THE PLACE OF MOBILE PHONE IN IMPROVING FARMERS KNOWLEDGE OF FARM PRACTICES IN MAKURDI LOCAL GOVERNMENT AREA

*[1]Eche, S.I and [1]Odiaka, E.C

1. Department of Agricultural Extension and communication,

Joseph Sarwan Tarka University, Makurdi, Benue State.

*Corresponding Author's Email: samueleche7@gmail.com, odiakaec@yahoo.co.uk

Abstract

This study was conducted to assess the use of mobile phones for sustainable information sharing for increased food production among rural farmers in Makurdi Local Government Area of Benue State. The population of this study consisted of all farmers in Makurdi LGA of Benue State. A simple random sampling technique was used to select a sample size of 104 respondents who were heads of households in four selected Council Wards. Data were collected from primary sources using a structured questionnaire. Data collected were analyzed using both descriptive and inferential statistics. Findings indicated that majority (57.7%) of the farmers were between the ages of 31 and 40 years, 57.7% were females and 75.0% married. About 78% had tertiary education, 22.1% had farming experience of 1-5 years. 23.1% had annual income of ₦301,000-₦400,000. Most (75%) of the respondents had farm size of 1-4 hectares, 61.5% spent ₦100-₦300 on recharge cards or data per week. Methods used by respondents to sustainably share information are calls, text messages and social media. Respondents use mobile phones to get information on agriculture daily, weekly, monthly and yearly. Poor electricity system is the major challenge faced by the respondents. The Chi square x^2 (113.018), at a significant level of 0.05 and degree of freedom=12 shows that the use of mobile phone had a significant relationship with farmers' improved knowledge of production practices in the study area. It is recommended that Government should make and enforce policies on lower rate for calls and recharge cards and network providers should ensure appropriate transmission and maintenance of good and quality networks in rural areas to increase farmers knowledge.

Keywords: Rural farmers, Mobile phone, Knowledge

Introduction

Mobile phone offers easy accessibility of information to the users. There is widespread use of mobile phones by farmers and extension workers during information

exchange which is very useful to both parties in improving agricultural activities (Charles, 2015).

The mobile phone technology has brought the world closer. It provides great convenience in communication among people by way of either calling or texting. Now, the mobile phones are coming up with variety of features like Internet, radio, music and e-mail access, games, access to social networking sites like face-book, reading books, dictionary and so on. The mobile phones are also used to overcome the feeling of loneliness (Alpana *et al*, 2016). Majority of the users are in the age group of 15 to 25 years. The contacts are established instantly with the help of mobile Sim card which was not possible earlier. Though mobile phones provides many advantages, there are also disadvantages, for instance, some people use mobile phones so excessively that they assume the form of addiction. The use of mobile phones has reduced face to face communication. Sending text messages while talking to someone and it is possible to do these activities simultaneously like another person. Students use mobile phones for playing games, sending messages, calling even when lectures are in progress. Mobile phones are used at places like hospitals, judicial courts and petrol stations where their use is banned. Mobile phone use during driving is commonly observed and it may increase the chances of accidents, and distract attention of the driver visually, physically and cognitively. Earlier studies have shown that various personality traits like neuroticism, extraversion, psychoticism etc. and mobile phone use have some relation to each other(Alpana *et al*, 2016). The provision of the additional features like internet, music, radio etc. may have resulted to its excessive use (Alpana *et al*, 2016).

It is a fact that computers and mobile telephones have revolutionized communication and by extension interpersonal relationship hence influencing intimacy and the closeness that exist between people. It is, also, understood that interaction helps people master the world, and find connectedness, while at the same time leading to simple familiarity which in turn increases liking(Fash, 2003). For example, it has been suggested that it is possible for people in distributed online multiplayer games to talk to one another. This may not only influence game performance, but also social interaction (Fash, 2003).

Agricultural information influence agricultural productivity in a variety of ways. It can help farmers to make informed decisions regarding land, labour, livestock, capital and management. Agricultural productivity can arguably be improved by relevant, reliable and useful information and knowledge(Demiryurek, 2006). Hence, the creation of

agricultural information (by extension services, research, education programmes and others) is now often managed by agricultural organizations that create information systems to disseminate same to farmers so that they can make better decisions in order to take advantage of market opportunities and manage continuous changes in their production systems. Therefore, there is a need to understand the functions and use of particular agricultural information systems in order to manage and improve them. (Demiryurek, 2006).

In Nigeria, millions of rural farmers are the bedrock of agricultural and food supply chains.(Anunobi, 2018).Inadequate information on modern and efficient agricultural practices have brought about low farm yield. For rural farmers to improve there should be adequate knowledge, education and adoption of modern farm practices. Given the challenges faced by extension agents especially as it relates to providing state of the art information on farm practices in real time to farmers, it is expected that deploying modern means of information dissemination will go a long way in bridging this gap (Anunobi, 2018).

Rural farmers constitute greater part of the country's population and produce food for the increasing population, raw materials for the industries, foreign exchange and revenue for the country and employment for a majority of the people (Obidike, 2011;Omoregie and Igbinosa, 2010). These rural farmers need information to achieve *maximum yield in agricultural inputs, market prices, transportation systems;* environmental sound production techniques and practices; new agricultural technologies; food processing and preservation; decision-making process; as well as, pest diseases and climatic conditions, early warning signals, improved seedlings, fertilizers etc. (Anunobi, 2018). These could reduce farmers' risk and uncertainty while empowering them to make good decisions. This vital information is provided to the farmers mainly through the extension agents who act as advisers, technicians and middlemen operating between agricultural research institutions and the farm families; as change agents, consultants and advocates, helping farmers to identify their problems and finding their own solution. (Anunobi, 2018).

Methodology

The study was carried out in Makurdi LGA of Benue State. Makurdi Metropolitan area is the capital city of Benue State and is located in the middle belt region (North-Central) of Nigeria ($6°45'$–$8°15'$E, $7°30'$–$9°45'$N). It has a population of 300,377 spread

out over an area of 41,035 km2 making it the most densely populated local government area in Benue State, with a mean of 257 people per km2. It has a diverse cultural make-up, among which the following ethnic groups are prominent: Tivs, Idomas, Igedes, Hausas, Yorubas and Ibos (2020 World Bank population projection).

Makurdi has eleven (11) Council wards, namely Mbalagh, Agan, North Bank I and North Bank II. Others are Fiidi, Wailomayo, Bar, Modern Market, Ankpa/Wadata, Clerk Market and Central/South Mission. Situated in the Lower Benue Valley, the relief of the Local Government Area (L.G.A) is generally low, with heights ranging between 73 meters and 167 meters above sea level. The soils of Makurdi generally are highly ferruginous tropical soils (Areola, 1983; Nyagba, 1995).The population of the study was made up of all the rural farmers in Makurdi Local Government Area (LGA) of Benue State, Four council wardsFiidi, Central/South mission, Ankpa/Wadata, and Bar were selected using simple random sampling technique. From each of the four councilwards selected, 20% of the household head were selected to form a total of 110. (Table 1).

A total of 110 questionaires were taken to the field and administered to the respondents. However, only 104 copies of the questionare were returned and analyzed.

TABLE 1: Sample size selection plan

S/N	WARDS	POPULATION	NO. OF HOUSE HOLDS	SAMPLE SIZE (20% OF RURAL HEADS OF HOUSEHOLDS)
1	Ankpa/wadata	1100	140	28
2	Bar	213	33	07
3	Central/south mission	1060	132	26
4	Fiidi	1510	244	49
	Total	3883	549	110

Results and Discussion

Socio-economics characteristics of respondent

Table 2 reveals that42.3% of respondents were male, while 57.7% were female, out of which 75.0% were married and 25.0% were single. This did not agree with the result of the research carried out by Anunobi, (2018) in the Eastern part of Nigeria which states that majority (62.90%) of the farmers were males while the remaining 37.10% were females.

The age distribution of respondents shows that many (57.7%) of the respondents were within the age range of 31-40, 20.2% were within age range of 41-50 years, 14.4% were within age range of 21-30 years, The least age range of 50 years and above was 7.7%. This implies that most of the respondents/farmers were young, suggesting that the young people contribute more to agricultural production in the study area than the older ones. This could be because the young ones have more strength to work and can also stay longer on the farm than the old ones. The results of farming experience shows that 57.7% spent 6-10 years experience, while 22.1% spent 1-5 years and 20.2% had more than 11 years in farm.Results on educational qualifications of the respondents shows that the highest percentage (77.9%) of the respondents had tertiary education, while 22.1% of the respondents had secondary education. This agrees with the research carried out by Odiaka (2011) that 79.6% of the farmers could at least read and write which made it easier for them to manipulate handsets without much difficulty. The annual income result shows that 48.1% of the respondents earned ₦401,000 and above, followed by 23.1% who earned between ₦301,000 – ₦400,000. About 22% earned between ₦100,000 – ₦200,000, while 6.7% earned ₦201, 000- ₦300, 000. This suggest that the higher the money earned by the farmers, the more recharge cards are purchased to enable them communicate effectively and efficiently. If farmers earn more money, they will buy more data for their mobile phones. Increase in the income level of farmers will, also, contribute to sustainable information sharing, while a decrease in the income level of farmers may have a negative effect on data usage and also information sharing on improved agricultural practices and this may have positive effect onthe level of food production.

House hold size of the respondents show that 57.7% had house hold size of 4-7, 22.1% had house hold size of 1-3, while 20.2% had a house hold size of 8 people and above. It is believed that farmers with larger house hold size tend to cultivate more hectares of farmland than farmers with lesser house hold size; this is because the number of man power required by the farmers with larger farm size will be available to meet the task on the farm.

The result of farm size shows that 75.0% of the respondents had farm size of 1-4 hectares, and 25.0% farmed 5-10 hectares. This shows that most (75%) of the farmers had large farm. Majority of the farmers who farmed between 1 and 4 hectares of land sell their agricultural products in the local market. The increase in the amount of farm size will lead to an increase in the amount of food produced.

The result on the average amount spent on recharge cards or data per week shows that 61.5% used ₦100-₦300, 32.7% used ₦400-₦600 and 5.8% used ₦800-₦1000 respectively. This implies that more people spend less on recharge cards or data in a week and this brings about poor communication between farmers on information sharing. The more the amount that is spent on recharge cards, the more information sharing will be sustainable and the more amount that is being used for data, the more the farmers will get information and also share information concerning agriculture on social media.

Table 2:   Socio-Demographic Characteristics of the Respondents

Variables	Frequency	Percentage
Sex		
Male	44	42.3
Female	60	57.7
Total	104	100.0
Age		
21-30 years	15	14.4
31-40 years	60	57.7
41-50 years	21	20.2
Above 50 years	8	7.7
Total	104	100.0
Marital Status		
Married	78	75.0
Single	26	25.0
Total	104	100.0
Level of Education		
Secondary	23	22.1
Tertiary	81	77.9
Total	104	100
Farming Experience		
1-5 years	23	22.1
6-10 years	60	57.7
11 years above	21	20.2
Total	104	100.0
Annual Income		
100,000-200,000	23	22.1
201,000-300,000	7	6.7
301,000-400,000	24	23.1
401,000 and above	50	48.1
Total	104	100
Household size		
1-3	23	22.1
4-7	60	57.7
8+	21	20.2
Total	104	100
Farm Size in Hectares		
1-4	78	75.0
5-10	26	25.0
Total	104	100
Average amount spent on cards or data per week		
? 100-300	64	61.5
? 400-600	34	32.7
? 800-1,000	6	5.8
Total	104	100

Source: Field survey (2019)

Frequency of use of mobile phone to share information on agriculture

The result in Table 3 shows that 48.1% (50) respondents reported that they did not share any information about agricultural production, while 22.1% (23) respondents reported that they share information on weekly basis, 13.5% (14) respondents reported that they share information on monthly basis, 9.6% (10) respondents reported that they share information on yearly basis, while 6.7% (7) respondents reported that they share information on agriculture on daily basis. This shows that majority of the respondents do not share any information about agriculture, although few of them do share information on a daily, weekly, monthly and yearly basis. Lack of information sharing among farmers will lead to a decrease in food production. Therefore, the more the farmers share information concerning agriculture, the higher the production of food.

Use of mobile phone to share information on agriculture will contribute to a large extent in food production in the study area. Mobile phone usage is therefore a necessity as it helps farmers to gain more knowledge about agricultural products. Lack of using mobile phone has a negative effect on the farmers as it keeps them away from the fast growing world especially in Nigeria were agriculture has employed more than 70% of its population.

The figure below shows how often the respondents use mobile phone to share information on agriculture.

TABLE 3: **Frequency of Use of mobile phone to share information on agriculture**

Use of mobile phone	Frequency	Percentage
Never	50	48.1
Daily	7	6.7
Weekly	23	22.1
Monthly	14	13.5
Yearly	10	9.6
Total	104	100.0

Areas of knowledge improvement from the use of mobile phones

The result in Table 4 shows that 41.3% (43) of the respondents reported that they learn about fertilizer type, 40.4% (42) respondents reported that they learn about weed and pest control, 1.9% (2) respondents reported that they learn about good planting methods, while 16.3% (17) respondents did not respond. This result shows that most of the farmers knowledge has been improved in areas like fertilizer type. Most of the farmers get to know about new type of fertilizer that is available and appropriate for use. Other farmers however have gotten to know new ways of pest and disease control. Pests reduce the yield of crops and causes a great farm loose of products, the control of pests by farmers will help to increase their farm products. However, some of the farmers did not respond notably could be because their knowledge has not been improved as a result of ethnocentric belief or lack of information dissemination. Only few farmers have adopted new planting methods, implying that most of the farmers are still using the old method of planting and have not adopted new ones.

TABLE 4: Importance of using mobile phone to improve knowledge of farmers on Agriculture

Areas of knowledge improvement	Frequency	Percentage
Good planting methods	2	1.9
Weed and pest control	42	40.4
Fertilizer type	43	41.3
No response	17	16.3
Total	104	100.0

Based on the data in Table 3, Chi Square was used to determine the relationship between the use of mobile phones and improved knowledge of farmers (Table 4). The acceptance level of chi square is when the calculated χ^2 is $\geq$ the tabulated χ^2. The tabulated χ^2 value is obtained by plotting the DF against the level of significance.

TABLE 5: Relationship between the use of Mobile Phones usage and Improved Knowledge of Farmers on Agricultural Production. (N=104)

DF	χ^2cal	χ^2tab	Level of Significance
12	113.018	21.03	0.05

The result of the analysis shows that the calculated χ^2=113.018 (Table 5) is greater than the tabulated χ^2 =21.03 at DF=12, therefore the null hypothesis is rejected at 0.05 level of significance. The implication is that the use of mobile phones has significant relationship with improving the knowledge of farmers in agricultural production. Experience shows that in most rural areas information on improved agricultural production are obtained through communication, and phone communication is usually easier, cheaper and fast, thereby, improving the knowledge of agricultural production through shared information. The result shows that farmers knowledge has been improved in areas like good planting, weed and pest control, and fertilizer type (Table 3).

Conclusion And Recommendations

The study found that if farmers use mobile phones, their knowledge will be improved on. It is recommended that Government should make and enforce policies on lower rate for calls and recharge cards and network providers should ensure appropriate transmission and maintenance of good and quality networks in rural areas.

References

Alpana, V., Vinayak, P. and Ajay, V. (2016).Mobile phone usage among youths *ijars*. http://www.ijars.ijarsgroup.com. Accessed 4th May, 2019.

Anunobi, C.P. and Anunobi, C.V. (2018).Improving rural farmers' access to information through ICT based extension information services. http://creativecommons.org/licenses/by/4.0. (Accessed 4th May, 2019).

Areola, O. O. (1983) Soil and Vegetal Resources in Nigeria. In Oguntoyinbo, J. S., Areola, O. O. and Filani, M. (eds) *A Geography of Nigerian Development*.Ibadan,Heinemann Educational Books Ltd, Second Edition.

Charles, L. (2015).Effectiveness of Information Communication Technologies in dissemination of agricultural information to smallholder farmers in Kilosa District, Tanzania.

Demiryurek, K. (2006). Distance education for rural people in developing countries: Turkish experience. *Journal of Extension Systems,* 22(2), 83-94.

Fash, M. (2003). Reasoning about the dynamics of social behaviour. Proceedings of the Second International Joint Conference on Autonomous Agents and Multiagent

Systems, New York: ACM Press. pp. 988–989.

National Population Commission, (2006). Federal Republic of Nigeria, Makurdi Benue State

Nyagba, J. L. (1995). Soils nand Agriculture in Benue State. In D.I Denga,. (ed) Benue State: *The Land of Great Potentials: A Compendium.* Calabar, Rapid Educational Publishers.

Obidike, N.A. (2011). Rural farmers' problems accessing agricultural information: a case study of nsukka local government area of enugu state, Nigeria. *Library Philosophy and Practice (e-journal)*. 660. http://digitalcommons.unl.edu/libphilprac/660. Accessed 4th May, 2019.

Odiaka, E. C (2011). Variations and effect of the use of mobile phones for improving farm knowledge in horticultural crops amongst farmers in Benue State, Nigeria. Acta horticulturae: 121-125.

Omoregie, O. and Igbinosa, L. A. (2010). Towards Effective Extension Services in Nigeria: The Nexus of Information Communication Technology (ICT) and Staff motivation. *Multidisciplinary Journal of Research Development*, 1-7.