Nigerian Agricultural Posts on Facebook and Instagram within the West African Agricultural Messaging Framework

Isiaka Zubair Aliagan[1], Murtada Busair Ahmad[2], Habeeb Opeyemi Daranijo[3], Habibat Morenikeniji Na'allah[1]

[1] Department of Mass Communication, Kwara State University, Nigeria
[2] Department of Mass Communication, Nile University, Nigeria
[3] Department of Broadcasting, Film and Multimedia, University of Abuja, Nigeria
[a] Author correspondence: isiaka.aliagan@kwasu.edu.ng

ABSTRACT

This study generated and content-analyzed Facebook and Instagram postings on agricultural messages by Nigerian farmers in three years (2019-2021) within specific contexts and in comparison with postings similar to ones initiated by private individuals and government agencies as well as those posted at continental level on the two social media channels. While the data are graphically displayed, a paired-sample T-test was conducted to establish statistically significant differences in the agricultural messages posted on the two social media by Nigerian farmers and farmers from other countries in Africa. All four null hypotheses tested were rejected as statistically significant differences were established between the paired population means. It was also found that Nigerian farmers are accustomed to the use of social media in promoting agricultural-related messages, indicating their exposure to the diffusion of agricultural innovation in line with the trends in advanced nations. It was concluded that social media remains a viable tool for promoting agriculture, particularly during food insecurity and global economic crisis. It was recommended that the Nigerian government should provide an enabling environment for agricultural promotion in the digital age.

Keywords: Nigerian Farmers, Agricultural Postings, Digital Innovation, Facebook, Instagram

ABSTRAK

Penelitian ini menghasilkan dan menganalisis konten postingan Facebook dan Instagram tentang pesan pertanian oleh petani Nigeria dalam tiga tahun (2019-2021) dalam konteks tertentu dan dibandingkan dengan postingan serupa dengan yang diprakarsai oleh individu swasta dan lembaga pemerintah serta yang diposting di tingkat kontinental di dua saluran media sosial. Sementara data ditampilkan secara grafis, uji T sampel berpasangan dilakukan untuk menentukan perbedaan yang signifikan secara statistik dalam pesan pertanian yang diposting di dua media sosial oleh petani Nigeria dan petani dari negara lain di Afrika. Keempat hipotesis nol yang diuji ditolak karena terdapat perbedaan yang signifikan secara statistik antara rata-rata populasi berpasangan. Ditemukan juga bahwa para petani Nigeria terbiasa menggunakan media sosial dalam mempromosikan pesan-pesan terkait pertanian, yang menunjukkan bahwa mereka terpapar pada difusi inovasi pertanian sejalan dengan tren di negara-negara maju. Disimpulkan bahwa media sosial tetap menjadi alat yang layak untuk mempromosikan pertanian, khususnya selama kerawanan pangan dan krisis ekonomi global. Direkomendasikan agar pemerintah Nigeria menyediakan lingkungan yang mendukung promosi pertanian di era digital.

Kata Kunci: Petani Nigeria, Postingan Pertanian, Inovasi Digital, Facebook, Instagram

INTRODUCTION

The use of social media by farmers in different regions of the world has widened the access to agricultural information for better farming methods and improved marketing opportunities. Galvanized by the internet and associated technologies, the digital revolution provides farmers a much-needed boost (Efiok & Amah, 2020) in marketing agricultural produce and access to the latest farming information. It is arguable that the emergence of social media platforms has propelled information sharing on agronomic issues the world over so much that agriculture-related institutions are taking a number of steps to orientate farmers towards digital innovation for agricultural success (Sandeep, Prashanth, Sreenivasulu & Madhavilata, 2020). Social media gives marketers creative methods to interact with customers and lets them become the center of attention for an organization (Smith & Zook, 2011; White et al, 2014). Over the years, social media has also been used to facilitate communication among stakeholders in the agricultural sector, particularly among extension employees (Stanley, 2013). In fact, it has been established that agricultural researchers, professionals, and other stakeholders in farming are among the adopters of social media for promoting the sector (Sokoya, Onifade, and Alabi, 2012). While confirming farmers and rural businesses as early adopters of digital media for agricultural services in New Zealand, Casey, Meikle, Kerr, and Stevens (2016) report how the sector adopted Facebook, Twitter, YouTube, websites, and mobile applications, including innovative social networking channels for agricultural campaigns.

Information exchange across various social media platforms is gaining strength among stakeholders in agriculture in most countries (Sandeep, Prashanth, Sreenivasulu, & Madavilata, 2022) because the new media seems to be the fastest and the least expensive for interconnection and information flow among the specialists and others in the agro-industry across geographical distances (Sandeep, Prashanth, Sreenivasulu, & Madavilata, 2022). However, digital channel seems to be less accessible to indigent peasants in developing and underdeveloped countries (Collence, 2013) due to technical factors like poor network connection, power outages, and pricey internet access on the one hand, and because of social variables like poverty, old age, illiteracy, and confusion about which social media to use to disseminate specific messages on the other hand (Kipkurgat, Onyiego & Chemwaina, 2016). For instance, because of a number of issues that are common in rural India at some time, such as lack of infrastructure, barriers to participation, illiteracy in rural areas, lack of institutionalization, and absence of quality control, among others, social media use by farmers had not expanded significantly in India. Conversely, the situation is not too bad in some developing societies where social media has been steadily becoming valued in the delivery of agricultural extension services, technical and social challenges notwithstanding (Mamgain, Joshi, & Chauhan, 2020).

Social media use for agricultural promotion is rising in Nigeria, in spite of technological challenges in the country, which are similar to what farmers in other regions of the world are also experiencing. The use of social media to promote agricultural productivity and check food insecurity in Nigeria remains paramount, especially considering the major challenge currently facing that sector of the nation's economy. Promoting the agricultural sector through social media use is more important now as the country has suffered protracted farmer-herder clashes, kidnapping of farmers, and wanton destruction of farmlands and killings. Social media use could bridge communication gaps caused by the social and economic dislocations resulting from the lingering violence and disruption. Social media platforms like Facebook and Instagram are adjudged to be effective instruments for promoting agriculture in the country (Alabi & Nnaji, 2021).

The use of social media to promote agricultural services has, therefore, received prime attention among researchers in view of the global adoption of new communication technologies and social media tools in different strata of societal life. The various studies approached social media use in agriculture from several perspectives. These include social media profiles of farmers (Sandeep, Prashanth, Sreenivasulu & Madhavilata, 2020), obstacles and recommendations from the farming community for the efficient dissemination of agricultural information (Sandeep, Prashanth, Sreenivasulu and Madavilata, 2022), potential usage of social media in the agricultural and extension fields (Mamgain, Joshi, & Chauhan, 2020), how well-informed farmers were about using social media (Moonsammy & Moonsammy, 2020), and social media use and messages type (Casey, Meikle, Kerr, and Stevens, 2016), and similar others. In the Nigerian context, a few studies have been conducted on social media usage for agricultural promotion. The studies include Idiku, Eta, and Elemi (2021) on the utilisation of new media for agricultural information by farmers in South-South Nigeria; Alabi and Nnaji (2021) on the usage of social media by youths for agricultural development in the

Federal Capital Territory, Abuja, Nigeria; Ifejika, Asadu, Enibe, Ifejika and Sule (2019) on analysis of social media mainstreaming in E-extension by agricultural development programmes in North Central Nigeria; and Iwuchukwu, Eke and Nwobodo's (2019) on the perception of extension personnel on the suitability and benefits of using social media in communicating agricultural information in Enugu State, Nigeria. Efiok and Amah's (2019) study concentrates on the adoption of social media in agricultural extension by agriculturalists and ICT technologists in Nigeria. Aliyu and Safiu (2017) studied social media use in agricultural extension service delivery, while Sokoya, Onifade, and Alabi's (2012) study focused on the role of social media in agricultural research in establishing connections and networking in Nigeria.

However, most of the studies in the Nigerian context concentrated on agricultural extension programmes and not the entire agricultural sector. In addition, most of the studies used survey methods, with hardly any content analysis study on social media postings about agricultural promotion and marketing by farmers and farmers' groups and similar agricultural postings at the continental level. Most importantly, none of the studies situated Nigerian farmers within the continental or global setting regarding the use of social media for agricultural purposes. This research, therefore, takes the study of social media use by farmers further by investigating their level of adoption of Facebook and Instagram, sources of agricultural posts on Facebook and Instagram, and the context of the messages posted on the two platforms by farmers and other stakeholders. Specifically, the study has the following objectives:

1. Identify the extent of Nigerian farmers' posts on Facebook and Instagram in three consecutive years (2019-2021).
2. Compare agricultural promotions on Facebook and Instagram posted by the government and posted by individual farmers/ private organizations.
3. Identify the contexts of Nigerian farmers' agricultural posts on Facebook and Instagram.
4. Compare Nigeria to other West African countries in terms of agricultural posts on Facebook and Instagram.

Therefore, four null hypotheses were generated for testing:

1. H^0 there is no significant differences between the posts on Agriculture on Facebook and Instagram between 2019 and the two successive years.
2. H^0 agricultural promotions on Facebook and Instagram posted by government and agricultural promotions on Facebook and Instagram posted by individual farmers/ private organizations are equal zero.
3. H^0 there is no statistically significant differences between the posts on the two social media about Equipment promotion and marketing and about Pest and disease contro/ other agricultural important issues.
4. H^0 agricultural posts on Facebook and Instagram from Nigeria and agricultural posts on Facebook and Instagram from Ghana/ other West African countries are equal zero.

METHOD

The study adopted the content analysis method for data gathering, using a coding sheet to collect data from a myriad population of agricultural postings on social media between 2019 and 2021. The study sample size is made up of 2,436,200 global postings on Facebook and Instagram. Specifically, the sample size comprised 436,000 agricultural posts on Facebook and 2,000,200 similar posts on Instagram from different parts of the world. The content categories were agricultural information on the two social media platforms. The units of analysis were frequency counts of the agricultural information as they appeared, depth of use of the two social media platforms for agricultural postings, types of agricultural information posted, and sources of the agricultural posts. The Holsti Intercoder reliability test was used to calculate each of the three years posts on Facebook and Instagram. The reliability test of the coding tool produced a reliability coefficient of 0.96, or 96%, which was adjudged justified (Clioghna & Helene, 2020). The proportion that each category of agricultural post really took in the study was measured in numbers, and the frequencies were transformed into numerical values that were then further analysed, utilising the Statistical Package for Social Science (SPSS). Frequency of data was presented with the use of a histogram. A paired sampled T-test was conducted on the SPSS to test four null hypotheses to determine if there are statistically significant differences between the paired population means in each data set.

RESULTS AND DISCUSSION

It is glaring in Figure 1 that 2019 recorded the highest number of agricultural posts on both Instagram (40,000) and Facebook (12,000). The scores in postings in 2019 were followed by those of 2021, with Instagram having more posts (35,000) than Facebook (10,000). The last postings on the two social media channels were in 2020, with Instagram having 35,000 and Facebook securing 10,000. Further, a paired-sample t-test was conducted to evaluate significant differences in agricultural posts on the two social media channels in three years. There was a statistically significant decrease in posts scores from 2019 (M= 26000.00, SD=19798.990) to 2020 (M= 15500.00, SD=10606.602) t(1) =1.615, $p<.001$ (two-tailed). The mean decrease in the agricultural posts on the two social media scores was 10500.000, with a 95% confidence interval ranging from -72090.331 to 9.3090.331. Statistical significance also reveals the decrease in post scores from 2019 (M= 26000.00, SD=19798.990) to 2020 (M= 22500.00, SD=17677.670) t (1) =2.333, $p<.001$ (two-tailed). The mean reduction in the agricultural posts on the two social media scores was 35,000 with a 95% confidence interval ranging from -15559.307 to 22559.307[see Table 1.1]. We therefore reject the first hypothesis that there are no significant differences between the posts on Agriculture on Facebook and Instagram between 2019 and the two successive years.
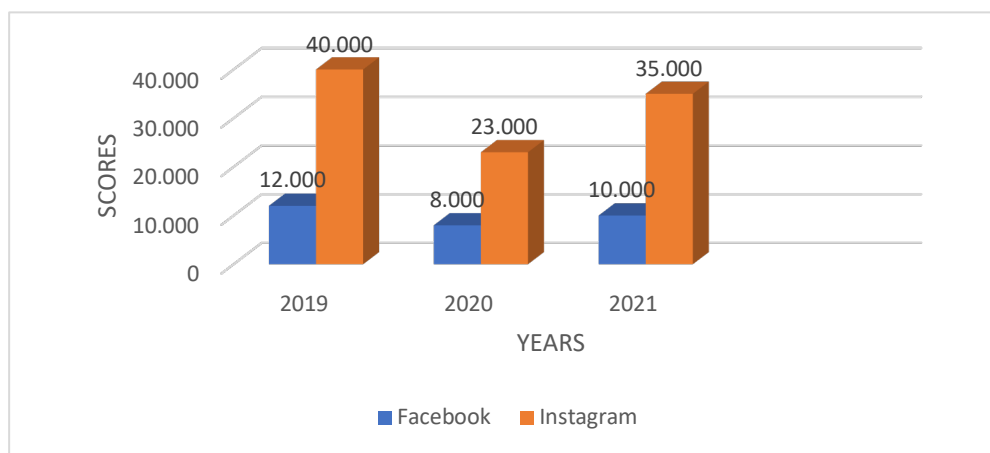
Figure 1. Year-by-Year Posts of Nigerian Farmers' on Facebook and Instagram
Source: Data from Rite Tag, 2022

Figure 2 projects the three main sources of agricultural posts in Nigeria. It is clear that most of the posts were generated by individual farmers and farm workers. Specifically, 50,000 posts initiated by individual farmers constituted the largest number of agricultural posts on Instagram across the board. Similarly, the largest posts (13,000) on Facebook came from individual farmers and farm workers. Next in rank to individual farmers' posts on Instagram and Facebook are those of private organisations. While private organisations generated 28,000 posts on Instagram, they placed 10,000 messages on Facebook. The government is lagging behind in agricultural information on Instagram and Facebook in Nigeria, with 20,000 messages posted on Instagram and 7000 postings on Facebook. Government postings on the two social media comprise government-related accounts from ministries, parastatals, and departments. In all, the flow of more agricultural-related narratives on Instagram than on Facebook Nigerians mirrors the global trend of allotting more agricultural postings on Instagram than on Facebook.

146
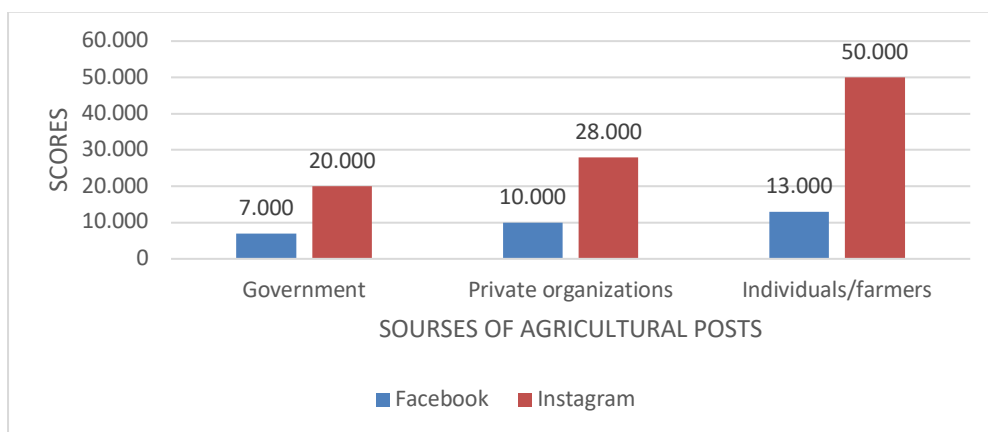
Figure 2. Sources of Agricultural Posts on Facebook and Instagram in Nigeria
Source: Data from Rite Tag, 2022

The data in Figure 2 are recomputed for a paired sample T-test in order to establish significant differences in agricultural posts on Instagram and Facebook among the three sources of postings from Nigeria. The results yielded significant statistical differences among the three sources of Nigeria's agricultural-related messages. There are significant differences between Agricultural promotions on Instagram and Facebook posted by Government (M= 13500.00, SD=9192.388) and Agricultural promotions on Instagram and Facebook posted by Private Organizations (M= 19000.00, SD=12727.922) t (1) =-2.200, p<.001 (two-tailed). The mean contraction in agricultural posts on the two social media scores was -5500.000, with a 95% confidence interval ranging from -37265.512 to 26265.512.

Another paired-sample T-test that was conducted indicated significant statistical differences between Agricultural promotions on Instagram and Facebook posted by the Government (M= 13500.00, SD=9192.388) and Agricultural promotions on Instagram and Facebook by Individual Farmers (M= 31500.00, SD=26162.951) t (1) =-1.500, p<.001 (two-tailed). The mean cut in agricultural posts on the two social media scores was -18000.000, with a 95% confidence interval ranging from -170474.457 to 134474.457.

Additional paired sample T-test that was conducted to examine if there was any significant differences in posts by private organisation and posts by individual farmers on the two social media yielded good results as there was significant statistical differences between Agricultural promotions on Instagram and Facebook posted by Private Organisations (M= 19000.00, SD=12727.922) and Agricultural promotions on Instagram and Facebook by Individual Farmers (M= 31500.00, SD=26162.951) =- -1.316, p<.001 (two-tailed). The mean cut in agricultural posts on the two social media scores was -12500.000 with a 95% confidence interval ranging from -133208.945 to 13435.029 [see Table 2 and Table 2.1].

Hence, the second hypothesis that agricultural promotions on Instagram and Facebook posts by the government and agricultural promotions on Instagram and Facebook posts by individual farmers/private organisations are equal zero is rejected.
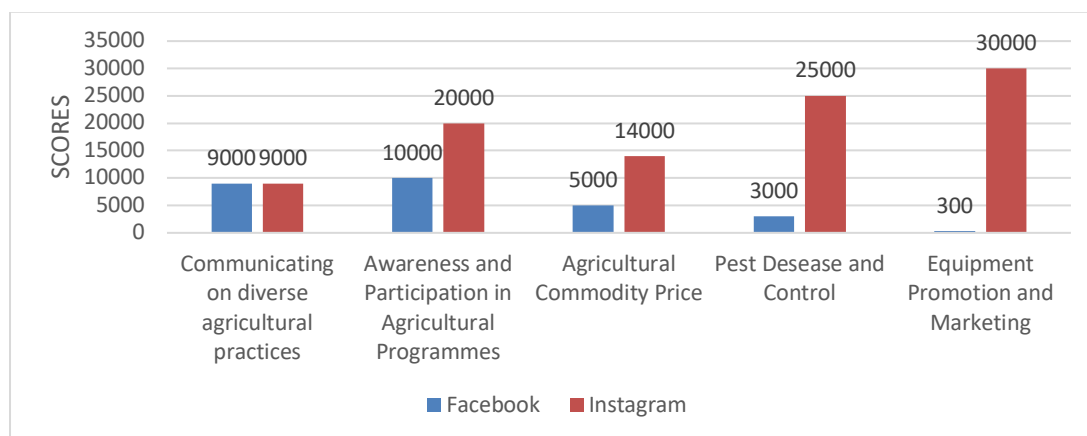
Figure 3. Contexts of Nigerian Farmers' Agricultural Posts on Facebook and Instagram
Source: Data from Rite Tag, 2022

Figure 3 indicates the five types of agricultural information posted on Facebook and Instagram by Nigerian farmers, which were originally generated with the use of the Rite Tag app. Figure 4 displays Instagram as having the lion's share of postings across all the contexts of agricultural information disseminated by Nigerian farmers on the two social media channels. However, the number of posts within the context of *Communication on 'Diverse Agricultural Practices'* appears to be symmetrical for both Instagram and Facebook. Put differently, the context at the extreme left has a zero skew of postings for the two social media. Each of them collects 9000 posts. All over again and in comparison, a look at the whole picture in Figure 4 reveals Instagram as almost consuming all the agricultural posts about '*Equipment Promotion and Marketing*'. Even in the absence of a bell curve, the skewness is overwhelmingly apparent to the Instagram side, with 30,000 postings, against Facebook, with a tiny 300 units of information.

Reading through the data distribution across the board of the three remaining information contexts between the two extremes, we can see clearly that symmetry is at a loss. Specifically, the larger number of information posted about '*Pest Disease and Control*' settled on Instagram. While Instagram collects 25,000 messages on this subject matter, Facebook receives only 3,000 messages. Likewise, 14,000 postings about '*Agricultural Commodity Price*' go to Instagram, while Facebook could only receive 5000 posts. The distribution pattern remains unchanged even for postings dealing with '*Awareness and Participation in Agricultural programmes*': Instagram goes away with 20,000 posts, whereas Facebook gets 10,000 posts.

The paired-sample T-test conducted yielded a good results about significant differences in the agricultural posts based on the five diverse contexts, as greater significant differences occurred between the posts on the two social media about *Equipment promotion and marketing* (M= 16500.00, SD=19091.883) and the posts on *Pest and disease control* M= 14000.00, SD=15556.349) t (1) =1.000, p<.001(two-tailed). The decline in the mean of the agricultural posts on the two social media scores was 2500.000, with a 95% confidence interval ranging from -29265.512 to 630513.701. So, we reject the third hypothesis that there are no statistically significant differences between the posts on the two social media about *Equipment promotion and marketing* and the posts on *Pest and disease control.*

Also, the paired sample T-tests showed statistically significant differences between the posts on the two social media about *Equipment promotion and marketing* (M= 16500.00, SD=19091.883) and the posts on *Awareness and participation in agricultural programme/project* (M= 15000.00, SD=7071.068) t (1) =.176, p<.001 (two-tailed). The mean shrinkage in agricultural posts on the two social media scores was 1500.000 with a 95% confidence interval ranging from -106502.740 to 109502.740. Similarly, there were statistically significant variances between what was posted on the two social media about *Equipment promotion and marketing* (M= 16500.00, SD=19091.883) and what was posted about *Market situation/agricultural commodity price* (M= 9500.00, SD=6363.961) t (1) .778, p<.001(two-tailed). The mean drop in agricultural posts on the two social media scores was 7000.000 with a 95% confidence interval ranging from -107355.843 to 121355.843.

An additional reading of the results indicated differentially statistical significance between what was posted on the two social media about *Equipment promotion and marketing* (M= 16500.00,

148

SD=19091.883) and what was posted about *Communicating information on the best soil for different agricultural practices* (M= 9000.50, SD= .707) t (1) =556, p<.001(two-tailed). The mean drop in agricultural posts on the two social media scores was 7499.500 with a 95% confidence interval ranging from --164027.911 to 179026.911 [See Table 3 and Table 3.1].

Reading downward Table 4 and Table 4.1 reveals similar patterns of statistically significant difference in the postings on the two social media channels about the other four contexts. This is glaring in the differentials in their means. So, we reject the third hypothesis that there is no statistically significant differences between the posts on the two social media about *Equipment promotion and marketing* and about *Pest and disease control/other agricultural important issues.*
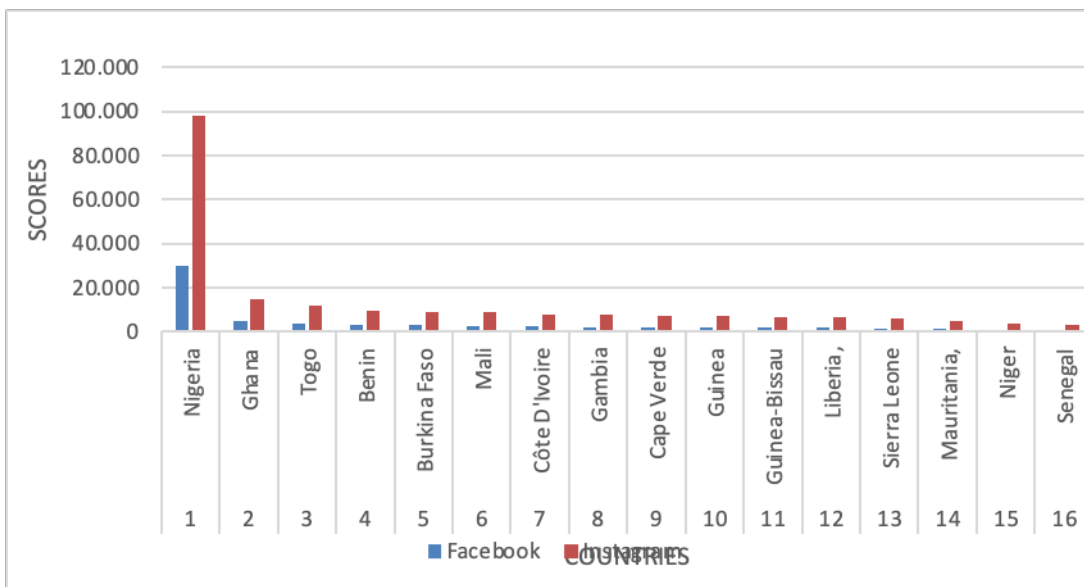
Figure 4. Agricultural Posts on Facebook and Instagram from West African Countries
Source: Data from Rite Tag, 2022

In Figure 4, it can be seen that Nigerian farmers recorded the highest number of agricultural posts (more than half of total posts) in the West African sub-region, with Instagram on the higher side (90,000 posts) against Facebook (20,000 posts). Ghana is Nigeria's closest distant contender in terms of performance in Agricultural messages on the two social media. The other countries in the region are far below Nigeria in the business of communicating agricultural issues to the world via the two social media channels.

The paired-sample T-test conducted revealed statistically significant differences in the agricultural posts between Nigeria's Agricultural Posts on Facebook and Instagram (M= 64000.00, SD=48083.261) and Ghana's Agricultural Posts on Facebook and Instagram (M= 10000.00, SD=7071.068) t (1) =1.862, p<.001(two-tailed). The decline in the mean of the agricultural posts on the two social media scores was 54000.000, with a 95% confidence interval ranging from -314479.937 to 422479.937 [See Table 4 and Table 4.1]

Similar patterns of results emerged from the paired-sample T-test conducted to know if there were any statistically significant differences in the agricultural posts from Nigeria and similar posts from Togo on Facebook and Instagram. A significant difference is glaring between the agricultural posts from Nigeria on Facebook and Instagram (M= 64000.00, SD=48083.261) and agricultural posts from Togo on Facebook and Instagram (M= 8000.00, SD=5656.854) t (1) =1.867, p<.001(two-tailed). The decline in the mean of the agricultural posts on the two social media scores was 56000.000 with a 95% confidence interval ranging from -325186.142 to 437186.142 [see Table 4 and Table 4.1]. Therefore, the fourth hypothesis that agricultural posts on Facebook and Instagram from Nigeria and agricultural posts on Facebook and Instagram from Ghana/ other West African countries are equal to zero is therefore rejected.

Thus, the findings derived from the paired sample T-test are quite interesting; specifically those of the null hypotheses tested. Significantly, all four hypotheses of no difference are rejected. Rejection of the first hypothesis that there is no significant difference between the posts on Agriculture on

Facebook and Instagram between 2019 and the two successive years counters the earlier findings of Iwuchukwu, Eke, and Nwobodo (2019) that Facebook was the social medium suitable for communicating most of the agricultural information. It could be argued that the rejection of the hypothesis of no difference between the number of messages on Facebook and Instagram, which logically confirms Instagram as the heavier custodian of agricultural postings, takes the evidence beyond the descriptive data provided in Figure 2. This evidence streaming from the first hypothesis testing cannot be too distant from the results of the second hypothesis tested. Even though the first and second hypotheses differ in contexts, the latter supported the presence of more agricultural postings on Instagram across three sources of information on agricultural and farming activities.

The rejection of the second hypothesis is quite interesting based on some differences in the postings made by individual farmers, Nigerian agricultural organisations, and the Nigerian government. Individual farmers are rated higher than agricultural organisations and Nigerian government (See Figure 3). Three-quarter of the agricultural information was posted by individual farmers and private agricultural organisations. This implies that government agencies are not using social media effectively to promote agriculture in Nigeria, especially in the era when the emphasis is being placed on going back to farm and diversification of the economy. This finding supports the earlier finding reported by Ifejika, Asadu, Ifejika, and Sule (2019). Ifejika et al. (2019) have earlier reported Agricultural Development Programmes (ADPs) in North Central Nigeria as badly deficient in the scheme of maximising the use of digital media, especially the use of Facebook and similar interactive channels, to inform the world about its agricultural activities.

Furthermore, the second hypothesis rejection logically goes with the fact that Instagram had almost three times the number of posts on Facebook at the three levels, indicating that farmers possibly preferred Instagram more than Facebook for sharing agricultural information at global, continental, and national levels. This finding counters the research outcome of Iwuchukwu, Eke, and Nwobodo (2019), which recorded Facebook as the most suitable social media tool for communicating most of the agricultural information among farmers in Enugu State, eastern Nigeria, the finding of Aliyu and Safiyul (2017) which rated Facebook as having the highest popularity compared to among other social media used in agricultural extension service delivery, and the finding of Mukherjee, Joshi, and Sharma (2017) which displayed Facebook, YouTube, Blogs, Wikis, and podcasts as the most commonly used platforms by agricultural extension workers. The present finding also runs contrary to the finding of Byomire, Namisango, and Kafuko (2016), who rated Facebook after WhatsApp in terms of social media use for strengthening urban agriculture service delivery in Uganda. It should be noted that the older studies so far cited did not compare the use of Facebook and Instagram by farmers for sharing agricultural information.

Supporting the cited existing research findings is the rejection of the second hypothesis that farmers' agricultural posts at African level and agricultural posts at Nigeria's level on Facebook and Instagram are not significantly different because the postings at the African continental level surpass the messages posted by Nigerian farmers and with Instagram having the lion's share at both levels.

The rejection of the third hypothesis that there are no statistically significant differences between the posts on the two social media about *Equipment promotion and marketing* and about *Pest and disease control/ other agricultural important issues,* through the sample T-test output, shows the differences in the extent of postings about the pertinent matters of agricultural concern on the two digital platforms investigated. There are more such postings on Instagram. This outcome is in disagreement with some existing findings. However, the agricultural subjects covered by postings reported in those findings differ from those displayed in Figure 4, upon which the third hypothesis was tested. The most significant basis for citing the existing research findings in comparison with the present one is identifying the actual platform that gains the attention of farmers for postings. Therefore, it cannot be far from logic to argue that the present finding runs contrary to the finding of Iwuchukwu, Eke, and Nwobodo (2019) that Facebook was the social medium suitable for communicating most agricultural information such as the best soil for different agricultural practices and the creation of awareness and participation in agricultural projects.

With data projected in Figure 5 and the result of the fourth hypothesis given by the paired sample test for agricultural posts on Facebook and Instagram from West African Countries, both of which depict Nigeria as outmaneuvering Ghana and other West African countries (see Figure 5 and Table 4.1), Nigeria should clearly be defined as a leading nation in the scheme of green revolution in the contemporary world.

150

Table 1. Paired Samples Statistics for Posts on Agriculture on Facebook and Instagram across 2019, 2020, 2021

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Posts on Agricultural in 2019 - Posts on Agricultural in 2020	26000.00	2	19798.990	14000.000
	15500.00	2	10606.602	7500.000
Pair 2 Posts on Agricultural in 2019 - Posts on Agricultural in 2021	26000.00	2	19798.990	14000.000
	22500.00	2	17677.670	12500.000
Pair 3 Posts on Agricultural in 2020 - Posts on Agricultural in 2021	15500.00	2	10606.602	7500.000
	22500.00	2	17677.670	12500.000

Table 1.1. Paired Sample Test for Posts on Agriculture on Facebook and Instagram across 2019, 2020, 2021

Posts across Years		N	M	SD	95% Confidence Interval of the Difference		T	df	P
					Lower	Upper			
Pair 1	2019 Agricultural Posts - 2020 Agricultural Posts	2	10500.000	9192.388	-72090.331	93090.331	1.615	1	.001
Pair 2	2019 Agricultural Posts - 2021 Agricultural Posts	2	3500.000	2121.320	-15559.307	22559.307	2.333	1	.001
Pair 3	2020 Agricultural Posts - 2021 Agricultural Posts	2	-7000.000	7071.068	-70531.024	56531.024	-1.400	1	.001

Table 2. Paired Samples Statistics for Nigeria's Sources of Agricultural Promotion and Information on Facebook and Instagram

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Agricultural promotion on Instagram and Facebook by the Government	13500.00	2	9192.388	6500.000
Agricultural promotion on Instagram and Facebook by Private Organisations	19000.00	2	12727.922	9000.000
Pair 2 Agricultural promotion on Instagram and Facebook by the Government	13500.00	2	9192.388	6500.000
Agricultural promotion on Instagram and Facebook by Individual Farmers	31500.00	2	26162.951	18500.000
Pair 3 Agricultural promotion on Instagram and Facebook by Private Organisations	19000.00	2	12727.922	9000.000
Agricultural promotion on Instagram and Facebook by Individual Farmers	31500.00	2	26162.951	18500.000

Table 2.1. Paired Sample Test for Nigeria's sources of Agricultural Promotion and Information on Facebook and Instagram

Sources of Agricultural promotion and information	N	M	SD	95% Confidence Interval of the Difference		t	df	P
				Lower	Upper			
Pair 1 Agricultural promotion and information by Government-	2	-5500.000	3535.534	-37265.512	26265.512	-2.200	1	.001

		N	Mean	Std. Deviation	Lower	Upper	t	df	Sig.
	Agricultural promotion and information by Private Organisations								
Pair 2	Agricultural promotion and information by Government - Agricultural promotion and information by Individual Farmers	2	-18000.000	16970.563	-170474.457	134474.457	-1.500	1	.001
Pair 3	Agricultural promotion and information by Private Organisations - Agricultural promotion and information by Individual Farmers	2	-12500.000	13435.029	-133208.945	108208.945	-1.316	1	.001

Table 3. Paired Samples Statistics for Contexts of Nigerian Farmers' Agricultural Posts on Facebook and Instagram

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Equipment promotion and marketing	16500.00	2	19091.883	13500.000
	Pest and disease control	14000.00	2	15556.349	11000.000
Pair 2	Equipment promotion and marketing	16500.00	2	19091.883	13500.000
	Awareness and participation in agricultural programme/project	15000.00	2	7071.068	5000.000
Pair 3	Equipment promotion and marketing	16500.00	2	19091.883	13500.000
	Market situation/agricultural commodity price	9500.00	2	6363.961	4500.000
Pair 4	Equipment promotion and marketing	16500.00	2	19091.883	13500.000
	Communicating information on the best soil for different agricultural practices	9000.50	2	.707	.500
Pair 5	Pest and disease control	14000.00	2	15556.349	11000.000
	Awareness and participation in agricultural programme/project	15000.00	2	7071.068	5000.000
Pair 6	Pest and disease control	14000.00	2	15556.349	11000.000
	Market situation/agricultural commodity price	9500.00	2	6363.961	4500.000
Pair 7	Pest and disease control	14000.00	2	15556.349	11000.000
	Communicating information on the best soil for different agricultural practices	9000.50	2	.707	.500
Pair 8	Awareness and participation in agricultural programme/project	15000.00	2	7071.068	5000.000
	Market situation/agricultural commodity price	9500.00	2	6363.961	4500.000
Pair 9	Awareness and participation in agricultural programme/project	15000.00	2	7071.068	5000.000
	Communicating information on the best soil for different agricultural practices	9000.50	2	.707	.500
Pair 10	Market situation/agricultural commodity price	9500.00	2	6363.961	4500.000
	Communicating information on the best soil for different agricultural practices	9000.50	2	.707	.500

152

Table 3.1. Paired Samples Test for Contexts of Nigerian Farmers' Agricultural Posts on Facebook and Instagram

Continental Posts on Agricultures	N	M	SD	95% Confidence Interval of the Difference		t	df	P
				Lower	Upper			
Pair 1 Equipment promotion and marketing - Pest and disease control	2	2500.000	3535.534	-29265.512	34265.512	1.000	1	.001
Pair 2 Equipment promotion and marketing - Awareness and participation in agricultural programme/project	2	1500.000	12020.815	-106502.740	109502.740	.176	1	.001
Pair 3 Equipment promotion and marketing - Market situation/agricultural commodity price	2	7000.000	12727.922	-107355.843	121355.843	.778	1	.001
Pair 4 Equipment promotion and marketing - Communicating information on the best soil for different agricultural practices	2	7499.500	19091.176	-164027.911	179026.911	.556	1	.001
Pair 5 Pest and disease control - Awareness and participation in agricultural programme/project	2	-1000.000	8485.281	-77237.228	75237.228	-.167	1	.001
Pair 6 Pest and disease control - Market situation/agricultural commodity price	2	4500.000	9192.388	-78090.331	87090.331	.692	1	.001
Pair 7 Pest and disease control - Communicating information on the best soil for different agricultural practices	2	4999.500	15555.642	-134762.399	144761.399	.455	1	.001
Pair 8 Awareness and participation in agricultural programme/project - Market situation/agricultural commodity price	2	5500.000	707.107	-853.102	11853.102	11.000	1	.001
Pair 9 Awareness and participation in agricultural programme/project - Communicating information on the best soil for different agricultural practices	2	5999.500	7070.361	-57525.171	69524.171	1.200	1	.001
Pair 10 Market situation/agricultural commodity price - Communicating information on the best soil for different agricultural practices	2	499.500	6363.254	-56672.068	57671.068	.111	1	.001

Table 4. Paired Samples Statistics for Agricultural Posts on Facebook and Instagram from West African Countries

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Nigeria's Agricultural Posts on Facebook and Instagram	64000.00	2	48083.261	34000.000
	Ghana's Agricultural Posts on Facebook and Instagram	10000.00	2	7071.068	5000.000
Pair 2	Nigeria's Agricultural Posts on Facebook and Instagram	64000.00	2	48083.261	34000.000
	Togo's Agricultural Posts on Facebook and Instagram	800.00	2	5656.854	4000.000

Table 4.1. Paired Sample Test for Agricultural Posts on Facebook and Instagram from West African Countries

Sources of Agricultural promotion and information	N	M	SD	95% Confidence Interval of the Difference		t	df	P
				Lower	Upper			
Pair 1 Nigeria's Agricultural Posts on Facebook and Instagram - Ghana's Agricultural Posts on Facebook and Instagram	2	54000.000	41012.193	-314479.937	422479.937	1.862	1	.001
Pair 2 Nigeria's Agricultural Posts on Facebook and Instagram - Togo's Agricultural Posts on Facebook and Instagram	2	56000.000	42426.407	-325186.142	437186.142	1.867	1	.001

CONCLUSION

Set on the diffusion of the innovation theoretical explanation, the study investigates how far Nigerian farmers have adopted social media to propagate agricultural interests for national and continental appeal. The study, therefore, explored existing data to reveal Nigerian farmers' postings on Facebook and Instagram in three successive years and compares the extent of the postings with similar ones at continental and regional levels. Besides, the study not only examined, on the scale of comparison, Nigerian agricultural messages posted by the government, individual farmers, and private organisations, but also identified the contexts of the postings in the three identified years. The study's findings show Nigerian farmers as promoters of agriculture because of its importance to the economic well-being of the people when Nigeria is facing economic challenges. The assumption is that agriculture stands as an alternative economic booster to oil and gas whose strength had begun to dwindle due to technological advancement and related factors. The posting of agricultural messages cannot be denied as a means of sending signals to the stakeholders across geographical dispersion. Nigeria is a big player in Africa's agricultural sector, and its agricultural resources can turn things around even in the face of insecurity that has bedeviled the nation for quite some time. This observation is supported by data projected in Figure 5, showing Nigeria as the leading nation in agriculture in the West African sub-region of the continent. Farmers should not relent in efforts to maximize digital media for marketing their products and connecting with prospective buyers worldwide. The Nigerian government is enjoined to provide the enabling environment for agricultural promotion in the digital age.

In all, the results of the hypotheses tested have some practical implications for the seminal notion of Rogers (1995) that innovation spread over time in the social order and stages from one place to another. The implications are not concretely discussed in this paper. Nevertheless, we tend to suggest that a set of hypotheses should be tested for comparison at the global level, African continental level and Nigerian national level of agricultural promotions on the two digital platforms.

154

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155