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Constraints to Use of Social Media in Accessing Agricultural Information among Crop Farmers in Makurdi Local Government Area of Benue State, Nigeria

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Abstract: ***The study was conducted to ascertain constraints to use of social media in accessing agricultural information among crop farmers in Makurdi Local Government Area of Benue State, Nigeria. Simple random sampling technique was used to select a sample size of one hundred and twenty respondents. Primary data were collected using a structured questionnaire. Descriptive statistics such as frequency, percentage and mean scores as well as inferential statistics which include factor analysis and logistic regression were used for data analysis. Findings revealed that the mean age of the farmers was 35years, 57.5% were male, 62.5% were married while 70.8% had formal education with a mean farming experience of about 9 years. All (100%) the respondents indicated that mobile phone was available to them, 67.5% indicated availability of desktop computer while laptop was available to 65.8% of them. Results also showed benefits of use of social media to include enriched medium of accessing agricultural information ($\bar{x}$ = 2.37), easy and convenient way of communicating with fellow farmers ($\bar{x}$ =1.89), encourage peer learning ($\bar{x}$ =1.89) and promotion of active participation in extension programmes ($\bar{x}$ = 1.75). Results of factor analysis showed that the respondents were constrained by techno-infrastructural and knowledge-related factors. It was therefore recommended that government should provide and ensure regular supply of physical infrastructure such as electricity in order to encourage the use of social media in accessing agricultural information for increased productivity.***

Keywords: Social media, agricultural information, crop farmers, constraints

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Introduction

Increasing the production of farmers would entail ensuring that they obtain the optimum output from their farms, and the place of agricultural information in ensuring this cannot be overemphasized (Olaniyi, Adetumbi and Adereti, 2013). Information and communication technologies (ICT) have provided new ideas, methods, and techniques of disseminating and improving the knowledge and information among people of different societies. These technologies, if used by farmers in Nigeria, will increase their access to agricultural information, making them more efficient (Otene, Ezihe and Torgenga, 2018). Social media platforms have greatly impacted every aspect of live and society in general. As a by-product of the internet, they have transformed the world into what can now be referred to as "information society", with high-tech communication permeating almost every aspect of human life (Nwabueze and Chizoba, 2007). Social media platforms which came up as improvement in technology have helped in achieving accelerated development in politics, religion, economics, business and most especially, recently, agriculture. The emergence have increased communication between people all over the world, as they help people to gain access to any information that they desire at anytime, anywhere, on any digital device as well as on any interactive user feedback.

Social Media (SM) refers to the means of interactions among people in which they create, share, consume and exchange information and ideas in virtual communities and networks. Social media is defined as a group of internet-based applications that build on the ideological and technological foundations of Web 2.0 and that allow the creation and exchange of user generated

content (Kplan and Haenlein, 2010). Examples of socio media include Facebook, Twitter, Instagram, Blogger, You tube, Whatsapp, Telegram, etc.

Social media is a one stop shop for information whereby the users can read and also contribute to the content. It is convenient to those who need information instantly or do not have easy access to information. Social media is a collection of online technologies that allow users to share insights, experiences and opinions with one another. The sharing can be in the form of text, audio, video or multimedia (Kplan and Haenlein, 2010).

Social media is gradually making its place in the field of agricultural industry. Facebook, YouTube, blogs, wikis and podcasts deliver huge prospective for use to extensionists and farmers but the content and outreach demands to be determined based on clients and content (Kinsley, 2010; Gharis *et al*., 2014). Social media provides an opportunity to link and network with one's audience in agriculture, instruct them and provide assistances to know more about agricultural sector. It makes preferment of extension programmes serene, allows real time communication with clienteles, helps encompass outreach to novel audiences and endorses expansion of relationship among actors in Agricultural Innovation Systems (AIS) (Cornelisse *et al.*, 2011). Social media is becoming a very important tool in farming because it has the ability to connect with farmers and agribusiness people from around the world over large geographical distances. Social media plays a very important role in enhancing interactions and information flows among different actors involved in agricultural innovation and also enhance capacities of agricultural extension and advisory service providers (Chui, *et al*., 2012). It also has removed the

limitations of geographical distance from users, which enables a platform that shares knowledge and culture, and can play a part in the economic and political power.

This is believed to have the potential to change the face of agriculture in Nigeria and improve or increase the channel of accessing information among farmers because the ratio of agricultural extension officers is very low compared to the number of farmers that exist in the country.

A number of challenges militate against effective utilization of social media in dissemination of agricultural information in Nigeria. Adomi (2007) stated that power outage is a problem militating against information/internet provision and use in African countries. Similarly Ossai-Ugbah (2013) stated that power outage increases the general overhead and running cost thus having a negative impact on the use of social media for marketing and advertisement of agricultural products and how to effectively use social media for promotion in a cost-effective manner. Moreover, even when the electricity is available, the voltage is either too high or too low. It was in this light that Akonu *(*2005) asserted that erratic power supply in Nigeria has resulted in the burning of some components which could not be easily replaced. Besides, the unstable and epileptic power supply in Nigeria discourages farmers and users from participating in online forum and networking aimed at sourcing agricultural information (Akonu, 2005). This therefore gave rise to the following research questions that are pertinent for this study. What are the socio-economic characteristics of the respondents in the study area? Are the social media facilities available to respondents in the study area? What is the level of usage of social media by the respondents in the study area? What are the benefits derived from social media use among

respondents in the study area? What are the constraints or challenges of social media use among respondents in the study area?

Specifically, the study sought to:

i. Describe the socio-economic characteristics of the respondents in the study area;

ii. Identify the available of social media facilities in the study area;

iii. Assess the level of usage of social media by respondents in the study area;

iv. Ascertain the benefits derived from social media use by farmers in the study area; and

v. Identify the constraints or challenges of social media use by farmers in the study area.

Statement of hypothesis

Based on the specific objectives, the following null hypothesis was stated and tested.

Ho: Socioeconomic characteristics of the farmers do not have any significant effect on their level of use of social media.

Methodology

The study was conducted in Makurdi Local Government of Benue State, Nigeria. Makurdi is the capital of Benue State. It was established in the early twenties and gained prominence in 1927 when it became the headquarters of the then Benue Province. Makurdi became the capital of Benue State in 1976, and doubles as the headquarters of Makurdi Local Government Area (Benue State Agricultural and Rural Development Authority (BNARDA), 2005). Makurdi Local Government Area is geographically located within the transition belt between the semi-arid areas or Northern Nigerian and Southern Nigeria. An essential feature of this area is River Benue which divides the Local Government into two namely; Northern part

called North Bank and the Southern part called South Bank. It lies between longitude 8^{o} and 9^{o}E and latitude 7^{o} and 8^{o}N. The Local Government shares boundaries with Guma to the North, Gwer to the South, Tarka to the East and to the West by Gwer West Local Government Areas. It has a population of 3,003,077 (National Population Commission) (NPC), 2006) and occupies a landmass of 30,955 square kilometers (BNARDA, 2005). It comprises eleven (11) council wards. The climate is tropical with dry and cold windy harmattan weather from November to March and rainy/wet season from April to October. The average temperature range is between 32°C and 35° C with an annual rainfall of 1500mm-1800mm. The Local Government also boasts of the longest river systems in the country with great potential for a viable fishing industry, dry season farming through irrigation and for inland water ways.

Farming is the major occupation of the people with about 75% of the population engaged in the activities which is mostly subsistence in nature. The crops produced in the study area include rice, maize, sorghum, yam, soybean, guinea corn, vegetable and melon among others. Tree crops such as mango, orange and cashew are also grown in large quantities. Livestock such as goat, sheep, pig and poultry such as chicken, turkey are extensively reared as well. Other occupations such as fishing, civil service, artisan and marketing are also found in the state.

The target population of the study consisted crop farmers in Makurdi Local Government Area of Benue State whose major activities cover the production of cash and food crops. There are 11 council wards in the study area. Six out of the eleven council wards namely; Agan, Mbalagn, Fiidi, North Bank 1, North Bank 2 and Walomayo were selected for the study using simple random sampling technique. Two communities were selected from each of the council

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wards and with a proportional allocation of 5% (0.05) across board; a sample size of 120 respondents was determined and used for the study.

Data were collected using questionnaire. Frequency, percentage, mean score, factor analysis and logistic regression were used for analysing data for the study.

Results and Discussion

Socioeconomic Characteristics of the Respondents

Table 1 showed that about 28% of the respondents were aged 21-30years, 20.8% were aged ≤ 20 while 17.5% were between 31 and 40 years. The mean age of the respondents was about 35 years. This is an indication that crop farming is mainly done by young farmers who are active and within their productive age group. This finding is in consonance with that of Ezeh (2013) who reported that farmers within this age range constitute the major productive work force. Younger farmers also have a greater tendency to use social media, as it is most convenient for them.

Findings in Table 1 revealed that 57.5% were male while 42.5% were female. This implies that male respondents were more involved in agricultural production in the study area. This could be because men have more access to land, which is a major requirement for agricultural production. It could also be due to the fact that men are stronger, more active and have the potential to work for longer hours on the farm than women. This agrees with the findings of Otene, Ezihe and Torgenga (2018) which reported that the level of productivity of the farmers in terms of the application of labour is expected to be higher for male than female.

A greater percentage (62.5%) of the respondents were married, 25.0% were single while 12.5% were divorced (Table 1). This indicates that married farmers were predominant in the study area and this makes it possible for them to have easy access to socio media which can come from members of their immediate family.

Majority (70.8%) of the respondents had formal education in school while 29.2% had non-formal education. This implies that there is high level of literacy in the study area which means that the respondents are knowledgeable enough to make use of social media in accessing agricultural information that will improve their productivity.

Results in Table 1indicated that 54.2% of the respondents had a household size of 6-10persons, about 22% of them had 11-15persons, among others. The mean household size was about 9persons. This shows that the respondents had relatively large household size which could provide an opportunity for them to have access to social media for obtaining agricultural information. This finding corroborates with Jiriko, Vanger and Paul (2018) who reported that large family size could be as a result of polygamous nature of rural farmers. The authors reiterated that this could be linked to the fact that most rural farmers look at large household size as a good and economical way of maximizing farm returns by using free family labour.

About half (50%) of the respondents had farming as a primary occupation, 30.8% were engaged in trading, 11.7% were civil servants, 3.3% were fishermen, etc. (Table 1). It shows that the respondents were predominantly farmers despite the fact that the study area in an urban town which also makes it possible for them to have access to social media facilities.

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A greater percentage (52%) of the respondents obtained between ₦100,001 and ₦250,000, 38.3% got from ₦50,000-₦100,000, among others (Table 1). The mean annual farm income was ₦148,670.0This buttresses the assertion that crop farmers in the study area are mainly small-scale farmers. This finding is in consonance with Otene, Ezihe and Torgenga (2018) who stated that small-scale farmers do not earn much from their farms and spending money on social media could be a challenge to them.

Table 1 showed that 49.17% of the respondents use family labour, 18.33% use hired labour while 32.50% use both family and hired labour. This implies that the respondents were using mostly family labour as a result of having fairly large household size as discussed earlier.

Table 1: Distribution of respondents according to socio-economic characteristics of respondents (n= 120)

Socio-economic characteristics	Frequency	Percentage	Mean ($\bar{x}$)
Age (years)			
≤ 20	25	20.8	
21-30	34	28.3	
31-40	21	17.5	34.58
41-50	18	15.0	
51-60	12	10	
> 60	10	8.3	
Sex			
Male	69	57.5	
Female	51	42.5	
Marital status			
Married	75	62.5	
Single	30	25.0	
Divorced	15	12.5	
Level of education			
Non-formal	35	29.2	
Primary	51	42.5	

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Secondary	28	23.3	
Tertiary	6	5.0	
Household size (persons)			
≤5	21	17.5	
6-10	65	54.2	8.93
11-15	26	21.7	
16-20	8	6.7	
Primary occupation			
Carpentry	1	0.8	
Civil service	14	11.7	
Driving	2	1.7	
Farming	60	50.0	
Fishing	4	3.3	
Mechanic	1	0.8	
Tailoring	1	0.8	
Trading	37	30.8	
Estimated annual farm Income (Naira**)**			
≤ 50,000	22	18.3	
50,001-100,000	24	20.0	
100,001-150,000	40	33.3	
150,001-200,000	9	7.5	148,670.0
200,001-250,000	13	10.8	
250,001-300,000	3	2.5	
>300,000	9	7.5	
Source of labour			
Family	59	49.17	
Hired	22	18.33	
Both family and hired	39	32.50	

Social media facilities available to the respondents

Results in Table 2 revealed that all (100.0%) of the respondents indicated had mobile phones, 67.5% had desktop computer, 65.8% indicated availability of laptop, etc. This implies that communication between farmers and disseminators of agricultural information will be more effective if it is done through the social media facilities readily available to them.

Table 2: Distribution of respondents according to availability of social media facilities (n=120)

Social media facilities	Frequency*	Percentage
Mobile phone	120	100.0
Modem	50	41.7
Laptop	79	65.8
Desktop computer	81	67.5
I pad	14	11.7
Tablet	52	43.3

* Multiple responses recorded

Level of use of Social Media

Findings on the level of use of social media by the respondents indicated that 32.5% and 19.2% of the respondents made moderate and high use of Facebook while 48.3% of them made low use of Facebook (Table 3). This further buttresses the assertion that Facebook is the most common social media platform used by farmers, a majority of who use the media on a weekly basis (Gakuru *et al*., 2009)

Majority (87.5%) of the respondents made low use of twitter while 11.7% and 0.8% made moderate and high use of twitter respectively (Table 3). This finding disagrees with Dennis and Merill (2006) who reported that social media is increasingly being used as a medium of sharing information and creating awareness. Platforms such as Facebook, Twitter, YouTube and blogs have been used to engage with various audiences.

Also, more than half (58.3%) of the respondents made low use of Whatsapp, 27.5% made moderate use while 14.2% made high use of Whatsapp. Majority (95.0%) of the respondents made low use of Instagram, 5.0% made moderate use while none of the respondents made high

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use of Instagram in the study area. The findings agree with a study carried out by Gakuru *et al*. (2009) which reported that majority of farmers use social media to seek for a variety of agricultural information, mostly scientific, educational and technology based including training information, agrochemicals and technological information.

Majority (87.5%) of the respondents made low use of telegram, 12.5% used it moderately while none made high use of telegram (Table 3). Also, 72.5% of the respondents made low use of You tube, 20.0% used it moderately while 7.5% made high use of it. About 94% of the respondents made low use of LinkedIn, 5.8% and 0.0% used it moderately respectively. Farmers and ranchers should be encouraged on the use of social media because the use of social media by them can shape the future of their business.

Table 3: Distribution of Respondents According to Level of Use of Social Media (n=120)

Social media	Level of usage						Mean
	Low		Moderate		High		
Facebook	58	(48.3)	39	(32.5)	23	(19.2)	1.71
Twitter	105	(87.5)	14	(11.7)	1	(0.8)	1.13
Whatsapp	70	(58.3)	33	(27.5)	17	(14.2)	1.56
Instagram	114	(95.0)	6	(5.0)	0	(0.0)	1.05
Telegram	105	(87.5)	15	(12.5)	0	(0.0)	1.13
You tube	87	(72.5)	24	(20.0)	9	(7.5)	1.35
LinkedIn	113	(94.2)	7	(5.8)	0	(0.0)	1.06

Figures in parenthesis are percentages

Benefits Derived from Social Media Use by the Respondents

Benefits derived from the use of social media as indicated by the respondents are presented in Table 4. Many (49.2% moderately and 20.0% greatly) of the respondents asserted

that social media encouraged peer learning while 30.8% of the respondents were indifferent. This supports the findings of Devesh *et al.* (2017) which reported that it is easier for farmers to communicate with peers, extension professionals and experts in real time through the use of social media.

Findings also revealed that more than half (44.2% moderately and 15.8% greatly) of the respondents agreed that social media is more participative and demand driven extension tool, while less than half (40.0%) of the respondents were indifferent. This finding is in consonance with the findings of Devesh *et al.* (2017) which opined that even hesitant and shy farmers can participate through social media thus making them to communicate effectively through multiple ways to many people at a time.

A greater percentage (59.2% moderately and 39.2% greatly) of the respondents indicated that social media is an enriched medium of information delivery while smaller proportion (1.7%) of the respondents were indifferent. This implies that information can be delivered in multiple ways such as audio, text, visual and audio-visual. The understanding of the message would therefore be relatively high through this medium. Above half (42.5% moderately and 23.3% greatly) of the respondents agreed that social media is an easy and convenient way of communicating with farmers while 34.2% of the respondents were indifferent. Social media offers a communication approach that can be quite flexible any time and at any place interaction is possible. Beyond normal discussions, sufficient information dissemination can also be delivered through social media.

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Results in Table 4 also showed that many (48.3% moderately and 4.2% greatly) of the respondents stated that social media is beneficial with respect to promoting learning during and after farmer training programmes while less than half (47.5%) of the respondents were indifferent.

Findings in Table 4 also revealed that many (45.0% moderately and 5.8% greatly) of the respondents indicated that social media is increasing the scope and coverage of agricultural extension while almost half (49.2%) of the respondents were indifferent.

Table 4: Distribution of Respondents according to Benefits Derived from Use of Social Media

Benefits	Response			
	Not all	Moderately	Greatly	Mean
Encourage peer learning	37(30.8)	59(49.2)	24(20.0)	1.89
Promotes active participation in extension programme	48(40.0)	53(44.2)	19(15.8)	1.75
Enriched medium of accessing agricultural information	2(1.7)	71(59.2)	47(39.2)	2.37
Easy and convenient way of communicating with fellow farmers	41(34.2)	51(42.5)	28(23.3)	1.89
Promote learning during and after farmer training programme	57(47.5)	58(48.3)	5(4.2)	1.56
Increase the scope and coverage of agricultural extension	59(49.2)	54(45.0)	7(5.8)	1.56

Figures in parenthesis are percentages

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Factor Analysis of Constraints to Use of Social media by the Respondents

Results of factor analysis of constraints to social media usage by farmers in the study area are presented in Table 5. Two constraining factors were extracted based on the responses of the respondents and were named techno-infrastructural factors (factor 1) and knowledge related factors (factor 2). The constraints that were highly loaded in factor 1(techno-infrastructural factors) were lack of internet connectivity (0.559), high cost of internet access (0.568) and unavailability of ICT tools (0.402).

Variables that loaded in factor 2 (knowledge related factors) include complexity of social media facilities (0.555) and low ICT literacy (0.610). These factors can be classified as and knowledge factor. This is as a result of farmers not being properly trained by extension agents which make them ignorant of the existence of social media which could have been an easy means of accessing agricultural information.

Findings of the study corroborate Atala and Umar (2006) who in their study identified poor services, high charges, network problems and difficulty in interconnectivity as problems hindering effective use of social media.

Table 5: Factor Analysis of Constraints to Use of Social Media by the Respondents

Constraints	Factor 1	Factor 2
Unreliable electric power	0.211	0.070
High cost of social media facilities	-0.028	0.185
Limited internet coverage	0.393*	-0.146
Complexity of social media facilities	0.223	0.555*
Low disposable income	-0.037	0.226
Low ICT literacy	-0.036	0.610*
High cost of repairs	0.313	-0.317
Lack of supportive government	-0.039	0.320
Lack of technical know how	0.057	-00.18
Unavailability of ICT tools	0.402*	0.018
High cost of internet access	0.568*	0.075
Lack of internet connectivity	0.559*	-0.125

Factor 1: Techno-infrastructural factor
Factor 2: Knowledge related factor

Effect of Socioeconomic Characteristics of the Respondents on Use of Social Media

Results of Logistic regression analysis on effect of socioeconomic characteristics of the respondents on use of social media is presented in Table 6. Out of the seven explanatory variables in the model, only three, namely; age, sex and level of education of the respondents were statistically significant.

Age had a negative coefficient (-0.140) and was significant (0.000) at a 1% level of probability. By implication, it means the older the respondents become, the less likely they are to use social media in sourcing for agricultural information. This finding is in line with Agwu and Chah (2007) who found that elderly farmers might be less interested in using hi-tech communication devices and prefer oral and printed information channels which are less efficient.

Sex had a positive coefficient (1.688) and was significant (0.012) at a 5% level of probability. This means that the male farmers have a greater probability for higher or frequent usage of social media. This could be because farming in the study area is dominated by men.

Level of education of the respondents also had a positive coefficient (4.993) and was significant (0.000) at a 1% level of probability. Possession of formal education therefore increases the likelihood that the respondents will make high use of social media. This is because the respondents are knowledgeable enough and know the benefits and potentials accrued to the use of social media.

The Nagelkerke R^2 for the regression is 0.749, indicating that the variables tested accounted for 74.9% of the variations in the dependent variable. The Chi-square value of the model was 98.718 and was significant at a 1% level of probability.

Table 6: Logistic Regression analysis of effect of socio-economic characteristics of the respondents on use of social media

Socio economic characteristics	B	S.E	Wald	Sig	Exp (B)
Age	-0.140	0.039	13.041	0.000*	0.869
Sex	1.688	0.672	6.315	0.012**	5.408
Marital Status	-0.861	0.815	1.114	0.291	0.423
Level of education	4.993	1.328	14.135	0.000*	1.473
Household Size	.147	0.150	0.957	0.328	1.159
Farm Size	.524	0.396	1.754	0.185	1.689
Constant	-1.640	2.225	0.543	0.461	0.194

X^2	98.718
Sig	.000
2 log likelihood	-66.803
Nagelkerke R^2	.749

Note: *, ** indicates significant at 1% and 5% level of probability respectively

Conclusion and Recommendations

Findings of the study revealed that male dominated in the area, married with long period of farming experience and having formal education in school which could serve as an avenue to make good use of social media in accessing agricultural information. All the respondents had mobile phones while some of them had desktop computer and laptop. They indicated that benefits derived from using social media were enriched medium of accessing agricultural information, easy and convenient way of communicating with fellow farmers, encourage peer learning and promotion of active participation in extension programmes, etc. The respondents' use of social media was highly constrained by techno-infrastructural and knowledge-related factors. Results of logistic regression analysis showed that age, sex and level of education had significant effect on the use of social media.

The study recommends that the respondents should be encouraged to use social media in accessing agricultural information through provision of adequate training by the extension agents. It also highlights the need for adequate provision and regular supply of physical infrastructure such as electricity by government at all levels in order to encourage the use of social media in accessing agricultural information for increased productivity.

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