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Effect of Agricultural Information accessed via social media on Cassava Farmers in Odogbolu Local Government Area, Ogun State, Nigeria

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Abstract
This study investigated the effect of agricultural practices accessed via social media on cassava production in Odogbolu Local Government Area of Ogun State, Nigeria. A purposive sampling technique was used to select 120 cassava farmers, while primary data were collected using questionnaire. Data were analyzed using frequency counts, percentages, mean, and regression. Results showed that 51.7% of the respondents were male with average age of 47.53 years and mean farming experience of 22.60 years. Results also showed that information on cassava market pricing updates ($\bar{x}$ = 2.67), improved cassava varieties ($\bar{x}$ = 2.65), pest and disease control techniques ($\bar{x}$ = 2.64) and organic farming ($\bar{x}$ = 2.33) were the commonly used agricultural information accessed through social media. Findings further showed that the average cassava yield was 18,690 kg/ha, while respondents mentioned the most benefit of using information on social media to include, improved access to agricultural knowledge ($\bar{x}$ = 4.13). Regression analysis showed that organic farming (β= 3.867, $p < 0.001$), climate-smart practices (β= 3.052, $p = 0.014$), and agroforestry (β= 3.260, $p = 0.018$) significantly improved cassava production. The study concluded that social media played a growing role in enhancing cassava productivity. Findings from this study emphasized the need to promote the use of social media for agricultural productivity and food security. To this effect, extension agents should use common social media platforms to share verified agricultural information with cassava farmers.
Key words: Digital extension, Improved yield, Food security, Agricultural sustainability

Introduction

Agriculture is the cornerstone on which economic development, food security, and poverty alleviation are built in Nigeria. Employing over 70% of the population, smallholder farmers make up a significant portion of this workforce (FAO, 2023). Cassava (*Manihot esculenta*) stands out among the various staple crops cultivated, and it remains one of the most important. Nigeria is the world's largest producer of this staple crop, contributing more than 20% of its global production (FAO, 2023).

In spite of its significance, cassava farming has a number of challenges, among which is, the total reliance on traditional farming practices, limiting access to modern agricultural knowledge, which in turn leads to low productivity and high post-harvest losses (Ogundele, 2022).

Expected to provide farmers with improved farming techniques, the traditional agricultural extension system has been underfunded resulting in its inefficiency (Maake and Antwi, 2022). Too few in number, extension workers have been unable to meet the needs of the large farming population and this has resulted in knowledge gaps, preventing farmers from adopting modern climate-smart agricultural practices (Davis

et al., 2019). According to the Federal Ministry of Agriculture and Rural Development (FMARD), Nigeria has approximately only one extension agent for every 10,000 farmers, and this is far from the FAO's recommended ratio of 1:800 (FAO,2023). This deficit means that most cassava farmers will not receive timely guidance on better farming practices, pest control, and market trends, which can have a negative effect on their productivity and income. As a result, farmers no longer rely only on field visits or government extension officers for timely information, now engaging with online communities, following agricultural influencers, and participating in WhatsApp, Facebook, and other social media groups which are dedicated to cassava production. Allowing farmers to exchange knowledge on seed varieties, disease management, mechanization, and market access, these digital platforms have been invaluable (Eduafo *et al.,*2024). Nevertheless, a number of rural farmers still face challenges such as limited digital literacy, lack of smartphones, and unreliable internet access (Adeyemi *et al*.,2023). More to that, the information which are made available on social media may not always be credible, which may in turn lead to the risk of adopting ineffective or harmful practices.

However, regardless of the increasing use of social media for agricultural extension, there is just not enough empirical evidences of how it actually affects cassava farming productivity. According to Eduafo *et al*. (2024) social media improves farmers' knowledge and market access; however, Adeyemi *et al*. (2023) argue that some factors may reduce its effectiveness, such as, digital illiteracy, misinformation, and poor internet connectivity.

The specific objectives were to;

i. describe the socio-economic characteristics of the respondents in the study area
ii. assess the frequency of use of these agricultural practices accessed via social media among the cassava farmers
iii. assess the level of cassava production of the respondents
iv. identify the benefits that cassava farmers derived from adopting agricultural practices accessed via social media.

It was hypothesized that there was no significant relationship between the socio-economic characteristics of the respondents and their *level of cassava production. 2. T*here was no significant relationship between agricultural practices accessed via social media and the *level of cassava production.*

Methodology

The research was conducted in Odogbolu Local Government Area (LGA) of Ogun State, Nigeria. The LGA is home to quite a number of agrarian communities and cassava farming is a central part of the local livelihoods. The area supports agricultural activities throughout the year and has a tropical wet and dry climate. The research employed a purposive sampling procedure to select 120 respondents who utilized social media to access agricultural information and practices. A self-administered questionnaire was designed as the main instrument for primary data collection. Variables such as frequency of use of information accessed via social media was measured daily =5, weekly = 4, fortnightly = 3, monthly = 2 and yearly = 1 at interval level while benefits derived from using social media for accessing agricultural information was measured very important = 5, important = 4, neutral = 3, less important = 2 and not important = 1 at interval level. The collected data were analyzed using descriptive statistics, to analyze the research objectives. Chi-Square, Pearson and Product-Moment Correlation (PPMC) were used to test hypothesis one while Linear Regression was used to test hypothesis two.

Results and discussion

Socio-economic characteristics of the respondents

Findings from the study revealed that the mean age of the respondents was 47.5 years. Implying that most respondents were in their active, productive age, as a result, they are expected to position themselves to use social media to their advantage. Furthermore, results showed that the sex distribution of the respondents was nearly balanced. About 51.7% were male and 48.3% were female. Results further revealed that of the 120 farmers, the majority (86.7%) were married. Also, the educational qualifications of the farmers revealed that 38.3% of the farmers had secondary education, followed closely are the respondents who had primary

education (30.8) while 20.0% of the farmers had tertiary education. This finding implied that the majority of cassava farmers had one form of formal education. Results from Table 1 further revealed that a significant proportion of the respondents (65%) had long experience in farming. implying a high level of expertise in cassava cultivation. This is an important factor in optimizing productivity and sustainability. This aligns with the study carried out by Akintayo *et al.* (2022), who reported that increased experience is expected to result in more effective decisions and effective farm management.

Table 1: Socio-economic characteristics of the respondents (n = 120)

Variables	Frequency	Percentage (%)	Mean ($\bar{x}$)	SD
Age (Years)				
<20	3	2.5		
21-30	9	7.5		
31-40	24	20.0		
>50	84	70.0	47.53	13.238
Sex				
Male	62	51.7		
Female	58	48.3		
Marital Status				
Single	4	3.3		
Married	104	86.7		
Separated/Divorced	5	4.2		
Widowed	7	5.8		
Educational Level				
No Formal Education	13	10.8		
Primary Education	37	30.8		
Secondary Education	46	38.3		
Tertiary Education	24	20.0		
Farm Experience				
1-5	6	5		
6-10	22	18.3		
11-15	14	11.7		
>15	78	65	22.60	12.426
Farm size (Hectare)				
<1	19	15.8		
1	28	23.3		
1.1-2	23	19.2		
2.1-3	20	16.7		
>3	30	25.0	3.27	2.541
Household Size (Persons)				
1-5	26	21.7		
6-10	59	49.2	5	1.792
11-15	16	13.3		
>15	19	15.8		
Primary Source of Information				
Social media	0	0.0		
Extension Agent	102	85.0		
Farmers' cooperative	18	15.0		

Source: Field Survey 2025

Frequency of use of Agricultural practices accessed via social media among the respondents

Results presented in Table 2 showed the frequency of use of agricultural practices accessed via social media. Findings from the study revealed that Cassava market pricing updates ($\bar{x}$=2.67) were the most frequently used, attesting to level of importance attached to market information for enhancing bargaining power and income. This is in line with the findings of Lee *et al*. (2019) that farmers take marketing of their agricultural produce very importantly. Information on improved cassava varieties ($\bar{x}$=2.65) came next in line, as the

most used agricultural information accessed via social media. This showed that social media provides an avenue for a high level of awareness and their importance in enhancing productivity and income (Nwaobiala and Anyawu, 2018). Pest and disease control techniques ranked third which indicated farmers' reliance on timely information to manage risks in cassava cultivation if they are to reach optimum production (Ajah *et al.,* 2022).

Table 2: Frequency of use of Agricultural practices accessed via social media among the respondents (n=120)

Agricultural practices	Mean (x̄)	Rank
Cassava market pricing updates	2.67	1st
Improved cassava varieties	2.65	2nd
Pest and disease control techniques	2.64	3rd
Organic farming methods	2.33	4th
Precision agriculture	2.21	5th
Mechanized Cassava Processing	2.15	6th
Climate-smart farming practices	2.14	7th
Smart irrigation methods	2.00	8th
Agro-forestry and sustainable land use	1.63	9th
Digital soil testing techniques	1.62	10th

Source: Field survey 2025

Level of cassava production

Results in Table 3 showed that the level of cassava production among the respondents. According to the results, majority of the respondents (98.4%) fell within the low production range of < 30,000 per hectare, with a mean score of 18,690kg. This finding revealed that the majority of the respondents had their cassava production level within the low production. This could be a result of poor access to improved cassava varieties, information on pest management, or mechanization, which, as noted earlier, can enhance production levels (Uzochukwu *et al.,* 2021).

Table 3: The Level of Cassava Production of the Respondents (n=120)

Category	Score range	Frequency	Percentage	Mean (x̄)
Low Production	<30,000	118	98.4	18,690
High Production	>30,000	2	1.6	

Source: Field survey 2025

Benefits of adopting agricultural trends accessed via social media for cassava production

Results presented in Table 4 showed the perceived benefits derived from utilizing social media information on agricultural practices. Findings showed that among the stated benefits, improved access to agricultural knowledge ($\bar{x}$ = 4.13) ranked first, indicating that social media was recognized for its value in knowledge and information sharing. This aligns with the study of Eduafo *et al*. (2024), who reflected on the role of social media in accessing agricultural information. Increased productivity ($\bar{x}$ = 3.78) was next in line, revealing that social media was often accessed to search for tools and knowledge that directly contributed to better yields (Eduafo*et al.,*2024). Also, better pest and disease control ($\bar{x}$ = 3.67) ranked third reflected the importance of managing risks and addressing challenges in cassava (Ajah*et al.,* 2022).

Table 4: Benefits of adopting agricultural practices accessed via social media for cassava production(n=120)

Benefits	Mean (x̄)	Rank

Improved access to agricultural knowledge	4.13	1st
Increased productivity	3.78	2nd
Better pest and disease control	3.67	3rd
Increased networking with fellow farmers	3.60	4th
Enhanced farm management skills	3.48	5th
Greater financial opportunities and funding options	3.42	6th
Access to climate-smart farming solutions	3.41	7th
Market access and price updates	3.31	8th
Cassava market pricing updates	2.83	9th
More efficient use of resources (water, soil, etc.)	2.50	10th

Source: Field survey 2025

Relationship between the agricultural Practices accessed via social media by respondents and the *Level of cassava production*

The regression analysis in Table 6 showed the effect of various factors on cassava production levels of the respondents in the study area. Representing the expected change in production for every unit increase in the use of that practice, each coefficient (β) along with their p-value were stated as follows; Organic farming methods (β= 3.867, p < 0.001), climate-smart farming practices (β= 3.052, p = 0.014), and agroforestry and sustainable land use (β= 3.260, p = 0.018), cassava market pricing (β= -4.683, p = 0.001) and the implementation of smart irrigation techniques (β= -2.823, p = 0.011). Findings from the test of relationship between the agricultural Practices accessed via social media by respondents and the level of cassava production revealed that for every unit increase in use of Organic farming methods, climate-smart farming practices, and agroforestry and sustainable land use, that there is a significant positive effect, showing that as respondents engaged frequently with these practices via social media. They increased their potential for higher cassava production. On the other hand, updates on cassava market pricing and the implementation of smart irrigation techniques showed significant negative effects on production levels. This could be because farmers needed to acquire first-hand market pricing from the market themselves, and possibly because cassava crops were sensitive to excessive water, which furthermore leads to a decrease in productivity with such irrigation practices (Alveset al., 2024). This suggests that while some social media-shared agricultural trends may enhance cassava productivity, others may not translate into increased output (Omodara et al., 2023).

Table 5: Relationship between the agricultural Practices accessed via social media by respondents and the *level of cassava production* (n=120)

Variables	B	Std. Error	Beta	t-value	Sig.
(Constant)	19.599	1.604		12.218	.000
Improved cassava varieties	-1.023	1.187	-.097	-.862	.391
Organic farming methods	3.867	.967	.420	4.000	.000
Pest and disease control techniques	-1.412	1.378	-.144	-1.025	.308
Mechanized cassava processing	-1.228	1.112	-.136	-1.104	.272
Climate-smart farming practices	3.052	1.219	.339	2.503	.014
Cassava market pricing updates	-4.683	1.315	-.507	-3.560	.001
Precision agriculture	.195	1.268	.022	.154	.878
Smart irrigation methods	-2.823	1.085	-.310	-2.601	.011
Digital soil testing techniques	-.630	1.429	-.061	-.441	.660
Agroforestry and sustainable land use	3.260	1.359	.302	2.398	.018

Source: Field survey 2025

R= 0.472

R Squared = 0.223

Adjusted R Squared = 0.016
F= 1.077
Significant at 0.05

Conclusion and Recommendations

This study concluded that the farmers were using social media for accessing a number of information on agricultural practices such as cassava market pricing updates, organic farming methods, climate smart agricultural practices and smart irrigation among others rather than depending on traditional extension practices. The study also concluded that the use of social media for this agricultural information helped in improving agricultural knowledge of the farmers and contributed positively to cassava production in the study area.

In order to promote the use of social media for agricultural productivity and food security, extension agents should use common social media platforms to share verified agricultural information with cassava farmers. Farmers should also be trained in the effective use of social media on the access and applying agricultural information. Again, farmers should be encouraged to adopt those practices that had shown positive effects such as organic farming and climate-smart techniques.

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