paid ads are a growing marketing channel for businesses in the agriculture sector, offering opportunities for business-to-business and eCommerce growth (Balkrishna BB, Deshmukh AA, 2017; White et al., 2014).

The agricultural sector in Nigeria has been neglected due to its lack of appeal to the youth. To address this, a new type of agricultural marketing, utilising digital marketing, is being explored (Deichmann, 2016; FAO 2020; Fabregas, 2019; Zhao, 2020). This study examines the impact of digital marketing on agricultural product sales through a case study of smallholder farmers in Nigeria. Digital agriculture offers advantages such as increased productivity, better market transparency, and more effective logistics. It has also helped underdeveloped nations fend off the COVID-19 pandemic's negative effects on food supply chains and industry. However, digital technology could create a "digital divide" between large and small farms, making it harder for smallholder farmers to access innovative agricultural technologies (O'Hara et al., 2020; Basu and Chakraborty, 2011).

Traditional agricultural product marketing, including print and electronic media, is still in its infancy in developing nations. Digitalization can combat climate change and boost

production, but it is crucial to overcome obstacles faced by small farmers to fully benefit from digital technology.

Digital agriculture offers smallholder farmers increased productivity, market transparency, and logistics, helping underdeveloped nations cope with the COVID-19 pandemic. It increases connectedness, provides technical information, and improves food traceability. Traditional marketing channels, like print and electronic media, are still in use, but mobile phone usage has given Nigerian farmers a competitive marketing option (O'Hara et al., 2020; Trendov, 2021; Ogunniyi, MD; and Ojebuyi, BR, 2012).

Research Methods

This study focuses on smallholder farmers in Ogun State, specifically in Obafemi-Owode and Yewa North Local Government areas, using questionnaires distributed to 100 smallholder farmers. The data were sourced through convenience sampling on the basis of a multiple-case study design and a pilot test on 10 respondents. All of the administered questionnaires were deemed viable, indicating an effective response rate of 100%.

The questionnaires contained relevant items and were rated using a 5-point Likert scale. The study aimed to measure the impact of digital marketing on agricultural product sales among smallholder farmers in Nigeria, as well as the demographic profiles of respondents. The Cronbach alpha reliability coefficient was 0.87, indicating good validity and reliability (Cronbach, 1947). Researchers studying marketing and agricultural management attested to the content's validity, and the results of the pilot study demonstrated its predictive validity. The conclusions of the study are presented in the sections that follow.

Findings and Discussion.

This research looks at the impact of digital marketing on agricultural product sales among smallholder farmers in Nigeria. The target audience consists of smallholder farmers in Ogun State, specifically in Obafemi-Owode and Yewa North Local Government areas.

Key research variables that were employed

A1: Smallholder farmers in Nigeria face challenges in reaching markets. (Are you in agreement?)

A2: Smallholder farmers in Nigeria face challenges in reaching markets due to technological barriers. (Are you in agreement?)

A3: Smallholder farmers in Nigeria lack information on best practices. (Are you in agreement?)

A4: Nigerian smallholder farmers have easy access to digital technologies. (Are you in agreement?)

A5: Smallholder farmers in Nigeria do use the main digital marketing platforms and strategies. (Are you in agreement?)

A6: The market exposure of Nigerian smallholder farmers is impacted by digital marketing. (Are you in agreement?)

A7: Digital marketing has a significant effect on the sales of agricultural products by Nigerian smallholder farmers. (Are you in agreement?)

A8: Digital marketing practices may inadvertently marginalise smallholder farmers who lack the resources and knowledge to participate effectively in the digital marketplace. (Are you in agreement?)

The Respondents' Demographic Details

According to the demographic data, the mean age of the respondents was 37 years, indicating they are economically active and innovative. Most were aged 36–55 years and 88.75% were married with children. Women are 45%, and men are 55%. About 90% of the respondents had between 3 and 6 children, with 58.5% having primary and secondary education. 68% were practicing Christianity, while 32% were Muslims. 45% of the farmers had between 5 and 10 years of farming experience, with 38% having between 11 and 20 years, and 17% had more than 20 years. The area of land cultivated was also a determinant of farm production.

Table 1: Descriptive statistics of the impact of digital marketing on agricultural product sales among smallholder farmers in Nigeria. (n=100)

Variable	Mean	Std. Dev.	Skewness	Kurtosis
A1	4.941	0.9887	-0.172	2.896
A2	4.540	0.4717	-0.066	2.430
A3	4.221	0.4122	-0.047	2.326
A4	1.521	0.6231	-0.008	0.056
A5	1.753	0.4072	-0.043	0.310
A6	2.953	0.0814	-0.093	1.623
A7	1.236	0.0442	-0.003	0.026
A8	4.648	0.4613	-0.053	2.352

Source: Fieldwork 2024

The study suggests that digital marketing methods may inadvertently overlook or marginalise smallholder farmers who lack the resources and know-how to participate in the digital marketplace. Smallholder farmers in Nigeria frequently turn to subsistence farming due to a lack of capital, resources, and financial means. The issues that most farmers face are poor levels of digital literacy, cyber security precautions to safeguard critical agricultural data, and a lack of internet connectivity in remote areas. Nigerian smallholder farmers are not proficient in using digital marketing strategies, even though they have the capacity to boost their income and streamline the supply chain.

Table 1's mean values show that each of the variables (A1–A8) showed some degree of support for the idea posed, with A1 (A1: Smallholder farmers in Nigeria face challenges in reaching markets. (Are you in agreement?) With a mean value of 4.941, showed the greatest degree of support for the statement. The majority of smallholder farmers do not employ digital marketing or online sales and marketing technology, which may have made it easier for them to reach the market, as is clear from the respondent interviews. Most of them have

little interest in using online sales or digital marketing because of several challenges in their working environment.

The smallholder farmers are poor in resources, cash, and internet access. In a similar vein, not everyone online has a dependable internet connection. In addition, smallholder farmers deal with inadequate computer literacy and a shortage of trustworthy staff to manage online marketing and sales. According to the data gathered, all respondents (100%) strongly agreed with the statement that smallholder farmers in Nigeria have difficulty getting their products to market.

Likewise, with the generation from the mean value, A8 followed, respectively, with a mean value of 4.648 (A8: Digital marketing practices may inadvertently marginalise smallholder farmers who lack the resources and knowledge to participate effectively in the digital marketplace). (Are you in agreement?), showing the next significant support. Similarly, Variables A7 (A7): Digital marketing has a significant effect on the sales of agricultural products by Nigerian smallholder farmers. (Are you in agreement?) with a mean value of 1.236, offers very low justifiable backing for the posed question. On the other hand, among all the statements surveyed, it also garnered the least support. This is the case because, according to the in-person interview, most of the smallholder marketers showed little or no interest in digital marketing.

THE TEST OF RESEARCH HYPOTHESES

Research Hypothesis One:

Ho: Nigerian smallholder farmers have no easy access to digital technologies.

H1: Nigerian smallholder farmers have easy access to digital technologies.

Table I's mean column indicates that A4: Nigerian smallholder farmers have easy access to digital technologies. (Are you in agreement?). Observed a poor mean degree of 1.521, indicating a lack of support for the study question. Furthermore, the data obtained indicate that 97.20% of respondents disagreed with the statement that Nigerian smallholder farmers had easy access to digital technologies, with 2.80% of respondents holding a different opinion. Consequently, the alternative hypothesis is rejected, and the null hypothesis, "Ho: Nigerian smallholder farmers do not have easy access to digital technologies," is accepted. Similarly, in the t-test analysis (not documented here), the t score values were 1.02 at the 5-percent significant level. The alternative hypothesis is now rejected, and the null hypothesis is accepted since the t score value is smaller than the t-table value of 1.96.

Research Hypothesis 2

Ho: Smallholder farmers in Nigeria do not use the main digital marketing platforms and strategies.

H1: Smallholder farmers in Nigeria do use the main digital marketing platforms and strategies.

From the mean column in Table I, it can be seen that A5 (Smallholder farmers in Nigeria do use the main digital marketing platforms and strategies; are you in agreement?) had a mean value of 1.753, indicating minimal support for the study questions posed. In a similar vein, the data gathered indicated that 6.04% of respondents agreed with the question, while 93.06% disagreed. Similarly, in this examination of the t-test (not documented here), at a 5 percent significant level, the t-score values for A 5 = 1.82. Hence, the alternative hypothesis is

rejected, and the null hypothesis, "Ho: Smallholder farmers in Nigeria do not use main digital marketing platforms and strategies," is hereby accepted because the t score value is smaller than the t table value of 1.96.

Research Hypothesis Three:

Ho: The market exposure of Nigerian smallholder farmers is not impacted by digital marketing.

H1: The market exposure of Nigerian smallholder farmers is impacted by digital marketing.

According to Table I's mean columns, A6 "(The market exposure of Nigerian smallholder farmers is impacted by digital marketing, are you in agreement?)" had a low degree of mean value (2.953), indicating that the study question had little support. Similarly, the results showed that only 12% of respondents agreed with the question, while 88% of respondents did not. Similarly, at a 5-percent significance level, the t-test analysis (not included here) yielded t-score values of 1.36. Since the t score value is less than the T table value of 1.96, the null hypothesis “Ho: The market exposure of Nigerian smallholder farmers is not impacted by digital marketing.” is accepted, and the alternative hypothesis is rejected.

Research Hypothesis Four:

Ho: Digital marketing has no significant effect on the sales of agricultural products by Nigerian smallholder farmers.

H1: Digital marketing has a significant effect on the sales of agricultural products by Nigerian smallholder farmers.

From the mean column in Table I, it can be seen that A7 (digital marketing) has a significant effect on the sales of agricultural products by Nigerian smallholder farmers. (Are you in agreement?), had a mean value of 1.236, indicating minimal support for the study questions posed. In a similar vein, the data gathered indicated that 7% of respondents agreed with the question, while 93% disagreed. Similarly, in this examination of the t-test (not documented here), at a 5 percent significant level, the t-score values for A 7 = 1.91. Hence, the alternative hypothesis is rejected, and the null hypothesis, "Ho: Digital marketing has no significant effect on the sales of agricultural products by Nigerian smallholder farmers," is hereby accepted because the t score value is smaller than the t table value of 1.96.

Conclusion and Suggestions for Further Research

This study looked into how Nigerian smallholder farmers' sales of agricultural products were affected by digital marketing. The results show that, despite its potential to boost incomes and improve the supply chain, digital marketing has no appreciable impact on the sales of agricultural products by Nigerian smallholder farmers. Smallholder farmers in Nigeria lack expertise in using digital marketing strategies. The majority of smallholder farmers are not interested in using online sales or digital marketing due to a number of obstacles presented by their operational environment. Lack of funds, resources, internet access, or a dependable internet connection are the main problems faced by smallholder farmers in Nigeria. Likewise, low computer proficiency between smallholder farmers and a lack of trustworthy staff to manage online marketing and sales are among the problems facing smallholder farmers in Nigeria.

Future research scope

This investigation was exclusive to Nigeria's Ogun State, specifically in Obafemi-Owode and Yewa North Local Government areas. Other states in Nigeria can be included in this theme. The study limited itself to 100 usable questionnaires for respondents' questionnaires. Big-scale research with a large sample size can also be carried out in the future, taking into account additional pertinent aspects.

References

Bahn, R. A., Yehya, A. A. K., and Zurayk, R. (2021). Digitalization for sustainable agri-food systems: potential, status, and risks for the MENA Region. *Sustainability* 13,

Balkrishna BB, Deshmukh AA (2017). A study on the role of social media in agriculture marketing and its scope. *Global Journal of Management and Business Research: E-Marketing*, 17(1):1–5.

Basso, B., and Antle, J. (2020). Digital agriculture to design sustainable agricultural systems. *Nat. Sustain.* 3, 254–256.

Deichmann, U.; Goyal, A.; Mishra, D.(2016). Will digital technologies transform agriculture in developing countries? *Agric. Econ.47*, 21–33

Duncan, E., Glaros, A., Ross, D. Z., and Nost, E. (2021). New, but for whom? Discourses of innovation in precision agriculture. *Agric. Hum. Values* 38, 1181–1199.

Eastwood, C. R., and Renwick, A. (2020). Innovation uncertainty impacts the adoption of smarter farming approaches. *Front. Sustain. Food Syst.* 4, 24.

Fabregas, R.; Kremer, M.; Schilbach, F. (2019). Realising the potential of digital development: The case of agricultural advice. *Science, 366*, 1–9.

FAO. (2020). Realising the Potential of Digitalization to Improve the Agri-Food System: Proposing a New International Digital Council for Food and Agriculture. Available online: http://www.fao.org/3/ca7485en/ca7485en.pdf.

Fountas, S., Espejo-García, B., Kasimati, A., Mylonas, N., and Darra, N. (2020). The future of digital agriculture: technologies and opportunities. *IT Profession.* 22, 24–28.

Fraser, E. D. G., and Campbell, M. (2019). Agriculture 5.0: reconciling production with planetary health. *One Earth* 1, 278–280.

Higgins, V., Bryant, M., Howell, A., and Battersby, J. (2017). Ordering adoption: materiality, knowledge, and farmer engagement with precision agriculture technologies. *J. Rural Stud.* 55, 193-202.

Jakku, E., Taylor, B., Fleming, A., Mason, C., Fielke, S., Sounness, C., et al. (2019). "If they don't tell us what they do with it, why would we trust them?" Trust, transparency, and benefit-sharing in smart farming *NJAS-Wagen, J. Life Sci*. 90–91

Jakku, E., Fielke, S., Fleming, A., and Stitzlein, C. (2022). Reflecting on opportunities and challenges regarding the implementation of responsible digital agri-technology innovation. *Sociol. Ruralis* 62, 363–388

Lajoie-O'Malley, A., Bronson, K., van der Burg, S., and Klerkx, L. (2020). The future(s) of digital agriculture and sustainable food systems: an analysis of high-level policy documents. *Ecosyst. Serv.* 45,

Miles, C. (2019). The combine will tell the truth about precision agriculture and algorithmic rationality. *Big Data Soc.* 6

Nebo GN, Ejionueme N: Adopting an Agricultural Marketing Approach for Improving Agricultural Sector Performance in Nigeria. *Journal of Business and Management.* 2017;19(4):4–17

O'Hara, K. Jeffrey; Low, A. Sarah (2020). Online Sales: A Direct Marketing Opportunity for Rural Farms? . Journal of Agricultural and Applied Economics, **52**, pp. 222-239

Ogunniyi MD, Ojebuyi BR (2012) Mobile Phone Use for Agribusiness by Farmers in Southwest Nigeria. *Electronic Journals Service (EJS).* 20(10):172–187.

Pratyusha Basu and Jayajit Chakraborty (2011). New technologies, old divides: linking internet access to the social and locational characteristics of US farms

Stackhouse, J. (2019). *Farmer 4.0: How the Coming Skills Revolution Can Transform Agriculture*. Available online at: https://www.rbcwealthmanagement.com/en-ca/insights/farmer-40-how-the-coming-skills-revolution-can-transform-agriculture

Trendov, N.M.; Varas, S.; and Zeng, M. (2019). Digital Technologies in Agriculture and Rural Areas: Status Report. Available online: http://www.fao.org/3/ca4985en/ca4985en.pdf

White D, Meyers C, Doerfert D, et al. (2014). Exploring agriculturalists' use of social media for agricultural marketing. *Journal of Applied Communications,* 98(4):1–14.

Zhao, C. (22020). Digital agriculture in China. Digital Agriculture Forum, co-organised by FAO, 5–6 December 2020. Available online: http://www.fao.org/e-agriculture/news/digital-agriculture-forum-2020-inspiration-create-business-real-impact-people-real-needs