



# **Utilization of Information and Communication Technologies (ICTs) Tools for Sharing of Agricultural Related Information in Osun State: Implications for Rural Information Needs**

**Adetunbi Saheed Ige<sup>1\*</sup>, A. T. Kareem<sup>2</sup> and B. A. Oyebamiji<sup>3</sup>**

<sup>1</sup>*Department of Agricultural Extension and Rural Development, Ladoke Akintola University of Technology, P.M.B. 4000, Ogbomoso, Oyo State, Nigeria.*

<sup>2</sup>*Department of Agricultural Extension and Management, Federal College of Forestry, Ibadan, Oyo State, Nigeria.*

<sup>3</sup>*Department of Agricultural Extension and Rural Development, Federal University of Agriculture, Abeokuta, Ogun State, Nigeria.*

## **Authors' contributions**

*This work was carried out in collaboration among all authors. Author ASI designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors ASI and ATK managed the analyses of the study. Author BAO managed the literature searches. All authors read and approved the final manuscript.*

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## **ABSTRACT**

The study was motivated by the need to harness technological advancement to enhance agricultural production in Osun State. The study assessed the utilization of Information and Communication Technologies (ICTs) tools for sharing of agricultural related information in Osun State, Nigeria. The study illustrated the socio economic characteristics of the Respondent, identified the available ICT tools for sharing of various agricultural related information, identified agricultural related information shared through various available ICT tools, measured the frequency of utilization of the identified

\*Corresponding author: E-mail: siadetunbi@lautech.edu.ng;

ICT tools and assessed the severity of challenges encountered by Respondent in the utilization of ICT tools in the study area. Sixty percent of Extension Agents in each of the three zones in the study area were sampled. The data collected were examined using descriptive statistics tools while regression analysis was used to test the significant relationship between the socio-economic characteristics of Respondents and their frequency of utilization of ICT Tools for sharing of agricultural related information in the study areas. The analysis of the data was carried out with the use of SPSS version 22. The findings revealed that the average age of Respondents was 39 years; more than half of the respondent (67.1%) were male; most (81.4%) of the respondent were married; majority (68.6%) of the respondent were Christian; about (70%) of the respondent had tertiary education. The mean household size was 5 members per household; majority of the respondents belonged to one association or the other and they access the internet with their own data plan. Radio (wms 2.7) was ranked first as most available ICT tools for sharing information in the study area. Furthermore, information on availability and sources of farm inputs (wms2.3) was ranked most shared information while information on storage facilities (wms1.0) was ranked the least shared information by the Respondents. Also, the initial cost of procurement of ICT gadgets, cost of maintenance, risk of theft of gadget, and fluctuating power supply were the major challenges encountered with the use of various ICT tools. Regression analysis identified a significant relationship between selected socio-economic characteristics of the Respondents and frequency of Utilization of ICT Tools for sharing Agriculture related information. The study recommended use of Radio as medium through which agricultural related information should be shared bearing in mind its ease of access, little cost of procurement and maintenance, extent of reach and frequency of usage among the respondents. Provision of access to internet facility was recommended in order to afford respondents a limitless right to use information on the World Wide Web. Finally, alternative source of power to enable respondents recharge their ICT gadgets was recommended to make up for unreliable electricity supply.

*Keywords: Utilization; agricultural; related information; information communication technology tools; information sharing; information needs.*

## 1. INTRODUCTION

The National Information Technology Development Agency of Nigeria (NITDA) in its annual report of 2017 indicated that the ICT have changed the narratives in how things are done, particularly in the rural settlements in Nigeria and have created a paradigm shift in rural livelihood options and agricultural development in rural settlements. (NITDA, 2016). It was revealed that the ICT sector had created new opportunities in rural livelihood options. According to Bharat [1], there is a general scarcity of pertinent, timely and sufficient information on production practices, farm administration, and cost of agricultural produce, food security assessments and markets for agricultural products that can better the well-being of farmers. Meanwhile, the proliferation of Information and Communication Technologies (ICTs) therefore creates a new mindset in the tactics for ensuring diversification of rural livelihood options among rural populace through sharing of up-to-date, significant and useful information that enhances rural economy Bharat, Singh Ghangha [1]. ICTs is made up of various collections of resources and technical tools that are used for sourcing, processing, sorting,

disseminating, storing, managing and packaging information in forms that are best appropriate for the use of targeted Clientele (Pigato, 2004). In general terms, ICTs has the capacity for enhance rural livelihood with is connected with enhancement of information exchange among research systems, farmers and rural Dwellers, enhancing access to information regarding farm inputs, improved technologies, providing swift access to appropriate information, guaranteeing information about the appropriate times and best points of sales of agricultural products, increasing agricultural productivity and minimising agricultural product losses thereby enhancing rural economy (Temu and Msya, 2018) Information Communication Technologies (ICTs) are employed to facilitate a multitude of various media which may include use of personal computers fitted with a browsing modem or supply technologies that warrants communication processing and sharing of information by electronic means ranging from Radio, Fax, Telex, Television, Telephone (fixed or mobile) and Internet, Tata J.S [2]. Adejo and Haruna (2015) classified ICT into conventional ICT (radio and television) and contemporary ICT (telephones, computers/internet). ICT are foundation of the

new global information based economy Okwusi et al., [3]. They are increasingly becoming the major propellers for socio-economic growth worldwide.

In fact, its capacity or immediacy and sharing of large volume of information at minimum cost has been documented (FGN, FAO, 2010). The 21st century being an age of information communication affirm the fact that information has become the most valuable commodity in the world determining the pace and direction of development of the economy in a given society. In recent time, prompt, accurate and timely information has been an indispensable factor of Agricultural production. However, a way to assure this is through utilization of Information Communication Technologies (ICTs), by both Researchers and Extension Agents to ensure an unrestricted transmission of sufficient information to farmers in a more efficient way Robert Chapman, [4].

### 1.1 Problem Statement

Recent studies opined that orthodox approach of providing agricultural information through conventional extension service system has had several limitations, major among which is inadequacy of personnel coupled with its failure to permit uninterrupted real time communications among users. However, technologically advanced approach for promoting unrestricted access to relevant agricultural information and better rural livelihood options is through the use of information and communication technology tools Robert Chapman, [4]. Meanwhile, the potential of these ICT tools is not optimally utilized especially among the rural farming households in Osun state. This has given rise to various constraints militating against Nigerian agricultural production. Danaan (2006) established a strong link between utilization of Information Communication Technology tools (ICTs) and poor technical know-how, cost of procurement of ICT gadgets, low literacy level and conservativeness among the rural farming population, poor infrastructural facilities and .The high rate of illiteracy and low educational attainments among rural farmers in the developing countries including Nigeria had resulted into shortage of adequately skilled farming population equipped with expertise for essential requisite knowledge to be able to optimize the potentials of ICTs offer in improving agricultural productivity and opportunities for rural livelihood diversification. According to

Technical Centre for Agriculture (CTA, 2004) poor technological know-how and insufficiency of required information, prompt and uninterrupted information constitute challenges to the adaptability in the use of ICTs mandating a number of farmers and stakeholders of the rural economy to retain the use of obsolete technologies thereby lowering their potentials and resulting in not impressive agricultural productions.. Mboho (2007) opined that failure of the farming population to embrace cutting-edge technology remains one of the hiccups encountered by agricultural productivities. Consequently giving rise to poor productivity among rural farming households which constitute the larger chunk of productive workforce in agricultural production. According to International Telecommunication Union (ITU) (2009), ICTs do not directly ensure improved household farming productivity instead plays prominent roles in enhancing the livelihood activities of the rural populace by keeping them abreast of up to date knowledge which buffers their productive and informed decisions. Consequently, the International Telecommunication Union (ITU) is relentless on propagating the use of ICT to checkmate agricultural problems. Meanwhile, rural communities have not fully taken advantage of the potential of these Information Technology facilities to enhance the living conditions of rural populace because these tools have not been optimally and uniformly explored as educationally disadvantaged, vulnerable, marginalized and poorly-skilled rural Dwellers are often exempted due to inadequacy of knowledge or expertise in Information Technology utilization as well as IT-related skill deficiencies in the labour force which hinders the benefits from ICT to improve agricultural productivity and enhance rural economy as posited by Kaushik and Singh (2004). There exist a digital shortfall which is not merely a restriction or lack of access to ICT tools, but a more pronounced constraint is the problem associated with the deprivation of the rural workforce from the usage of ICT tools consequent upon the farming population not endowed with proficiency required to utilize ICTs tools to acquire information and convert same it into functional knowledge to benefit their agricultural productivity. But for adequate technical know-how, requisite knowledge and required skills on the utilization of ICTs tools among the farming population, ICT will remain available to only the urban centres where little or no agricultural activities take place while agricultural productivity in rural area will remain low leading to unimpressive rural economy.

Invariably, knowledge and skills are critical to acquire information on improved agricultural production to improve the income of farming households because it is through the utilization that farmers can maximize the benefits of ICTs and information needs are to be met. Recent literature search on utilization of ICT in agriculture production, enhancement of rural economy, food and nutritional security has revealed that little or no effort has been committed towards investigating the contributions of ICT utilization to improved agricultural productivity among rural farming population in Osun State of Nigeria. This gap therefore justifies this study which assesses the utilization of ICT tools for agricultural related information among farmers in Osun State of Nigeria. Specifically, the study examined the socio-economic characteristics of farmers in the study area, identified the ICT tools that are available for the sharing of Agricultural related information in study area, examined the various information disseminated through the available ICT tools, assessed the frequency of utilization of various identified ICT tools available in the study area, assessed the severity of challenges encountered in the usage of ICT tools in sharing agricultural related information among farmers in Osun State.

## 2. METHODOLOGY

The study was carried out in Osun State South-West of Nigeria. Extension Agents were the Respondents. Osun state which is the study area is divided into three Agricultural Zones which are (1) Ife-Ijesha zones, (2) Osogbo zones and (3) Iwo zone being the Headquarters. However, Ife-Ijesha and Iwo zones have thirty-five Extension Agents each while Osogbo zone has fifty Extension Agents. For the purpose of the study, 60 percent of the Extension Agents were randomly selected from each of the agricultural zones and this gave a total of seventy-two Respondents. The independent variables of the study was the socio-economic characteristics of the respondents while the dependent variable was for sharing of agricultural related information among the Respondents.

## 3. RESULTS AND DISCUSSION

From the findings of the study, about half of the Respondents (48.5%) of the Respondent were within the age range of 31 and 40 years with mean age of 39 years. It could be inferred from

the result that respondents in the study area were still very young, full of agility and with high propensity for innovativeness and possess better enthusiasm to make use of technology that is in vogue. The result is in line with the findings of Agbelemoge et al., (2016) who opined that individuals within the age of forty years or less were considered highly enthusiastic towards utilization of technological tools that are in vogue and possess the technical know-how to operate ICT gadgets. Meanwhile, the result negates the findings of Fadairo et al., (2015) where the mean age of Extension Agents in Nigeria was revealed to be 47 years. This age bracket constitute the most active workforce in Nigeria and this is an indication that youths are now more involved with the utilization of ICT tools to disseminate agricultural related information. The study further revealed that about (67.1%) of the respondents was male while (32.9%) were female. The result implies that male were dominant among rural Extension Agents in Osun State. The study further revealed that 18.6% of the respondents were single, while 81.4% were married. The high ratio of married respondents in the study area may not be unconnected with the importance attached to marriage by the Yoruba ethnic group where the study area domiciles. This result is in line with the findings of Agbelemoge et al., (2016) in similar topic where majority (83.3%) of the respondents were married. The study further indicated that 5.7% of the Respondents are educated up to National Diploma or its equivalence, 69.4% possess a first degree while 24.3% is educated up to postgraduate level. Their level of literacy is highly expected to enhance their use of ICT for sharing of agricultural related information with their targeted audience. The study further revealed that majority (68.5%) of the respondent had up to 5 members that constitute their household while (31.5%) had above 5 members in their household. The average of household members was revealed to be 5. The result corroborates the findings of Olaniyi and Ismaila [5] where the mean of household size in south-west of Nigeria was found to be 5 members. It was also revealed that 64.3% of the respondent in the study area belong to one group or the other while 35.7% did not belong to any group be it social or professional. The result showed that majority of the Respondents belong to different group in the society. Belongingness to association would enhance social networking of an individual hence his/her propensity for more frequent utilization of ICT tools The result further revealed that all (100%) of the respondent have access to mobile

phone and large percentage in other ICT tools. The result implied that the respondent are well educated and live above average in the society. It was indicated that 95.7% of the Respondents have limitless access to internet through their personal data plan arrangements while 1.4% make use of Wi-Fi and 2.9% make use of browsing modem. The result indicated that most of the respondents have access to the internet with the aid of their personal data plan arrangement.

### **3.1 Frequency of Utilization of Available ICT Tools for Sharing of Agricultural Related Information in the Study Area**

The study measured the frequency of utilization of various available ICT tools used in sharing agricultural related information and the result revealed Radio with weighted mean score 2.7 ranked first as the most frequently used ICT tool among Extension Agents in sharing agricultural related information in the study area, this may not be unconnected the wide coverage of Radio Frequency Modulation and bearable cost of procurement and maintenance of Radio as an ICT gadget. Computer and Internet/Emails pair in second position (wms2.6) and ranked second most frequently used ICT tools for sharing agricultural related information. Next in the order are Mobile Phone (wms 2.5) ranked third, Television set (wms2.4) ranked fourth, World Wide Web (wms2.3) ranked fifth, Posters and Flip Charts (wms1.8) ranked sixth, Newspapers (wms1.7) ranked seventh, Journals and bulletins (wms1.3) eighth, and Fax Machine being the least used ICT tool (wms 0.7). This results shows that both sophisticated and conventional ICT tools utilized by Extension Agents in the study area, an indication that Respondents are up to date technology-wise, this has a direct correlation on their youthfulness and level of education. This result is in line with the findings by Olaniyi and Ismaila [5] where majority of the Respondent in their study revealed that the convectional (obsolete) ICT tools (radio, mobile phones, television, posters, newspaper, electro media, internet, and computers) are still the most utilized ICT tools for the researchers. Adejo and Haruna (2009) stated that the old ICT tools are ideal for the rural area, it is cheap to set up, easy to use and fulfilling vital information needs. The Extension Agents preference for its use might be unconnected to the ease and cost of operating the ICT gadgets.

### **3.2 Types of Information Shared Through Identified ICT Tools**

The study assessed the various types of information that are shared by the Respondents via the used of various available ICT Tools that are accessed in the study area. Findings revealed that information on availability and sources of farm inputs (wms2.3) was the most shared information among the Respondents. Also, information of availability of credit facilities and improved varieties of farm produce (wms1.4) ranked second among the most shared agricultural related information among the Respondents. The study further indicated information on innovative farm practices (wms1.7) as the third ranked most shared information by the Respondents. Also, pairing in fourth ranked most shared agricultural related information by the Respondents are information on diseases pest management and information related to market and marketing activities on farm produce. The study further revealed information on farm management practices and information of Donor Agencies and Development Partners (wms1.1) as fifth ranked while the least shared information (wms1.0) is information on storage facilities.

### **3.3 Challenges Encountered by Respondents in Utilization of ICTs Tools for Sharing of Agricultural**

The study identified various challenges hindering the utilization of ICT Tools for sharing of agricultural related information among the Respondents and the finding of the study revealed that the initial Cost of procurement of ICT tool with weighted mean score 1.7 ranked first as the most severe challenge of ICT usage for agricultural related information sharing among Extension Agents in Osun State. This finding aligns with Adetunbi (2017), which identified poor electricity supply as the major challenge to utilization of mobile phone on rural livelihood related activities in south-west of Nigeria. Furthermore, risk of theft of ICT tools and fluctuation of power supply with weighted mean score 1.6 were the challenges that paired as second ranked challenges that Respondents encounter in the usage of ICT tools to share agricultural related information. Also, third ranked is cost of maintenance of ICT gadget (wms1.5). The result further revealed the level of literacy of Respondents and distraction caused by ICT gadgets (wms1.4) as the fourth ranked

challenge. The fifth ranked and the least severe challenge encountered by Respondents is Digital Divide which explains the technological gap that exist from one location to another which the study found not to be a challenge as Respondents enjoy unrestricted access to the best of technology in spite the rurality or otherwise of their locations.

### 3.4 Result of Regression Analysis on Relationship between Socio-Economic Characteristics of Respondents and Frequency of Utilization of ICTs for Sharing of Agricultural Related Information

The r-value was found to be 51.0% this implies that age and household size which were are the variables with ordinal measurement pattern in the study accounted for about 51.0% of the

frequency of utilization of ICT tools for sharing of Agricultural related information among the Respondents in Osun State. However, other variables such as Sex, Age and level of educational attainment which were measured nominally as shown in the result of Chi-Square analysis accounted for about 49.0% of frequency of utilization of ICT tools in Osun State. Therefore between the variables considered for regression analysis age was significant at 1% level with the dependent variable. The B-value for age was -0.249 which implies that the frequency of utilization of ICTs is determined to a large extent by the age at this magnitude. The inverse relationship indicates that as age increases the frequency of utilization of ICT tools decreases in that threshold which infers that the older the Respondents become the lower their propensity to want to utilize of ICT tools for information sharing.

Table 1. Socio-economic characteristics of the respondents

Socio economic characteristic	Frequency	Percentage	Means
<b>Age (years)</b>			
≤30	13	18.5	
31-40	34	48.5	38.73
41-50	14	19.9	
51≥	9	12.9	
<b>Gender</b>			
Male	47	67.1	
Female	23	32.9	
<b>Marital status</b>			
Single	13	18.6	
Married	57	81.4	
<b>Religion</b>			
Islam	22	31.4	
Christianity	48	68.6	
<b>Academic qualification</b>			
No formal education	14	20.0	
Elementary education	4	5.7	
High/ secondary school	3	4.3	
Tertiary institution	49	70.0	
<b>Household size</b>			
≤5	48	68.5	5
6≥	22	31.5	
<b>Affiliation to association</b>			
No	25	35.7	
Yes	45	64.3	
<b>Access to mobile network</b>			
Yes	70	100	
<b>Mode of internet connectivity</b>			
Data plan	67	95.7	
Wi-Fi	1	1.4	
Modem	2	2.9	

Source: Field survey, 2019

**Table 2. Frequency of utilization of available ICT tools for sharing of agricultural related information**

ICT Tools	Frequency of Usage of ICT Tools				Weighted Mean Score	Rank
	Anytime Needed	Frequently	Occasionally	Never		
Mobile Phone	47 (65.3)	17 (23.6)	8 (11.1)	0 (0.0)	2.5	3rd
Computer	51 (70.8)	12 (16.6)	9 (12.5)	0 (0.0)	2.6	2nd
Newspaper	19 (26.4)	22 (30.6)	23 (32.0)	8 (11.1)	1.7	7th
Posters/Flip Chart	23 (32.0)	16 (22.2)	30 (41.7)	3 (4.2)	1.8	6th
Radio	59 (82.0)	7 (9.7)	4 (5.5)	2 (2.8)	2.7	1 <sup>st</sup>
Journal/Bulletins	22 (30.6)	11 (15.3)	10 (13.8)	29 (40.3)	1.3	8 <sup>th</sup>
Television Set	48 (66.7)	10 (13.8)	6 (8.3)	8 (11.1)	2.4	4 <sup>th</sup>
Fax Machine	04 (5.5)	7 (9.7)	23 (32.0)	38 (52.8)	0.7	9 <sup>th</sup>
Internet/Emails	44 (61.1)	27 (37.5)	1 (1.4)	0 (0.0)	2.6	2 <sup>nd</sup>
World Wide Wed	35 (48.6)	29 (40.3)	5 (7.0)	3 (4.2)	2.3	5 <sup>th</sup>

Source; Field Survey 2019 Multiple Choice Figures in parenthesis are percentages

**Table 3. Different types of information shared through identified ICT tools**

Types of Information	Various Available ICT Tools Used for Sharing Agricultural Related Information by Respondents											Wms	Rank
	Phone	Computer	Newspaper	Posters	Radio	Journals	TV	Fax	Internet	www			
Information on Availability and Sources of Inputs	15 (20.8)	17 (23.6)	20 (27.8)	18 (25.0)	19 (26.4)	19 (26.4)	16 (22.2)	10 (13.9)	12 (16.7)	20 (27.8)	2.3	1st	
Information of Market	12 (16.7)	9 (12.5)	12 (16.7)	10 (13.9)	12 (16.7)	5 (6.9)	11 (15.3)	5 (6.9)	10 (13.9)	5 (6.9)	1.3	4th	
Information on Credit Facilities	10 (13.9)	8 (11.1)	8 (11.1)	8 (11.1)	19 (26.4)	11 (15.3)	9 (12.5)	12 (16.7)	11 (15.3)	7 (9.7)	1.4	3rd	
Information on Farm Management Practices	8 (11.1)	9 (12.5)	6 (8.3)	4 (5.5)	18 (25.0)	11 (15.3)	7 (9.7)	10 (13.8)	3 (4.1)	7 (9.7)	1.1	6th	
Information on Storage of farm produce	8 (11.1)	5 (6.9)	3 (4.2)	5 (6.9)	10 (13.9)	8 (11.1)	12 (16.7)	8 (11.1)	10 (13.9)	3 (4.2)	1.0	7th	
Information on Source of Labour	18 (25.0)	12 (16.7)	10 (13.9)	9 (12.5)	19 (26.4)	8 (11.1)	9 (12.5)	8 (11.1)	8 (11.1)	8 (11.1)	1.2	5th	
Information on Donor Agencies and Development Partners	3 (4.2)	5 (6.9)	6 (8.3)	7 (9.7)	24	4 (5.5)	11 (15.3)	3	11 (15.3)	12 (16.7)	1.1	6 <sup>th</sup>	
Information on Pest and Diseases Management	11 (15.3)	10 (13.9)	7 (9.7)	12 (16.7)	21	11 (15.3)	12 (16.7)	4 (5.5)	10 (13.9)	11 (15.3)	1.3	4th	
Information on Improved Varieties	12 (16.7)	18 (25.0)	8 (11.1)	10 (13.9)	15 (20.8)	6 (8.3)	11 (15.3)	3 (4.1)	12 (16.7)	11 (15.3)	1.4	3 <sup>rd</sup>	
Information of Innovative Practice	11 (15.3)	8 (11.1)	10 (13.9)	15 (20.8)	12 (16.7)	14 (19.4)	13 (18.1)	6 (8.3)	18 (25.0)	21 (29.2)	1.7	2 <sup>nd</sup>	

Source: Field Survey 2019. Figures in parenthesis are percentages wms: Weighted Mean Score

**Table 4. Challenges encountered by respondents in utilization of ICTs tools for sharing of agricultural related information**

<b>Challenges</b>	<b>Severe Challenge</b>	<b>Mild Challenge</b>	<b>Not A Challenge</b>	<b>Weighted Mean Score</b>	<b>Ranks</b>
Cost of Procurement	59 (84.3)	11 (15.7)	0 (0.0)	1.7	1 <sup>st</sup>
Cost of Maintenance	49 (70.0)	17 (24.3)	4 (5.7)	1.5	3 <sup>rd</sup>
Level of Literacy	41 (58.6)	21 (30.0)	8 (11.4)	1.4	4 <sup>th</sup>
Fluctuating Power Supply	48 (68.6)	20 (28.6)	2 (2.9)	1.6	2 <sup>nd</sup>
Risk of Theft of ICT Gadget	49 (70.0)	18 (25.7)	3 (4.3)	1.6	2 <sup>nd</sup>
Distraction Caused by ICT Tool	40 (57.1)	20 (28.6)	10 (14.3)	1.4	4 <sup>th</sup>
Poor Technological Know-How	44 (62.9)	20 (28.6)	6 (8.6)	1.5	3 <sup>rd</sup>
Poor Signal Reception	42 (60.0)	24 (34.3)	4 (5.7)	1.5	3 <sup>rd</sup>
Accuracy and Timeliness of Information	45 (64.3)	21 (30.0)	4 (5.7)	1.5	3 <sup>rd</sup>
Digital Divide	32 (45.7)	29 (41.4)	9 (12.9)	1.3	5 <sup>th</sup>

Source; Field Survey 2019, Multiple Choice, Figures in parenthesis are percentages

**Table 5a. Result of regression analysis on relationship between socio-economic characteristics of respondents and frequency of utilization of ICTs for sharing of agricultural related information**

Model		Coefficients			t	Sig.
		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta		
1	(Constant)	21.377	1.987		10.759	.000
	Age	-.249	.055	-.537	-4.555	.000
	H\size	.178	.309	.068	.574	.568

*Computed Analysis 2019***Table 5b. Chi-square analysis between socio-economic characteristics of respondent and their frequency of utilization of ICT tools**

Variables	X <sup>2</sup>	P-Value	df	Remarks
Sex	36.765	0.000	1	Significant
Marital Status	79.008	0.000	2	Significant
Religion	2.882	0.090	1	Insignificant
Education	30.706	0.000	3	Significant
Occupation	0.000	1.000	1	Insignificant

### 3.5 Chi-Square Analysis Showing the Relationship between Socio-Economic Characteristics of Respondent and Their Frequency of Usage of ICT Tools

The result of Chi-Square analysis between selected socio-economic Characteristics of the respondents the frequency of utilization of ICT tools revealed a significant relationship between the selected socio-economic characteristics of the Respondents and their frequency of ICT utilization for sharing of agricultural related information. Sex ( $x=36.765$ ,  $p=0.000$ ), Marital status( $x=79.088$ ,  $p=0.000$ ), Education ( $X=30.706$ ,  $p=0.000$ ). The result however revealed a positive but not significant relationship between Religion ( $X=2.883$ ,  $P=0.090$ ), Occupation ( $X=0.000$ ,  $P=1.000$ ) of the Respondents.

## 4. CONCLUSION

The study examined the utilization of Information and Communication Technology (ICT) Tools for sharing of Agricultural Related information in Osun State. The study described the socio economic characteristics of the Respondents, identified the available ICT tools used for sharing various Agricultural related information, identified the type of information accessed through the available ICT tools, the frequency of utilization of the available ICT tools and the severity of various

challenges encountered by the Respondents in the utilization of the identified ICT tools. Data collected were subjected to descriptive statistical analysis (percentage, mean and frequency distribution). Also inferential Statistical task was carried out on then hypothesis of the study. The outcome of the analysis revealed mean age of the Respondents as 38 years, more than half (67.14%) of the Respondents were male, most of the Respondents were married (81.4%), most of the Respondents were Christians (68.6%), majority of the respondent attended tertiary institution (70%), the mean household size was 5 individuals. All Respondents have access to mobile phone by using their data plan. Radio (wms2.7) was ranked the most frequently used ICT Tool while Fax Machine (wms0.7) was ranked the least used ICT Tool. Information of the availability and sources of farm inputs (wms2.3) was ranked the most shared information by the Respondents while information on storage facilities (wms1.0) was the least shared agricultural related information as indicated by the Respondents. Cost of procurement of gadget, persistent power outage and risk of theft of gadget were the major challenges encountered by the Respondents in the utilization of ICT tools for sharing agricultural related information. The result of the hypothesis revealed significant relationship between selected socio-economic characteristics of the Respondents and frequency of utilization of ICT Tools in sharing agricultural related information.

The findings of the study, revealed adequately educated Respondents who are youthful and innovative. The study recommended a subsidization of cost of procurement of ICT gadgets since the study identified cost of procurement of gadget as a major challenge to the utilization of ICT Tools.

Also, people could organize themselves in to cooperative groups and procure ICT Tools in bulk to lower the price and allow members to pay instalmentally. The study also identified Radio as the most efficient ICT tool used for sharing of agricultural related information, therefore radio should be most utilized among Extension Agents in sharing of agricultural related information because of far reaching access. The study revealed that erratic power supply constituted a major constraint to usage of ICT Tools hence electricity supply should be improved upon while government also assist in providing alternative power supply through the use of sources like Sun (Solar panel), Wind (Wind turbine), coal etc.

## CONSENT

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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