



## Use of Mobile Phone for Agricultural Activities among the Arable Crop Farmers in Edu Local Government Area of Kwara State, Nigeria

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<b>Received:</b> Aug. 13, 2023	<b>Abstract</b> The research examined the arable crop farmers' use of mobile phone for agricultural activities in Edu Local Government Area of Kwara State, Nigeria. About 105 arable crop farmers were randomly selected for the study. Statistical tools such as frequency count, percentage and mean score were used to analyse the data. The result showed that about 75.2 % of the respondents were male. The average age of the respondents was 37.2 years. The average household size was 6 persons. The mean income of the respondents was 368,076.67 Naira. The voice call (mean = 2.46) was the most frequently used mobile phone feature by the respondents for agricultural purposes. The use of mobile phone for communicating with fellow farmers (mean=2.40) highest ranked statement on use of mobile phone for agricultural activities. The high cost of buying credit/data (mean=2.33) was the most severe factor limiting the use of mobile phone for agricultural activities. The study therefore recommends the provision of training to farmers in areas where there are gaps in their competency on the use of mobile phone for agricultural activities.
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### Introduction

Agriculture contributes greatly to the Nigerian economy as it is an important source of livelihoods and food security to many people in Nigeria.

Mobile phones have become an integral part of our daily lives, and their use is being extended to agricultural activities. the advantages of mobile phones for agricultural activities include increased access to information and improved communications between farmers and extension agents. Mobile phones are also useful in monitoring crop growth and soil conditions, accessing market information, and recording yields.

The use of mobile phones and its various Applications for agricultural activities have made information/data gathering and dissemination easier for the farmers and rural people [1]. The use of mobile phones also makes access to input markets easier for the



farmers. This is important as no meaningful developmental work in the agricultural sector can be accomplished without access to reliable, relevant, and timely information [2].

Information is an important factor of production, which is as vital as other factors of production like land, labour, and capital. Rapid exchange of reliable information in the agricultural sector is an essential factor in the farmer's adoption of new agricultural innovations, as a result of the lack of budget and inefficient infrastructure in developing countries, farmers do not have timely access to the latest agricultural knowledge [3]. The use of mobile phone is now an important economic resource for the dissemination of agricultural knowledge with the potential to reach many farmers across rural environments [4].

The mobile phone has also empowered the farmers to communicate from local to administrative levels regarding the agricultural trade, information exchange, and marketing of their farm commodities [5]. The use of mobile phones also reduces the traveling cost, as well as the production efficiency of the farming households living in the remote area.

Although digital devices like mobile phone provide resource-poor farmers with updated information, However, access to this information has remained a challenge [6]. Although several studies such as [7,8], have been conducted on the use of mobile phones by the farmers. However, there is the need to carry out a study on the use of mobile phone for agricultural activities among the farmers as there is paucity of information on the use of mobile phones among the rural farmers in the study area. Therefore, there is the need to determine the use of mobile phones for agricultural activities among the rural farmers in Edu Local Government Area of Kwara State, Nigeria. The specific Objectives were to Ascertain the socioeconomic characteristics of the respondents in the study area, Identify the mobile phone features used by the farmers for agricultural activities, Assess the respondents' agricultural usage of mobile phones, and investigate the constraints limiting the use of mobile phone for agricultural activities in the study area.

## **Materials and Methods**

The study was carried out in Edu Local Government Area of Kwara State, Nigeria. Arable crops cultivation is the main occupation of the people in the study area. A total of 105 arable crops farmers were randomly selected for the study. The mobile phone features and services used for Agricultural purposes was measured on a 3-point likert typed scale, where Never =1, Occasionally =2 and Always = 3. The Agricultural use of mobile phone was measured on a 3- point Likert typed scale, where Never =1, Occasionally =2 and Always = 3. The constraints limiting the use of mobile phone for Agricultural Purposes was measured on a 3-point likert scale where Not a factor = 1, Less severe =2 and Highly severe = 3. The statistical tools used to analysed the data were frequency count, percentages and mean.

## Result and Discussion

### Socio-Economic Characteristics of Respondents

The result in Table 1 showed that about 75.2 % of the respondents were male. This denotes that arable farming is dominated by the males in the study. The average age of the respondents was 37.2 years. This indicates that the respondents were still young and are within the active age bracket. About 76.2 % were married. The average household size was 6 persons. The mean income of the respondents was 368,076.67 Naira. This shows that arable crop farming is a viable source of livelihood in the study area. the average farm land is 5.87 hectares of land. About 79 % of the farmers gets agricultural information from their fellow farmers.

**Table (1): Socio-Economic Characteristics of Respondents (n=105)**

Variables	Frequency	Percentage	Mean (SD)
<b>Sex</b>			
Male	79	75.2	
Female	26	25.2	
<b>Age (years)</b>	3		<b>37.2 Years (9.22)</b>
≤30	32	30.5	
31 – 40	36	34.3	
41 – 50	30	28.6	
Above 50	7	6.7	
<b>Marital Status</b>			
Single	17	16.2	
Married	80	76.2	
Separated	5	4.8	
Widowed	3	2.9	
<b>Household Size (persons)</b>			<b>6 Person (2.58)</b>
≤ 5	55	52.4	
6 – 10	48	45.7	
Above 10	2	1.9	
<b>Years of experience</b>			<b>16.5 Years (7.93)</b>
≤ 10	32	30.5	
11 – 20	40	38.1	
21 – 30	31	29.5	
Above 30	2	1.9	
<b>Income</b>			<b>368,076.67 Naira (260985.88)</b>
≤ 300,000	58	55.2	
300,001 – 600,000	31	29.5	
600,001 – 900,000	11	10.5	



Above 900,000	5	4.8	
<b>Farm size (ha)</b>			<b>5.87 Hectares (4.44)</b>
1 – 10	96	91.4	
11 – 20	8	7.6	
21 – 30	1	1.0	
<b>Sources of information</b>			
Social media	6	5.7	
Fellow farmers	83	79	
Extension agents	16	15.2	

Source: Field survey, 2023

### Mobile Phone Features and Services used for Agricultural Purposes

The result in Table 2 showed that only voice calls (mean = 2.46) was the most frequently used mobile phone feature by the respondents for agricultural purposes. Short message services (SMS) (mean=2.31) and internet browsing (mean=1.99) was ranked second and third respectively. This implies that voice calls, short message services and internet browsing are the most frequently used mobile phone features and services in the study area. The findings of this study agreed with similar studies who discovered that making phone calls ranked highest in the use of phone by the farmers in Nigeria [7,8].

**Table (2): Mobile Phone Features and Services used for Agricultural Purposes**

Mobile Phone features and services	Never	Occasion-ally	Always	Mean (SD)	Rank
	Fre- quency (%)	Fre- quency (%)	Fre- quency (%)		
Voice calls	20(19.0)	17(16.2)	68(64.8)	2.46(0.78)	1 <sup>st</sup>
Short message services (SMS)	13(12.4)	46(43.8)	46(43.8)	2.31(0.68)	2 <sup>nd</sup>
Flashing	29(27.6)	52(49.5)	24(22.9)	1.95(0.71)	5 <sup>th</sup>
Multi-media messages	21(20.0)	69(65.7)	15(14.3)	1.94(0.59)	6 <sup>th</sup>
Internet browsing	26(24.8)	54(51.4)	25(23.8)	1.99(0.70)	3 <sup>rd</sup>
Radio	23(21.9)	62(59.0)	20(19.0)	1.97(0.64)	4 <sup>th</sup>
Social network services (whatapp, facebook etc)	41(39.0)	36(34.3)	28(26.7)	1.88(0.81)	7 <sup>th</sup>
Video camera	69(65.7)	23(21.9)	13(12.4)	1.47(0.71)	15 <sup>th</sup>
Calendar	36(34.3)	53(50.5)	16(15.2)	1.81(0.68)	9 <sup>th</sup>
Calculator	50(47.6)	45(42.9)	10(9.5)	1.62(0.66)	13 <sup>th</sup>
Torch	53(50.5)	43(41.0)	9(8.6)	1.58(0.65)	14 <sup>th</sup>
Alarm	45(42.9)	41(39.0)	19(18.1)	1.75(0.74)	12 <sup>th</sup>
Voice recorder	43(41.0)	44(41.9)	18(17.1)	1.76(0.73)	11 <sup>th</sup>



Reminder	43(41.0)	33(31.4)	29(27.6)	1.87(0.82)	8 <sup>th</sup>
GPS services	49(46.7)	30(28.6)	26(24.8)	1.78(0.82)	10 <sup>th</sup>

Source: Field survey, 2023

### Use of Mobile Phone for Agricultural Activities

Result presented in Table 3 showed the use of mobile phone for communicating with fellow farmers (mean=2.40) was ranked first. Second and third ranked positions of agricultural activities performed were accessing information on land availability and preparation (mean=2.10) and seeking for information on where to sell agricultural produce (mean=2.07). This finding implies that arable crop farmers in the study area mainly use mobile phone features and services to communicate with fellow farmers. This infers that the use of mobile phone has contributed to farmers' access to land and marketing of agricultural produce in the study area.

**Table (3): Distribution of Respondents based on the Use of Mobile Phone for Agricultural Activities**

Agricultural activities	Never	Occasionally	Always	Mean (SD)	Rank
	Frequency (%)	Frequency (%)	Frequency (%)		
For consulting with the extension workers/experts for advice	33(31.4)	59(56.2)	13(12.4)	1.81(.637)	12 <sup>th</sup>
Assessing information on farming inputs	16(15.2)	68(64.8)	21(20.0)	2.05(.595)	4 <sup>th</sup>
Seeking for information on weather forecasts	25(23.8)	56(53.3)	24(22.9)	1.99(.686)	5 <sup>th</sup>
Seeking for information on where to sell agricultural produce	28(26.7)	42(40.0)	35(33.3)	2.07(.775)	3 <sup>rd</sup>
Access information on land availability and preparation	25(23.8)	45(42.9)	35(33.3)	2.10(.754)	2 <sup>nd</sup>
Communicating with fellow farmers	22(21.0)	19(18.1)	64(61.0)	2.40(.816)	1 <sup>st</sup>
For obtaining information on the commencement of raining season	25(23.8)	59(56.2)	21(20.0)	1.96(.664)	6 <sup>th</sup>



Use of mobile phone for financial transactions	31(29.5)	55(52.4)	19(18.1)	1.89(.684)	7 <sup>th</sup>
To obtain information on grants, loan and subsidy	56(53.3)	32(30.5)	17(16.2)	1.63(.750)	14 <sup>th</sup>
To get information on tractors and other farm machineries	36(34.3)	47(44.8)	22(21.0)	1.87(.735)	10 <sup>th</sup>
To obtain information on farm labours/workers	35(33.3)	53(50.5)	17(16.2)	1.83(.686)	11 <sup>th</sup>
For information on agricultural training/seminar	53(50.5)	38(36.2)	14(13.3)	1.63(.711)	15 <sup>th</sup>
For calling security personnel on farm related conflicts	56(53.3)	34(32.4)	15(14.3)	1.61(.727)	16 <sup>th</sup>
Information on veterinary/farm animal health service	39(37.1)	52(49.5)	14(13.3)	1.76(.673)	13 <sup>th</sup>
Pest and disease control information	28(26.7)	61(58.1)	16(15.2)	1.89(.640)	8 <sup>th</sup>
Information on irrigation farming	28(26.7)	61(58.1)	16(15.2)	1.89(.640)	9 <sup>th</sup>

**Source: Field survey, 2023**

### **Constraints limiting the Use of Mobile Phone for Agricultural Activities**

The result in Table 4 showed that high cost of buying credit/data (mean=2.33) was the most severe factor limiting the use of mobile phone for agricultural activities. The lack of customer care centres around (mean =2.31) was ranked second and inadequate technical know-how on how to operate phone (mean=2.23) was ranked third. By implication, high cost of buying credit/data, lack of customer care centres around, and inadequate technical know-how on how to operate phone were the leading constraints limiting arable crop farmers use of mobile phone for agricultural purposes in the study area. Similarly, high cost of buying credit/data ranked first in this study affirmed report by [7] found that high charges on services one of the main constraints identified for limiting the usage of phones for agricultural purposes.

**Table (4): Distribution of Respondents by Constraints Limiting the Use of Mobile Phone for Agricultural Activities**

Agricultural activities	Not a factor	Less severe	Highly severe	Mean(SD)	Rank
	Frequency(%)	Frequency (%)	Frequency (%)		
High cost of buying mobile phone set	27(25.7)	41(39.0)	37(35.2)	2.10(.779)	8 <sup>th</sup>
Inadequate electricity supply	25(23.8)	61(58.1)	19(18.1)	1.94(.648)	12 <sup>th</sup>
Inadequate technical know-how on how to operate phone	16(15.2)	49(46.7)	40(38.1)	2.23(.697)	3 <sup>rd</sup>
Poor internet/signal coverage	13(12.4)	66(62.9)	26(24.8)	2.12(.600)	7 <sup>th</sup>
High cost of buying credit/data	7(6.7)	56(53.3)	42(40.0)	2.33(.599)	1 <sup>st</sup>
Lack of customer care centres around	16(15.2)	40(38.1)	49(46.7)	2.31(.725)	2 <sup>nd</sup>
High cost of repair/maintenance	20(19.0)	50(47.6)	35(33.3)	2.14(.713)	5 <sup>th</sup>
High risk of loss of phone set	25(23.8)	55(52.4)	25(23.8)	2.00(.693)	10 <sup>th</sup>
Poor battery quality	22(21.0)	63(60.0)	20(19.0)	1.98(.635)	11 <sup>th</sup>
Illiteracy of the farmers	23(21.9)	43(41.0)	39(37.1)	2.15(.757)	4 <sup>th</sup>
Unfamiliarity with phone features	28(26.7)	48(45.7)	29(27.6)	2.01(.740)	9 <sup>th</sup>
Lack of extension workers to link up with the use of mobile phone	29(27.6)	34(32.4)	42(40.0)	2.12(.817)	6 <sup>th</sup>

**Source: Field survey, 2023**

According to the findings of the study. The study concluded that majority of the arable crop farmers were males, were still young and married. Voice calls, short message services (SMS) and internet browsing were the leading mobile phone features and services for agricultural purposes. Communicating with fellow farmers, access information on land availability and preparation, and seeking for information on where to sell agricultural produce were the leading agricultural purposes for using mobile phones. High cost of buying credit/data, lack of customer care centres around, and inadequate technical know-how on how to operate phone were the most severe



constraints limiting farmers to use mobile phone for agricultural activities. Regarding inadequate technical know-how on how to operate phone, this study suggests the conduct of an empirical study on competency need of arable crop farmers to use smart phone for agricultural purposes. Then, the implementation of the training programme of the identified competencies gap through extension agents for the arable crop farmers should follow. Relevant telecommunication agencies and government bodies in Nigeria should address the problem of lack of customer care centres around by siting centres in farming communities. Also, legislators at state and federal level should interview in the matter of high cost of buying credit/data. Access to mobile phone positively influenced the use of mobile phone features or services for agricultural purposes. Government and non-governmental organizations can develop a farmers' friendly mobile phone and distribute to arable crop farmers to use for agricultural purposes.

### **References**

- 1) Wally, D. (2021). Exploring the application of ICTs and big data analytics on climate data in climate-smart agriculture to increase productivity for small-scale farmers: The case of Ghana. Published master thesis. Faculty of Cultural and Social Sciences, Paris, Lodron University of Salzburg and Technical Faculty of IT and Design, Aalborg University, Copenhagen.
- 2) Kaske, D., Mvena, Z. S. K., & Sife, A. S. (2018). Mobile phone usage for accessing agricultural information in Southern Ethiopia. *Journal of Agricultural and Food Information*, 19(3), 284–2980.
- 3) Baloch, A. M., & Thapa, B. G. (2014). Agricultural extension in Balochistan, Pakistan: Date palm farmers' access and satisfaction. *Journal of Mountain Science*, 11(4), 1035-1048.
- 4) Santosham, S., & Lindsey, D. (2015). Bridging the gender gap: Mobile access and usage in low-and middle-income countries. Retrieved from <https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2016/02/Connected-Women-Gender-Gap.pdf>
- 5) Ogutu, S. O., Okello, J. J., & Otieno, D. J. (2014). Impact of information and communication technology-based market information services on smallholder farm input use and productivity: The case of Kenya. *World Development*, 64, 311-321.
- 6) Jiménez, D., Delerce, S., Dorado, H., Cock, J., Muñoz, L. A., Agamez, A., & Jarvis, A. (2019). A scalable scheme to implement data-driven agriculture for small-scale farmers. *Global Food Security*, 23, 256-266.
- 7) Ajayi, F., Olanrewaju, K., Akintunde, O., Bamiwuye, O., & Agboola, T. (2021). Determinants of Mobile Phones Usage for Agricultural Purposes Among Arable Crop Farmers In Iwo Zone Of Osun State, Nigeria. *Scientific Journal AGRICULTURAL ENGINEERING*, XLVI 4., 2021, 30 – 40.





- 8) Anadozie, C., Fonkam, M., & Cleron, J. (2021). Assessing mobile phone use in farming: The case of Nigerian rural farmers, African Journal of Science, Technology, Innovation and Development.