



International Journal of Applied Research and Technology
ISSN 2277-0585

Publication details, including instructions for authors and subscription information:

<http://www.esxpublishers.com>

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Available online: March 31, 2014

To cite this article:

Oyediran, W. O. and Omoare, A. M. (2014). Information and Communication Technologies (ICTs) Application in Agriculture: A Tool towards Rural Youths Empowerment in Ogun State, Nigeria. *International Journal of Applied Research and Technology*. 3(3): 33 – 38.

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Information and Communication Technologies (ICTs) Application in Agriculture: A Tool towards Rural Youths Empowerment in Ogun State, Nigeria

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(Received: 27 February 2014 / Accepted: 13 March 2014 / Published: 31 March 2014)

Abstract

ICTs have become a powerful tool in providing developing countries with unprecedented opportunities to meet vital development goals yet it has not been fully incorporated into youths and agricultural development in Nigeria. This study thereby assessed ICTs application in agriculture as a tool towards rural youths' empowerment in Ogun State, Nigeria. Multi-stage sampling technique was used in the selection of 160 respondents for this study. Descriptive and Inferential statistics were used to analyze the data. Result of the findings showed that 80% of the respondents were males, with mean age of 26.80 years and single. The means of education and farming experience were 16 and 2.81 years respectively. The common farming enterprises undertaken were poultry (70.60%) and crop farming (59.40%). Majority (94.40%) of the respondents always accessed ICTs through mobile phones and cybercafé. Respondents always used ICTs for social networking (86.20%) and sports (77.50%) whereas browsing agricultural findings (38.80%) was not accorded priority. Majority of the respondents agreed that access to ICTs facilities will help in skill and knowledge acquisition, enhance improved agricultural practices, and ultimately promote agricultural production output. Major constraints to the use of ICTs in the study area were high cost of ICTs facilities, inadequate telecommunication infrastructure, and irregular power supply. PPMC result showed an inverse relationship between constraints and utilization of ICTs at $p < 0.05$. It is hereby recommended that the youths should use their association platform to obtain loan from banks to procure quality and reliable ICTs facilities for agricultural development in the study area.

Keywords: Agriculture, Youths, Empowerment, ICTs, Constraints

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Introduction

The agricultural sector has been described as the engine for economic growth and improved livelihoods in Africa (World Bank 2006). The majority of the population in Sub-Saharan Africa lives in rural areas and depends directly or indirectly on agriculture (World Bank 2006). Youths make up approximately one-fifth of the total population in many developing and emerging economy regions (United Nation, 2011). The proportion of rural youths is decreasing in all sub-regions as well as the absolute number of rural youth, with the exception of sub-Saharan Africa where their number will continue to increase until 2030 or 2040 (Losch, *et al.*, 2011). Between 2010 and 2020, the number of youths living in sub-Saharan Africa is expected to increase by 42.5 million (United Nation, 2011). Sub-Saharan Africa will therefore face particular and unique challenges for the decades to come in securing decent livelihoods and employment for young people in both urban and rural areas (Van der Geest, 2010). Young people make up a large percentage of the population in most societies of Nigeria. It is no news that many young people view white-collar jobs as being prestigious. But then, agriculture can provide decent and gainful work too, especially when ICTs is applied to add value to the agribusiness.

Young farmers are able to master ICTs skills and tools, such as geographic information systems (GIS), to analyse and adjust farming practices to cope with prevailing climatic conditions, and ultimately increase profits. They can also use technology to creatively and productively manage land, weather, water and other resources, develop maps of these resources and use the feedback from mapping exercises to profile and upgrade specific sites by identifying appropriate measures for planting, stocking materials and providing pest control facilities (Olatoye, 2012). According to Asian Development Bank (2003), ICTs have become a powerful tool in providing developing countries with unprecedented opportunities to meet vital development goals far more effectively than before. In spite of advancement in technology and the abundance of information globally on agriculture acreages by crop type, yield, numbers of livestock, quantities of commodities traded, and so on, it is currently not possible in Nigeria to classify and project scale of farm produces a given commodity in a given location and thus to predict change and trends that are taken place in the agricultural sector. It is hereby imperative to assess contributions of ICTs to rural youths' empowerment in Agriculture in Ogun State, Nigeria as this will go a long way in providing employment, alleviating poverty and reducing food insecurity.

The main objectives of this study were to describe personal characteristics of the respondents in the study area, identify farming activities of the respondents in the study area, assess the youth accessibility and utilization of ICTs facility in the study area, ascertain the respondents perception to the ICTs benefits to agriculture in the study area and identify constraints to ICTs utilization in the study area.

Materials and Methods

The study was carried out in Ogun State, Nigeria. There are twenty Local Government Areas in Ogun State. The State has twenty (20) Local Government Areas with its capital at Abeokuta. Multi-stage sampling technique was used in the selection of respondents for this study. First stage, 20% of LGAs were randomly selected (i.e. Abeokuta North, Ijebu-Ode, Egbado North and Odeda LGAs). Second stage, two communities were randomly selected in each of the selected LGAs (i.e. Akomoje, Ikereku, Ayetoro, Imasi, Ijebu-Ode, Odo-Esa, Odeda and Obantoko). Finally, 70% of youth were randomly selected from the list of All Framers Association of Nigeria (Youth Wing), Ogun State Chapter to make up 160 respondents as sample size this study. Interview guide was used to obtain information from respondents. The instrument used for the data collection was subjected to content validity by consulting experts in the field of Agricultural Extension and Rural Development. Items found ambiguous were removed. Test-retest was carried out with ten youths who were not part of this study to ascertain the reliability of the instrument.

Age, education status and farming experience were measured at interval level while sex and marital status were measured at nominal level. Platforms for ICTs accessibility and utilization were measured on a 3-point rating scale of Always (3), occasionally (2), and Not at all (1). Constraints in the Use of Social Network Tools (SNTs) were measured on a 3-point indicators as Very serious (3) Serious (2) and Not Serious (1). Descriptive statistics such as frequency counts, percentage, and mean was used to analyze the objectives while Pearson Product Moment Correlation was used to test the hypothesis.

Results and Discussion

The mean age of the respondents was 26.80 years. Majority (75.00%) of the respondents were within the range of 25-29 years while 12.50% were more than 30 years of age. This result supports that of Boyd and Ellisor, (2007) who reported that most young in the world were in this age bracket and they are economically active part of the population. 80.00% of the respondents were males while 20.00% were females. This indicates the dominance of male folk in the study area. This can be attributed to the fact most of agricultural activities require enormous man power. Most (83.70%) of the respondents were single while 16.30% were married. This is expected because they are still young and assume not to have enough experience of marital life. Above ninety percent (95.00%) of the respondents had spent more than 12 years in the academic pursuit. The mean year of schooling was 16years. Also, most (85.00%) had 2-4 years farming experience while only few (3.10%) had spent more than 4years in farming. This shows that the respondents are still new in farming enterprise, and that the youths undertaken farming business after completion of their study.

Members of All Framers Association of Nigeria (Youth Wing), embarked on some agricultural enterprises in order to provide food and generate income. Majority (70.60%) of the respondents were into small scale poultry farming, 59.40% engaged in crop production while 53.80% did fish farming. Other farming enterprises undertaken by the Youth Farmers were agro-input business, crop processing and marketing, rearing of sheep, goats and pigs and feed formulation. Most (94.40%) of the respondents always accessed ICTs through mobile phones while 65.60% and 52.50% linked ICTs

through commercial cybercafé, and through personal laptops and modems respectively. This is expected because mobile phone is relatively cheapest and common ICT facility possessed by individuals for effective communication and dissemination of information. A recent World Bank study shows that the invention and usage of mobile phones and broadband internet is strongly associated with economic growth (Businessdayonline.com, 2012). However, none of the respondents had access to online information through community libraries and public (government) ICTs facilities. This may be due to the fact that ICTs facilities are not readily available in the rural communities of Nigeria. Giving farmers access to a variety of information sources, which are accessible, affordable, relevant and reliable is the ultimate aim of providing agricultural information services, this could only be achieved through ICTs (Richardson, 2003).

Findings indicated that respondents always used ICT for Social networking and chatting (86.20%), browsing sports (77.50%), and accessing online Nigeria newspaper (67.50%) whereas reading online agricultural researches and news (38.80%) and sourcing educational information (45.00%) were not accorded priority. Youths and adults have especially embraced social network tools as a way to connect with their peers; share information and show case their social lives (Boyd and Ellisor, 2007). This can be attributed to lesser attention given to youth and agricultural development in Nigeria. However, none of the respondents engaged in cyber fraud. The result in Table 5 showed that above ninety percent of the respondents viewed that access to ICT facility will help in skill and knowledge acquisition, enhance improved agricultural practices, facilitate easy access to market information, and ultimately promote agricultural production output. ICT has played a major role in diffusing information to rural communities, and show even much unexpected potential (Munyua, 2000; ADB, 2003). Bertolini, (2004) reported successful use of cell phone and other ICT components for creation and monitoring of markets.

Result showed that major constraints to the use of ICTs in the study area were high cost and poor quality of ICT facilities (98.80%), inadequate telecommunication infrastructure (96.30%), irregular power supply (93.80%), and technical know-how of ICTs (86.20%). This corroborates the findings of Hedjazi, *et al.*, (2006) that poor state of infrastructure and manpower development affect efficient use of internet. Other challenges to utilization of ICTs were poor maintenance of ICTs facility, lack of training on computer usage, the inability to locate relevant educational website, lack of awareness of ICTs and inability to make use of the internet.

Conclusion and Recommendations

It can be concluded that the Youth Farmers had the knowledge of benefits of ICTs but its application to agricultural activities have not been given necessary attention and it is recommended that All Farmers Association of Nigeria (Youth Wing) should use their platform to obtain loan from banks to procure quality and reliable ICTs facility. Adequate training on the use of ICTs and search engines for agricultural purposes should be organized for the members by the All Farmers Association of Nigeria (Youth Wing) and Government should provide stable power supply to the rural areas in order encourage youth participation in farming.

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Tables

Table 1: Personal characteristics of respondents

Variables	Frequency	Percentage	Mean (yrs.)
Age (years)			
< 20	8	5.00	26.80
20 – 24	12	7.50	
25 – 29	120	75.00	
30 and above	20	12.50	
Sex			
Male	123	80.00	
Female	32	20.00	
Marital status			
Single	134	83.70	
Married	26	16.30	
Years of Education			
≤ 6	0	00.0	16.00
6 – 12	8	5.00	
12 – 18	145	90.60	
>18	7	9.40	
Farming Experience (yrs.)			
≤ 2	19	11.90	2.81
2 – 4	136	85.00	
> 4	5	3.10	

Source: Field Survey, 2013

Table 2: Distribution of respondents according to farming enterprises

Variables	Frequency	Percentage
Arable crop production	95	59.40
Poultry	113	70.60
Sheep and goats	3	1.90
Piggery	5	3.10
Fish farming	86	53.80
Feeds formulation	2	1.30
Agro-inputs	8	5.00
Crop processing and marketing	17	10.60

Source: Field Survey, 2013. *Multiple responses

Table 3: Distribution of respondents based on access to ICTs

S/n	Variable	Always	Occasionally	Not at all
1.	Accessed through commercial cybercafé	105(65.60)	44(27.50)	11(6.90)
2.	Accessed through public (government) ICT facility	0 (0.00)	15(9.40)	145(89.60)
3.	Accessed through the community libraries	0(0.00)	0(0.00)	160(100.00)
4.	Accessed through individual internet (laptop and modem)	82(51.30)	13(8.10)	65(40.60)
5.	Accessed through Mobile phone	151(94.40)	7(4.40)	2(1.20)

Source: Field Survey, 2013. Figures in parenthesis are percentages

Table 4: Distribution of respondents based on utilization of ICTs

S/n	Variables	Always used	Occasionally used	Not at all
1.	Sourcing Educational information	72(45.00)	24(15.00)	64(40.00)
2.	Social networking and chatting	138(86.20)	22(13.80)	0(0.00)
3.	Agricultural researches and news	62(38.80)	48(30.00)	50(31.20)
4.	Sports	124(77.50)	25(15.60)	11(6.90)
5.	Global News	83(51.90)	40(25.00)	37(23.10)
6.	Access online Nigeria newspaper	108(67.50)	30(18.80)	22(13.70)
7.	Online business transaction	55(34.40)	15(9.40)	90(56.20)
8.	Cyber fraud	0(0.00)	0(0.00)	160 (100.00)

Source: Field Survey, 2013

Table 5: Perceived Benefits of ICTs to Agriculture by the respondents

S/n	Variables	Strongly Agree	Agree	Disagree	Strongly Disagree
1.	ICTs can help in weather forecast	100(62.50)	28(17.50)	20(12.50)	12(7.50)
2.	ICTs can assist in farm planning	116(72.50)	24(15.00)	15(9.40)	5(3.10)
3.	ICTs can help in farm inputs procurement	130(81.20)	21(13.10)	6(3.80)	3(1.90)
4.	ICTs can do gross margin estimation	106(66.20)	32(20.00)	12(7.50)	10(6.30)
5.	ICTs can facilitate easy access to market information	148(92.50)	7(4.40)	5(3.10)	0(0.00)
6.	ICTs can help in skill and knowledge acquisition	156(97.50)	4(2.50)	0(0.00)	0(0.00)
7.	ICTs enhance improved agricultural practices	150(93.80)	6(3.70)	4(2.50)	0(0.00)
8.	ICTs can promote agricultural production output	145(90.60)	10(6.30)	5(3.10)	0(0.00)
9.	ICTs can accelerate consultation with colleagues	125(78.10)	29(18.10)	6(3.80)	0(0.00)
10.	ICTs can enhance group discussion	135(84.40)	17(10.60)	8(5.00)	0(0.00)
11.	ICTs can facilitate collaboration	94(58.80)	41(25.60)	19(11.80)	6(3.80)

Source: Field Survey, 2013. Values in parenthesis are percentages

Table 6: Constraints to the ICTs utilization

S/n	Variable	VS	S	NS
1.	Poor power supply	150(93.80)	10(6.30)	0(0.00)
2.	High cost and poor quality of ICTs facilities	158(98.80)	2(1.20)	0(0.00)
3.	Technical know-how of ICTs	138(86.20)	16(10.00)	16(3.80)
4.	Lack of Awareness on ICTs	72(45.00)	68(42.50)	20(12.50)
5.	Inability to locate relevant websites	76(47.50)	59(36.90)	25(15.60)
6.	Poor maintenance of ICTs facility	91(56.70)	54(33.80)	20(12.50)
7.	Inadequate telecommunication infrastructure	154(96.30)	6(3.70)	0(0.00)
8.	Lack of training on computer usage	85(53.40)	63(39.40)	12(7.50)

Source: Field Survey, 2013. Figures in parenthesis are percentages

Table 7: Relationship between constraints and utilization of ICTs

Variable	r	p – value	Decision
Constraints	-0.41	0.00	S

Source: Field Survey, 2013