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UTILIZATION OF INFORMATION AND COMMUNICATION TECHNOLOGIES AMONG RURAL FARMERS IN SELECTED LOCAL GOVERNMENT AREAS OF TARABA STATE, NIGERIA

Momodu, H. M. and Rukwe, D. T.
National Agricultural Extension and Research Liaison Services (NAERLS),
Ahamadu Bello University Zaria.
Corresponding Authors' E-mail: momoduhalifat@gmail.com **Tel.:** 07038294365

ABSTRACT
The research was conducted to examine utilization of information and communication technologies (ICTs) among rural farmers in selected Local Government Areas of Taraba State, Nigeria. Specifically, to identify the most used ICTs device by respondents; ascertain agricultural information needs of respondents and identify problem faced by the respondent. The research method employed for this study was survey using structured questionnaire. The study used 61 respondents that were purposively selected and the data collected analysed using descriptive statistics. The findings showed that the major devices used by the respondents are phones (90.20%), radio (86.90%), television (67.20%) and internet (55.70%). The farmers were in deer need of information such as information on new markets (88.50%), market prices (86.90%) for their produce, new production practices (83.60%), new agricultural technologies (80.30%), trade laws (77.00%), Agricultural inputs (70.50%) among others. The farmers highlighted majorly their challenges of high cost of service, poor and expensive connectivity, low level of education, and high cost of ICTs device. The study concluded that the use of ICTs among farmers will go a long way in boosting agricultural activities as information would be readily available. The study recommended that communication network subscribers should subsidize cost of service and ensure network connectivity of internet facilities to enhance the dissemination of agricultural information to farmers without hitches.

Keywords: Information and communication Technologies, Needs, Phones, Rural Farmers, Utilization.

INTRODUCTION
Agriculture is still and will continue to maintain its almost abandoned position as the mainstay of the Nigerian economy before oil was discovered. There are numerous calls now to go back to agriculture by the federal government of Nigeria and international and local organizations and individuals based on some reasons. The important ones are food security, falling oil prices and the need to generate more wealth (Tope-Oke and Atolagbe, 2019). Several organizations, governments and individuals have shown interest in agriculture and we now have a growing interest in agriculture to meet demand for food. Increased demand for diet in Nigeria is directly proportional to the rapid population growth. The most direct consequence of population growth is that agriculture in Nigeria has now more mouths to feed as food requirement in the country is growing every day. Moving back into farming requires quite a lot of information for output to be high. For instance, the farmers need good information about weather, improve seeds, new research findings, funding, product markets, management techniques. For organizations and young individuals who may be interested in agriculture for the first time, or who may want to boost their productivity, this information is very important. Information and communication have always counted in agriculture (Tijjani and Anaeto, 2017).

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Ever since people have grown crops, raised livestock, and caught fish, they have sought information from one another. Having access to timely, accurate information that is tailored to specific locations and conditions is critical in helping farmers make the most of their resources. Food and Agriculture Organization (FAO) and International Telecommunication Union [ITU] (2016) strongly recommend that people should be empowered by improving their access to the latest and most useful agricultural information and techniques.

Agricultural extension which depends largely on information exchange between researchers and farmers and among famers and a broad range of other actors is an area where ICTs is known as the main vehicle for wide and rapid transmission of agricultural information to farmers. Information initiatives should, therefore, be geared to strengthening the rural farmers, and be developed in places without public libraries or other information resources as the number of extension workers has been decreasing while farmers numbers have been on increase, which is why innovative services is necessary to address this gap. Gakuru (2009) reported that Social media is increasingly being used as a medium of sharing information and creating awareness. ICTs have changed education, training, extension service delivery, and farmers' lives in the wealthier nations and in the research sectors of some developing nations, which pioneered the use of ICTs in less wealthy nations (Tijjani and Anaeto, 2017). In Uganda, South Africa, Senegal, and other countries, ICTs are in use in rural communities where they have created job, helped to develop telecommunication and networking opportunities in rural areas, and acted as delivery vehicles for distance training and education (Nagamani and Veni, 2016). Sadly, reverse is the case in Nigeria as the study area where mostly poor rural farmers in villages and with low education level. There is dearth of information on the use of ICTs to improve farmers' productivity. It is in this light that this study becomes necessary. The specific objectives were to: identify ICTs devices in use by respondents; ascertain agricultural information needs of respondents and identify problems of ICTs use respondents.

MATERIALS AND METHODS

The Study Area

The study area is Taraba State, Nigeria. It is situated in the North Eastern part of Nigeria. Taraba State occupies 54,473 square kilometers with a population of 2,300,736 people (NPC, 2006). The state has boundary with Bauchi State to the North, Gombe State to the North east, Adamawa State to the east, Plateau State to the North West, Nasarawa and Benue States to the west and the republic of Cameroun to the South east (Taraba State Agricultural Development Program, [TADP], 2014). Taraba State has a tropical climate marked by dry and rainy seasons. The rainy season starts in April and ends in October, while the dry season starts in November and ends in March. The mean annual rainfall ranges from 800mm in the north to 1800mm in the Southern part. The mean minimum daily temperature recorded is 14.8^{o}C and the mean maximum daily temperature recorded is 34.4 ^{o}C (TADP, 2014). The vegetation of Taraba State is the Guinea Savannah type with the state being predominantly agrarian and some of the major crops produces are cassava, yam, maiza, rice, soybeans, oil palm, mangoes, citrus, and banana, dry season production of maize, rice sugarcane and vegetable. Other economic activities include: Livestock rearing, Fishing, Trading and Tailoring. The ethnic groups include: Chambas, Mambilas, Mumuyes, Jukuns, Wurkums, Fulani, Jenjo and the Tivs among others (Taraba diary, 2014).

Sampling Techniques and Sample Size

Multi-stage procedure was used in the selection of the respondents. In the first stage, Takum Local Government area (LGA) was purposively selected. In the second stage, four

villages were randomly selected. Then in the final stage, 61 respondents were randomly selected from the villages proportionately for the study.

Method of Data Collection

Primary data were collected from the farmers with the aid of structured questionnaire. The nature of the data includes information such as: ICTs devices in use, Agricultural information needs of respondents and constraints of ICTs use by respondents. Secondary data were used in the form of journals, conferences, past researches, diaries and internet.

Method of Data Analysis

The study employed the used of descriptive statistics such as percentage and frequency to analyze the objectives of the study.

RESULTS AND DISCUSSION

ICTs Devices Used by the Respondents

The devices used for communication and exchange of ideas, innovation and techniques were ranked in order of importance as stated by the respondents (Table 1). The major devices used by the respondents are phones (90.20%), radio (86.90%), television (67.20%) and internet (55.70%). Other ICTs devices in use are Compact Disc (CD) (44.30%), computer (36.10%) and E-mail (31.10%). This implies that the respondents use the popular ICT like mobile phone and traditional ICT like radio. This is in line with the findings of Okon (2013) who said the Federal Ministry of Agriculture in Nigeria now uses the cell phone in distributing inputs to farmers in rural areas. Although, the internet has opened new communicating channels that bring new knowledge and information resources to rural communities, traditional communication channels are still being used successfully to reach all types of people (Tijjani and Anaeto, 2017).

Table 1: ICT Devices Used by the Respondents (n = 61)

Devices	Frequency*	Percentage	Ranking
Radio	53	86.90	2nd
Compact Disc	27	44.30	5th
Phones	55	90.20	1st
Internet	34	55.70	4th
Television	41	67.20	3rd
Computers	22	36.10	6th
E-mail	19	31.10	7th

*Multiple responses existed
Source: Field survey, 2019

Information Needs Area

Table 2 shows the major areas rural farmers need information most in orderly manner. Farmers need information on new markets (88.50%) and market prices (86.90%) for their produce. Food processing and preservation (85.20%) under the most hygiene conditions to avoid food poisoning and contamination. They also need information on new production practices (83.60%), new agricultural technologies (80.30%), trade laws (77.00%), Agricultural inputs (70.50%) produce demand (67.20%) and trend in food production (60.70%). Nevertheless, rural farmers actively seek and disseminate information. This means information about new market and market prices is valuable not only in deciding where and when to sell, but also in deciding the cropping pattern. Mittal *et al.* (2010) shows that of the range of

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information that farmers required, small farmers prioritized weather, plant protection (disease and pest control), seed information and market prices.

Table 2: Information Needs of Rural Farmers (n = 61)

Information Needs	Frequency*	Percentage	Ranking
New Markets	54	88.50	1st
Market prices	53	86.90	2nd
Trade laws	44	72.10	7th
Product potentials	47	77.00	6th
Agricultural inputs	43	70.50	8th
Trends in food production	37	60.70	10th
New production practices	51	83.60	4th
New agricultural technologies	49	80.30	5th
Food processing and preservation	52	85.20	3rd

*Multiple responses existed
Source: Field survey, 2019

Constraints to Use of ICTs by the Respondents

Table 3 shows major constraints to effective use of ICTs by the respondents. The most severe constraints are high cost of services (93.40%), poor and expensive connectivity (83.61%), low level of education (80.30%), high cost of ICTs devices (77.10%) and absence of electricity (70.50%) are all factors constraining the effective use of ICT devices in the study. According to the respondents, absence of power supply and erratic power supply prevents them from charging their phone battery and other devices requiring power. Also, low level of awareness of ICTs roles (67.20%) and lack of ICTs skills (62.30%) are other constraints to the use of ICTs devices. This study agreed with that of Okon (2013) who posited that in Nigeria, cellular telephones though constrained by poor network in rural areas, are no longer considered extravagant luxuries in development work and are now even object of micro business and micro credit loan policies. Odiaka (2011) in his own view said a presumed major setback in using ICT development is that people in most rural areas are at the very bottom of the pyramid and so development efforts should make most difference in the sector. It is believed that ICTs have the potential to multiply development effects and are thus also meaningful in the rural area. However, introducing ICTs in these areas is likely to be costly due to lack of infrastructure, no power, no running water, illiteracy, hunger and abject poverty (Tijjani and Anaeto, 2017).

Table 3: Constraints to Effective Use of ICTs by the Respondents (n = 61)

Constraints	Frequency*	Percentage	Ranking
Absence of electricity	43	70.50	5th
Lack of ICTs skills	38	62.30	7th
Low level of awareness of ICTs roles	41	67.20	6th
High cost of ICTs device	47	77.05	4th
High cost of services	57	93.40	1st
Low level of education	49	80.30	3rd
Poor and expensive connectivity	51	83.61	2nd

*Multiple responses existed
Source: Field survey, 2019

CONCLUSION AND RECOMMENDATIONS

Effective use and access to information by farmers has become increasingly important as a result of rapid population growth recorded in Nigeria in recent times, and this has led to the call by the government and other organization for people to return to agriculture to ensure food security. This can only be achieved through the utilization of information and communication technologies which will result in access to timely and accurate information tailored towards helping farmers make the most of their resources. Based on the major findings of the study, the following recommendations were made:

i. Government should improve power supply to make electricity stable so as to enable efficient and effective performance of the information and communication technology facilities; hence, most of the information and communication technologies are power-based.
ii. The communication network subscribers should subsidize cost of service and ensure network connectivity of internet facilities to enhance the dissemination of agricultural information to farmers without hitches.

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