

Attitudes of Arable Crop Farmers towards the Use of Information Communication Technologies in Ekiti State, Nigeria

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ABSTRACT

The study was undertaken to ascertain Attitudes of Arable Crop Farmers towards the Use of Information Communication Technologies (ICTs) in Ekiti State, Nigeria. Multi stage sampling procedure was used to select one hundred and twenty respondents. Data were collected through the use of structure interview schedule. Data were analyzed using frequency, percentage and mean statistic. Results of the study showed that majority (70.8%) of the respondents were male and married (53.3%). The mean age of the farmers was 48.5 year. About 57% of the respondents used hired labour as source of farm labour. Majority (82.5%) of the arable crop farmers have favourable attitude towards and they believe that ICTs can provide solutions to the present-day agricultural situation in agricultural information dissemination ($x=4.30$). The major ICTs the farmers had access to were radio (85.0%), mobile phone (77.5%) and television (70.8%). The study recommends that government should ensure that farmers should have access to and use ICTs by putting in place policies to ensure all rural area have regularly access to ICTs tools and other infrastructures like electricity that will work with ICT facilities.

Key words: Access, Usage, ICTs and Agriculture.

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INTRODUCTION

Agriculture is the main stay of the Nigerian Economy. It is a universal truth that information is power and that access to the right information at the right time holds the key for the successful development of any sector in an economy. As a consequence, Information and Communication Technology (ICTs) has become a global tool used by individuals, companies, governments and inter-governmental organizations for personal or official activities (Kamba, 2013). Nowadays, the right to information at the right time to the right person in a right form becomes as fundamental as the right to food, to shelter and to employment. Khondokar and Debashis (2015), defines ICTs as all technologies used for the widespread transfer and sharing of information. The ICTs include computer, internet, phone, television, radio, and other offline and online communication devices. It is a set of activities that facilitate the capturing, storage, processing, transmission and display of information by electronic devices (Olowokere, 2006). The use of ICT in agriculture, just like in the other fields of knowledge, has been gaining popularity in Africa and Nigeria in

particular. During the last two decades, the world witnessed an unprecedented growth in the area of ICTs (Hosseini et al., 2009). The use of conventional communication channels such as farm/home visit, personal letters, and use of contact farmers, for disseminating agricultural information is counterproductive (Arokoyo, 2005). This calls for the adoption of ICTs by both researchers, and extension workers to transmit relevant information to farmers in a most efficient way (Salau and Saingbe, 2008; Tanko et al., 2013).

ICTs have the potentials of bridging the existing communication gap among the extension workers on one hand and between the extension workers and the farmers on the other. Effective and efficient usage of ICTs will only be possible when farmers have access to the ICTs and they also have the technical know-how and above all a good mind set. All these are based on the farmer's attitude and disposition to ICTs usage. Based on this Scenario, it becomes necessary to ascertain the farmer's psychology, emotions and behaviour to increase their positivity towards the use of

ICTs in agriculture since its role cannot be ruled out in sustainable agriculture. The specific objectives of this study are to: describe the socio-economic characteristics of the respondents; ascertain farmers' level of access to and usage of ICT tools for agricultural purpose; determine the perceived attitude of arable crop farmers towards the use of ICTs for agricultural purpose; and determine the constraints to the use of ICT by arable crop farmers in the study area.

METHODOLOGY

The study was carried out in Ekiti state, Nigeria, situated within the tropics and located between longitudes 40°51' and 50°451' East of the Greenwich meridian and latitudes 70°151' and 80°51' north of the Equator. It lies south of Kwara and Kogi State, East of Osun State and bounded by Ondo State in the East and in the south, with a total land Area of 5887.890sq km (<https://ekitistate.gov.ng/about-ekiti/overview/>).

Agriculture is the main occupation of the people. The main cash crops are cocoa, coffee, kola-nut, cashew and palm oil. Among the food crops planted are; yam, cocoyam, cassava, maize, plantain/banana, rice, beans, pepper, tomatoes and varieties of vegetables. Arable crop farmers in the state constituted the population for this study. Multistage sampling procedure was used to select the respondents. Out of a total of 16 LGAs in the state, 3 LGAs were randomly selected. The selected LGAs are Ekiti South West, Ikere and Ado-Ekiti. From each of the three LGAs selected LGAs, 4 villages were randomly selected. The selected villages were: Igirigiri, Ilokun, Ureje and Erinfun from Ado-Ekiti LGA, Ilawe, Igbara-odo, Ogotun and Kajola from Ekiti South West LGA and Ikere, Ajebandele, Araromi, Afao Kajola from Ikere LGA. From each of the villages, ten arable crop farmers were purposively selected because of their possession of any of the ICT. Hence a total of 120 arable crop farmers constituted the sample size. Data was collected from the arable crop farmers with the aid of an interview schedule. Content validity was done to ensure that the instrument collected the data it intended to collect. This was done by a lecturer in the Department of Agricultural Extension and Communication Technology, Federal University of Technology Akure before field administration.

To determine the attitudes of the arable crop farmers towards ICTs, attitudinal score of the farmers rating scale with a pool of positive and negative statements was framed. A five- point Likert type scale of strongly agree, agree, undecided, disagree, and strongly disagree with values of 5, 4, 3, 2, and 1 was used. These values were added to obtain 15, which was divided by 5 to get a mean cut off score of 3.0. For all statements, (the scoring of all negative statements was reversed), a score of 3.0 shows a favourable statement towards ICT while variables with a mean score of less than 3.0 depict unfavourable attitude. Also, the index of

respondents towards ICTs was obtained. Twenty-six (26) statements were used with a maximum score of 130 (5 x 26) and a minimum score of 26 (1 x 26) based on the Likert scale. This gave a mid-point value of 78 (130 + 26 / 2). All scores below this mid-point (26 to 78) were tagged as the percentage of farmers with unfavourable attitude (or less supportive) to ICTs; while all scores above this mid-point (79 to 130) were tagged as the percentage of farmers with favourable attitude (more supportive) to ICTs. To ascertain farmers level of access to and usage of ICT tools for agricultural purpose, a list of various ICTs was made available for the arable crop farmers to respond to whether they have access to them or not. They were also asked to rate the level of the access in terms of always, occasionally, twice in a month among other. To determine the constraints militating against the use of ICT, a list of possible constraints was made available. Respondents were asked to indicate the level of the seriousness of each constraint on a 3- point Likert- type scale of major constraint, minor constraint and not a constraint, with a value of 3, 2 and 1. These values were added together and divided by 3 to get a cut-off point of 1.0. Any variable with a value of 1.0 and above was regarded as a major constraint to ICTs usage, while a variable with a cut-off point of less than 1.0 was regarded as a minor constraint to ICTs usage. Frequency, percentage, charts and mean statistics were used for data analysis.

RESULTS AND DISCUSSION

Socio-Economic Characteristics of the Respondents

As indicated in Table 1, majority (70.8%) of the respondents were male, married (53.3%) and Christian (72.5%). About 38% of the respondents were within the age of 51 to 60 years. About 37% of the respondents had no formal education while 15.8% have completed their primary and secondary school education, respectively. It could be inferred that, farmers in the study area are literates who could read and write. Being literate could affect someone use of ICT by helping them to perform daily tasks and supports their ability to make informed, responsible decisions that affect them as individuals. The respondents had between 6 and 10 persons in their household. This implies that each of the farmers had a fairly large household size which could probably serve as an insurance against short falls in supply of farm labour. Household size has a great role to play in family labour provision in the agricultural sector.

Sources of Fund and Farm Labour

About 60% of the arable crop farmers finance their farm through personal savings while 19.2% source their

Table 1. Percentage distribution of respondents according to socio-economic characteristics (n = 120).

| Sex | Frequency | Percentage |
|---------------------------------|------------------|-------------------|
| Male | 85 | 70.8 |
| Female | 35 | 29.2 |
| Age (years) | | |
| 20-30 | 14 | 11.7 |
| 31-40 | 20 | 16.7 |
| 41-50 | 18 | 15.0 |
| 51-60 | 46 | 38.3 |
| Above 60 years | 22 | 18.3 |
| Marital Status | | |
| Single | 21 | 17.5 |
| Married | 64 | 53.3 |
| Widowed | 33 | 27.5 |
| Divorced | 2 | 1.7 |
| Religion | | |
| Christianity | 87 | 72.5 |
| Islam | 31 | 25.8 |
| Traditional | 2 | 1.7 |
| Level of Education | | |
| No formal education | 44 | 36.7 |
| Attempted primary school | 15 | 12.5 |
| Completed primary school | 19 | 15.8 |
| Attempted secondary school | 6 | 5.0 |
| Completed secondary school | 19 | 15.8 |
| Tertiary school | 17 | 14.2 |
| Household size (numbers) | | |
| 1-5 | 28 | 23.3 |
| 6-10 | 63 | 52.5 |
| 11-15 | 24 | 20.0 |
| 16-20 | 5 | 4.2 |

finances through friends and relative (Figure 1). Only 7.5% of the respondents source their finance through Bank. This implies that personal savings constitute the main source of fund for maintaining farm in the study area. Access to bank loan by cocoa farmers is a big problem due to the lack of collateral and the risky nature of agricultural production.

The results in Figure 2 showed that about 57% of the respondents used hired labour as sources of farm labour, while about 43% used family labour.

This could be as a result of the availability of labour and repeated nature of some of the farming operations that require regular attendance for improved productivity.

Level of Farmers usage of ICTs

Results in Table 2 revealed that arable crop farmers used the following ICTs: radio (81.7%), mobile phone (79.2%) and television (73.3%). Radio and television

are some of the most ICTs that are available in almost all the house of farmers. They listen to news and other agricultural programmes. For example, agricultural programme disseminated by Automatic Data Processing, (ADP) on how farmers can improve rice production was aired on radio and television, also the various government efforts in improving agriculture were aired through these media. The numbers of farmers that had access to mobile phone this present day increases on the daily basis. This finding is in support of the finding of Ezeh (2013) Rebekka and Saravanan (2015) and Toluwase et al. (2017) that farmers had access and used mobile phones, television and radio. Farmers used mobile phone to communicate with family members, friends, fellow farmers and extension agents. Majority (66.7%) use radio on a daily basis, also mobile phone (52.5%) and television set (42.5%) were used every day. All these ICTs were used on the daily basis.

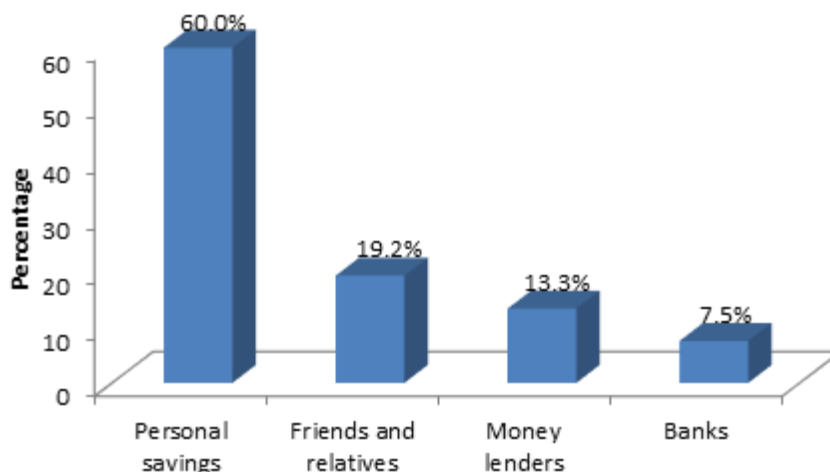


Figure 1: Sources of fund for agricultural activities.

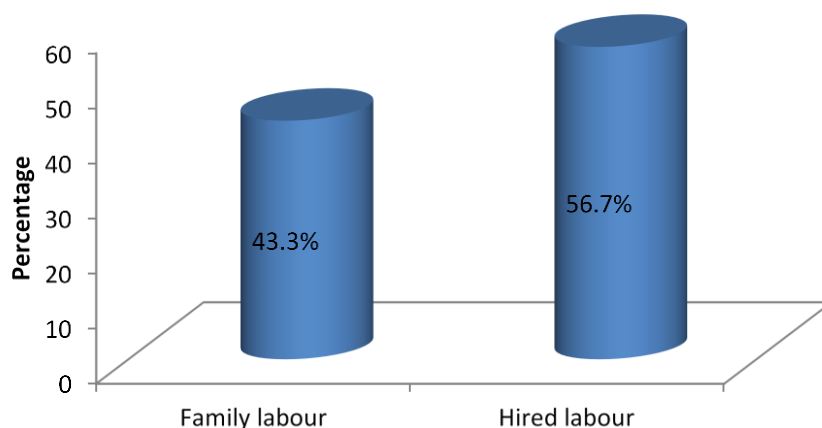


Figure 2. Sources of farm labour.

Table 2. Percentage distribution of respondents according to usage of ICT tools and level of usage.

| ICT Tools | Usage of ICTs Yes | Level of usage of ICTs (n=120) | | | | | Occasionally |
|----------------|-------------------|--------------------------------|----------------|-----------------|-----------------|------------------|--------------|
| | | Everyday | Once in a Week | Twice in a Week | Once in a Month | Twice in a Month | |
| Mobile phone | 95 (79.2) | 52.5 | 25.8 | 15.8 | 8.0 | - | 5.0 |
| Television set | 88 (73.3) | 42.5 | 30.8 | 16.7 | 7.5 | - | 2.5 |
| Radio | 98 (81.7) | 66.7 | 19.2 | 9.2 | 3.3 | 1.7 | - |
| Newspaper | 33 (27.5) | 23.3 | 30.8 | 11.7 | 4.2 | 14.2 | 15.8 |
| Computer set | 15 (12.5) | 15.8 | 38.3 | 18.3 | 13.3 | 3.3 | 10.8 |
| Internet | 13(10.8) | 4.2 | 13.3 | 25.0 | 21.7 | 2.5 | 33.3 |
| Digital camera | 27 (22.5) | 10.0 | 30.8 | 14.2 | 14.2 | 13.3 | 17.5 |
| Video player | 33 (27.5) | 9.2 | 24.2 | 29.2 | 7.50 | 13.3 | 16.7 |
| Projector | 11 (9.2) | 0.8 | 18.3 | 10.0 | 21.7 | 4.2 | 45.0 |

Figure in parenthesis represent percentage.

Attitude of Farmers Towards the Use of Information Communication Technology

It is also evident in Figure 3 that majority (82.5%) of the

farmers had favourable attitude towards the use of ICTs while the remaining 17.5% had unfavourable attitude towards the use of ICTs. The fact that farmers had favourable attitude towards the use of ICTs is a good

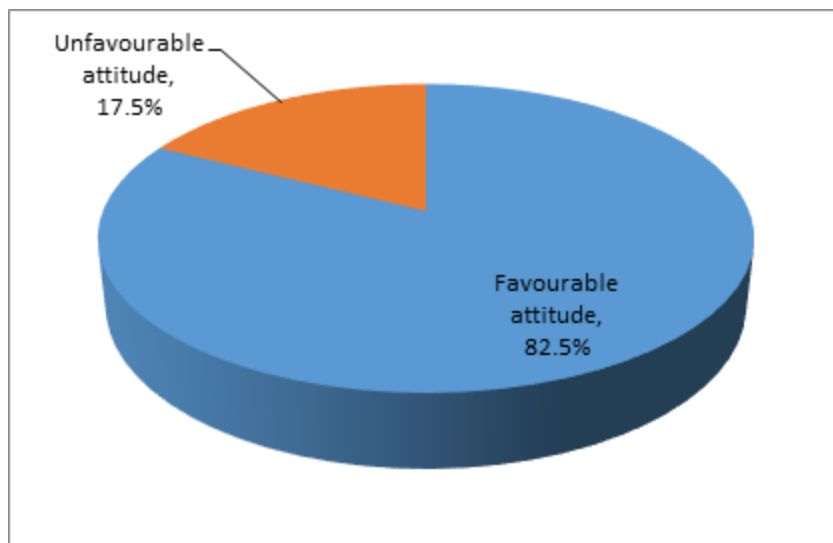


Figure 3. Index of crop farmers' attitude towards ICTs.

development as it would increase their productivity, reduce the time frame in getting information across to the farmers and bring about positive effect on their income. This could also help in achieving desirable increase in communication for farming activities between farmers and extension agents.

Results in Table 3 showed the mean scores of arable farmers' attitude toward the use of ICTs. Arable crop farmers had favourable attitude towards the following ICTs statement. ICTs can provide possible solutions to the present day agricultural situation in agricultural information dissemination ($x=4.30$), cannot meet location specific needs of the farmers ($x=4.04$), ICTs will help in improving productivity if properly used ($x= 3.82$), only resourceful farmers with the right attitudes can get the benefit of ICTs tools ($x =3.73$), ICTs services are not meant for resource poor farmer ($x= 3.71$), illiteracy will not deter farmers in availing ICT services ($x=3.66$), farmers can get remunerative prices to their produce through ICT based market intelligence ($x=3.57$), ICTs cannot deliver personalized information ($x=3.56$), expert advice through the use of ICTs makes the farmers enterprise/activities productive ($x=3.54$), all kinds of information exchange on agricultural related activities are possible only through ICTs ($x= 3.53$), existing infrastructure of ICTs are not enough to meet the needs of the farming community in rural areas ($x= 3.52$).

Other favourable attitudinal statements of the farmers include: farmers with the wrong attitude towards ICTs cannot benefits from ICTs ($x=3.46$), absence of access to information Centre at village level will hinder the benefit of ICTs to farmers ($x=3.44$), phone-in-live with scientists through the use of mobile phone gives first-hand information about queries ($x= 3.43$), access and use of ICTs alone not would not solve the problems of rural farmers ($x= 3.40$), ICTs based pest/disease outbreak alerts facilitate farmers to take preventive

measures ($x=3.38$), using ICTs to communicate to the farmers by the extension agent could affect the face to face interaction presently enjoyed by the farmers ($x= 3.34$), ICTs based extension services provide new opportunity to build a skilled and knowledgeable community ($x=3.30$), ICT is a valuable tool, but it will never influence farmers' own decision making ($x=3.23$) and weather forecasting through ICTs assists farmers in taking timely decisions ($x= 3.17$). This study is in support of the findings of Khondokar (2015). Farmers had highly favourable attitude (58.9%) towards the ICTs. Meanwhile, in the study conducted by Raghuprasad et al. (2017), in Bangalore rural, Chikkaballapura and Kolar districts of Karnataka, only 40.8% of the farmers had favourable attitude towards ICT tools. Attitude of the farmers plays a significant role in accepting and using ICTs.

Constraints to The Use of ICTs by Arable Crop Farmers

Results in Table 4 revealed the constraints to the use of ICTs tools by the farmers. The major constraints were unavailability/non-regular supply of electricity ($x=2.84$), low level of awareness of usage of ICTs ($x=2.73$) and lack of knowledge about ICTs applications ($x=2.61$). The issue of incessant power failure has been a major problem in Nigeria. This most likely hinder the use of ICTs in several ways. Without power, computer and other ICTs gadgets cannot be operated. Also, the low level of awareness of the usage of ICTs and lack of knowledge about ICTs applications may affect their use. When farmers are aware and have knowledge on the use of ICTs, it become easy for them to use these ICTs for enhance agricultural activities. This study is in support of Alert (2014) findings that, lack of electricity and lack of skills associated with the use of new

Table 3. Attitude of farmers towards information communication technology (n=120).

| Attitude Statements | Strongly Agree (%) | Agree (%) | Undecided (%) | Disagree (%) | Strongly Disagree (%) | Mean |
|---|--------------------|-----------|---------------|--------------|-----------------------|-------|
| ICTs can provide possible solutions to the present-day agricultural situation in agricultural information dissemination | 58.3 | 30.0 | - | 6.7 | 5.0 | 4.30* |
| ICTs cannot meet location specific needs of the farmers | 19.2 | 65.8 | 15.0 | - | - | 4.04* |
| ICT tools will help in improving productivity if properly use | 21.7 | 27.5 | 50.8 | - | - | 3.82* |
| Only resourceful farmers with the right attitudes can get the benefit of the ICTs tools | 20.8 | 50.0 | 10.0 | 12.5 | 6.7 | 3.73* |
| ICTs service is not meant for resource poor farmers. | 25.0 | 14.2 | 35.8 | 15.8 | 9.2 | 3.71* |
| Illiteracy will not deter farmers in availing ICT services. | 20.0 | 29.2 | 34.2 | 7.5 | 9.2 | 3.66* |
| Farmers can get remunerative prices to their produce through ICT based market intelligence. | 19.2 | 22.5 | 35.8 | 22.5 | - | 3.57* |
| ICTs cannot deliver personalized information. | 10.0 | 42.5 | 32.5 | 7.5 | 7.5 | 3.56* |
| Expert advice through the use of ICT makes the farmers enterprise/activities productive. | 13.3 | 21.7 | 31.7 | 25.0 | 8.3 | 3.54* |
| All kinds of information exchange on agricultural related activities are possible only through ICTs tools | 10.0 | 47.5 | 30.8 | 10.0 | 1.7 | 3.53* |
| Existing infrastructure of ICTs is not enough to meet the needs of the farming community in rural areas where farmers reside. | 20.0 | 31.7 | 35.8 | 10.0 | 2.5 | 3.52* |
| Farmers with the wrong attitude towards ICT cannot benefits from ICT prosper | 32.5 | 30.0 | 30.0 | 13.3 | - | 3.46* |
| Absence of access to information centre at village level will hinder the benefit of ICT to farmers | 20.8 | 31.7 | 30.0 | 15.0 | 2.5 | 3.44* |
| Phone-in-live with scientists through the use of mobile phone gives first-hand information about queries. | 13.3 | 35.8 | 13.3 | 29.2 | 8.3 | 3.43* |
| Access and use of ICTs alone not would not solve the problems of rural farmers. | 10.0 | 16.7 | 49.2 | 13.3 | 10.8 | 3.40* |
| ICT based pest/disease outbreak alerts facilitate farmers to take preventive measures. | 19.2 | 19.2 | 35.8 | 24.2 | 4.2 | 3.38* |
| Using ICT to communicate to the farmers by the extension agent could affect the face to face interaction presently enjoy by the farmers | 13.3 | 37.5 | 36.7 | 12.5 | - | 3.34* |
| ICTs based extension services provide new opportunity to build a skilled and knowledge community. | 9.2 | 36.7 | 42.5 | 9.2 | 2.5 | 3.30* |
| ICT is a valuable tool, but it will never influence farmers' own decision making. | 15.0 | 42.5 | 24.2 | 8.3 | 10.0 | 3.23* |
| Weather forecasting through ICTs assists farmers in timely decisions. | 6.7 | 25.0 | 37.5 | 17.5 | 13.3 | 3.17* |
| ICT based extension services are not alternative to the present extension system | 3.3 | 32.5 | 43.3 | 19.2 | 1.7 | 3.17* |
| ICT can change our technology dissemination system if properly harnessed | 25.8 | 25.8 | 30.8 | 13.3 | 4.2 | 3.09* |
| ICT cannot provide Information about rural development programmes and subsidies | 15.0 | 39.2 | 25.8 | 3.3 | 6.7 | 3.07* |
| ICT cannot provide the needed marketing information | 6.7 | 43.3 | 32.5 | 12.5 | 5.0 | 3.02* |
| ICT tools cannot totally solve agricultural problems | 9.2 | 30.0 | 30.8 | 20.8 | 9.2 | 2.94 |
| Even though farmer's attitude about ICT usage in Agriculture is changed, this may not still be improved farmers productivity | 9.2 | 38.3 | 41.7 | 10.8 | - | 4.30* |

* negative statement * Favourable statement.

techniques were among the constraints to effective use of ICT by farmers in Rivers State Nigeria. Other constraints to the use of ICTs by arable crop farmers include poor interconnectivity ($x=2.53$), lack of motivation ($x=2.50$), lack of encouraging government

policies and regulations ($x=2.48$), insufficient availability of ICT service providers ($x= 2.41$) and low computer literacy level ($x= 2.40$). Some of the villages were not connected with service providers while some of the government policies and regulations do not favor the

Table 4. Constraints to the use of ICTs by arable crop farmers (n= 120).

| Variable | Major constraint (%) | Minor constraint (%) | Not a constraint (%) | Mean | Std. Deviation |
|--|----------------------|----------------------|----------------------|-------|----------------|
| Unavailability / non-regular supply of electricity in using ICT tools by the farmers | 85.0 | 14.2 | 0.8 | 2.84* | 0.38 |
| Low level of awareness by the farmers in the use of some ICT tools by the farmers | 54.2 | 44.2 | 1.7 | 2.73* | 0.44 |
| Lack of farmers knowledge about ICT applications | 53.3 | 29.2 | 17.5 | 2.61* | 0.52 |
| Poor interconnectivity in the rural area that hinder the access and use of ICT | 45.8 | 48.3 | 5.8 | 2.53* | 0.53 |
| Lack of farmers motivation towards access and usage of ICT tools | 73.3 | 26.7 | - | 2.50* | 0.733 |
| Existing government policies and regulations on farmers access and use of ICT is not encouraging | 45.8 | 47.5 | 6.7 | 2.48* | 0.58 |
| Insufficient availability of ICT service providers in the rural area for farmers accessibility | 43.3 | 45.8 | 10.8 | 2.41* | 0.68 |
| Low computer literacy level of the farmers could hinder farmers usage of ICT | 62.5 | 35.8 | 1.7 | 2.40* | 0.60 |
| Complexity in the nature of ICT tools and technologies. | 52.5 | 43.3 | 4.2 | 2.39* | 0.61 |
| High cost of buying the ICT related tools | 45.8 | 28.3 | 25.8 | 2.36* | 0.76 |
| Lack of time by the farmers in the use of ICT tools | 32.5 | 43.3 | 24.2 | 2.34* | 0.642 |
| Lack of technical know-how of the farmers | 51.7 | 37.5 | 10.8 | 2.33* | 0.66 |
| Lack of field extension agents in introducing ICTs in communicating with the farmers | 45.0 | 36.7 | 18.3 | 2.29* | 0.74 |
| Lack of training on the use of ICT tools by the extension agent | 43.3 | 47.5 | 9.2 | 2.28* | 0.70 |
| Lack of skill on the part of the farmers in using ICTs | 53.3 | 20.0 | 26.7 | 2.27* | 0.75 |
| The importance attached to the use of ICT by the extension services is not encouraging | 46.7 | 35.8 | 17.5 | 2.27* | 0.85 |
| Compatibility of some ICT tools to farmers activities | 42.5 | 43.3 | 14.2 | 2.20* | 0.82 |
| Lack of infrastructural facilities that would enhance the usage of ICT tools. | 64.2 | 21.7 | 14.2 | 2.08* | 0.75 |

* Major constraint.

service providers which may either result in non-connectivity to some areas or high tariff. This is in support of the findings of Jemimah et al. (2018) that revealed that among the constraints to the use of ICT tools by cassava farmers in Uyo agricultural zone, government policy is one of the major constraints.

CONCLUSION

The results of this study showed that farmers in the study area are literates, had fairly large household size and finance their farm through personal savings. Higher proportion of the farmers use ICTs like mobile phone and radio regularly. This was as a result of the importance of these ICT tools. Most of the arable crop farmers in the study area have favourable attitudes toward ICTs which could help in achieving desirable increase in communication for farming activities

between farmers and extension agents. The major constraint to the use of ICTs was non regular supply of electricity. Since attitude of the farmers plays a significant role in accepting and using ICTs, the study recommends that information exchange on agricultural related activities should be encourage through the use ICTs so as to strengthening the favourable farmers' attitude. Government should also ensure that farmers should have access to and use ICTs by putting policies in place to ensure all rural area have access to ICTs tools. Also, awareness on the use of ICTs should be intensify.

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