CASSAVA FARMERS' ATTITUDE TOWARDS INFORMATION AND COMMUNICATION TECHNOLOGY USAGE IN ODOGBOLU LOCAL GOVERNMENT AREA OF OGUN STATE, NIGERIA

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ABSTRACT

The study was carried out to determine the attitude of cassava farmers towards ICT usage for accessing agricultural information in Ogun State, Nigeria. Multistage sampling procedure was employed in the selection of 120 Cassava farmers for the study. Data were collected from the respondents with the use of an interview schedule. Descriptive statistics (frequency, counts, percentage and means) and Pearson Product Moment Correlation were employed as statistical tools for data analysis. Findings reveal that the majority (76.7%) of the respondents were aged between 41and 60 years, married (75.0%), attained tertiary education (49.2%) and with an average household size of 5 members. Majority ((89.2%)) of the respondents were aware of various availability of radio and television (70.0%). Most (70.8%) farmers accessed agricultural information on land clearing methods, length of cassava cutting stems (73.3%), fertilizer application rate and method (72.5%) and plant spacing for cassava for optimum yield (60.8%). The majority (55.2%) of the respondents had favourable disposition towards ICT tools usage. Age ($r = -0.201$, $P<0.05$), household size ($r = 0.352$, $P<0.05$), farming experience ($r = 0.4822$, $P<0.05$) and farm size ($r = 0.381$, $P<0.05$) influenced the attitude of cassava farmers towards ICT usage for accessing agricultural information. Sequel to the findings of the study, it is recommended that adequate awareness should intensified among cassava farmers and extension organizations should consider the identified information and communication technology tools for agricultural information delivery to sustain favourable attitude toward ICT usage for agricultural information among cassava farmers in the study area.

Keywords: Cassava farmers, ICT tools, Land clearing methods, Agricultural information, ICT usage.

INTRODUCTION

Agriculture is one of the most important sectors in Nigeria economy, providing the main source of livelihood for the majority of Nigerians hence its development depends on the need for relevant and timely information being transferred to farmers. As at 2020, it was estimated that the global cassava production was 291 million Metric Tonnes with Africa producing over 62% of it and Nigeria taking the lead globally with a production of about 59.5 million Metric Tonnes representing about 21% of the global output (PWC, 2020 and FAO, 2018). However, the bulk of these production outputs are in the hands of small-scale farmers who cultivate between 0.5 and 5 hectares of land (Angba and Iton, 2020). Cassava has increasingly gained prominence, industrially, economically, and nutritionally over the years, because of the multi-uses of its starch-rich roots (Olaniyi, Adetumbi, and Adereti, 2013). Cassava has been transformed from being a staple food to a source of income as well with the potential of being valued as a major foreign exchange earner that can impact positively on the economic fortune of Nigeria. Presently, cassava is primarily a product for food, especially in the form of Garri, tapioca and fufu for human consumption. But the crop can be processed into several secondary products for industrial market value. These products include chips, pellets, flour adhesives, alcohol and starch, which are vital raw materials in the livestock feed, alcohol/ethanol, textile, confectionary, wood, food and soft drinks industries..

The vital roles of Information and Communication Technology (ICT) in the agricultural sector cannot be overemphasized. ICT has become a vital tool in our day-to-day activities and information access through ICT makes farmers depend on it for decision-making in the agricultural enterprise (Faloni and Kwagbe, 2018). The adoption of ICT in agriculture remains an ongoing challenge. The economic benefits of ICT deployment in agriculture are enormous. These include better management of farms, dissemination and retrieval of timely information, better and integrated production planning, monitoring and follow up and access to the latest research outputs (Ayim *et al*, 2022).

The attitudinal disposition of farmers towards ICT usage is very much required in obtaining effective and efficient information as a support tool which would lead to stronger conviction and efficient extension programme planning in changing agri-rural environment (Vanya, 2020).

Cassava farmers need the information to optimize production, like any other agricultural industry. The sector draws upon infinite sources of widely dispersed, locally contextualized knowledge and a considerable body of research materials. It is expected that there should be a flow of knowledge and new information from various sources to cassava farmers. With the emergence of information and communication technology in the world, there is an expectation that knowledge producers would be substantially empowered to channel information to farmers through ICT.

The mainstreaming of ICT in agricultural stakeholder systems could spur economic development and growth by bridging critical knowledge gaps and increasing access to information on improved varieties and other recommended technology for increased production. This is where ICT has an important role to play. The traditional mode of information delivery to farmers by the extension institution is obsolete and time-wasting, hence there is a need to deploy modern technology to facilitate an easy way of information delivery to farmers in Nigeria (Anunobi and Anunobi, 2018). Nevertheless, farmers need to be knowledgeable in the use of modern ICT and form a favourable disposition towards its usage for accessing agricultural information to maximize the potential of ICT in agriculture. Freeman and Fridah, (2017) and Olatinwo *et al* (2022) carried out studies on the use of information and communication technology in accessing agricultural information and the majority of these studies had focused their attention on the roles of ICT in improving agricultural production without due consideration to the attitude of the farmers towards ICT usage. This study therefore, focused on the attitude of cassava farmers and its influence on Information and Communication Technology (ICT) usage for accessing agricultural information.

The specific objectives of the study are to:

i. describe the socio-economic characteristics of the respondents.
ii. ascertain the level of awareness of ICTs among the respondents
iii. identify the ICTs used by the respondents for accessing agricultural information
iv. ascertain the agricultural information on cassava production accessed through ICT
v. determine the attitude of the respondents toward ICT usage for agricultural information.

The study posited the hypothesis that there is no significant relationship between selected socio-economic characteristics of cassava farmers and attitude towards Information and Communication Technology usage for accessing agricultural information.

METHODOLOGY

The study was carried out in Odogbolu Local Government Area, Ogun State, Nigeria. It has its headquarters in Odogbolu town. Odogbolu has a population of 127,123 at the 2006 population census. The seasonal average annual rainfall is 161mm and the average temperature between April and June is 32ºC during the day and 23ºC at night. The population of the study comprised all cassava farmers both male and female in Odogbolu Local Government, Ogun State, Nigeria. A multistage sampling procedure was employed in the selection of 120 cassava farmers in the study area. In the first stage, random selection of 5 wards out of fifteen (15) wards was made which was followed by random selection of two communities each from the selected wards, making a total of ten communities. The final stage involved random selection of 12 cassava farmers from each community to arrive at a sample size of 120 for the study. Primary data were obtained through a well-structured interview schedule. The dependent variable of the study was attitude of cassava farmers towards Information and Communication Technology usage for accessing agricultural information and was measured on 5 points Likert scale of Strongly Agreed (SA) = 5, Agreed (A) = 4, Undecided (U) = 3, Disagreed (D) = 2, Strongly disagreed (SD) = 1. Twenty attitudinal statements items including equal number of positive and negative statements were provided for the respondents The maximum and minimum score for an individual respondent was 100 and 20 respectively. The grand mean was used to categorize the respondents into favourable and unfavourable attitudinal dispositions. All mean scores above the grand mean were categorized as percentage of cassava farmers with favourable attitude and those with mean scores less than the grand mean were considered as those with unfavourable attitude towards ICT usage for accessing agricultural information.

Data collected were analysed using descriptive statistics (frequency, counts, percentages and mean) and Pearson Product Moment Correlation (PPMC) was employed as inferential statistics to test the hypothesis.

RESULTS AND DISCUSSION

Socioeconomic characteristics

The majority (69.2%) of the respondents were members of social organizations (Table 1). This indicates that the respondents have social affiliation within their communities for social networks and this may influence their access to agricultural information which may help in improving cassava production in this study area. The majority (75.0%) of the respondents were married, this implies that most of the respondents are socially responsible and would be able to take responsibility for their decisions. As noted by Sriker Reddy *et al* (2020) that the married are actively participate in social matters that could help them develop favourable attitude toward technology that could provide and make information available

The majority (76.7%) of the respondents had an age range between 41 - 60years and the mean age was 48.9 years. This indicates that the majority of the farmers are in their active age, still agile and active in cassava production. In terms of the education of the respondents, it was discovered that the majority (80.8%) had one form of education or

the other. Education is known to influence attitude and uptake of technology.

Table 1 further shows the farming experience of the respondents with 53.0% of the respondents having less or equal to 10 years of farming experience. This implies that the farmers were experienced, and this may help in improving their cassava production.

The household size of the respondents could be considered relatively large as the majority (76.6%) had less or equal to 5persons in their households, with the mean household size of 5 members. This indicates that the respondents had moderately large household size in this study.

The majority (84.2%) had less or equal to 5acres of land for cassava production, while others (15.8%) cultivated more than 5acres of land for cassava production in the study area. This implies that most of the respondents are small-scale producers. This may be attributed to inadequate access to land for cassava production in the study area. The average income of the respondents were N83933.33 with the majority (75.8%) earning less or equal to N100,000 per annum.

Table 1: Distribution of respondents according to their socio-economic characteristics

Socio-economic characteristics	Frequency	Percentage	Mean
Social organization			
Yes	83	69.2	
No	37	30.8	
Marital status			
Single	5	4.2	
Married	90	75.0	
Widow	10	8.3	
Widower	09	7.5	
Divorce	5	4.2	
Separated	1	0.8	
Religion			
Christian	65	54.2	
Islam	55	45.8	
Age (Years)			
≤ 40	15	12.4	
41-60	92	76.7	48.99
Above 60	13	10.8	
Level of education			
Primary education	14	11.7	
Secondary education	15	12.5	
NCE	39	32.5	
Bachelor's degree	20	16.7	
PhD	5	4.2	
Years of farming			
≤ 10	63	52.5	
11-20	36	30.1	13.04
Above 20	21	17.5	
Household size			
≤ 5	94	76.6	
6-10	25	20.8	4.88
> 10	3	9.7	
Farm size (Acres)			
1-5	101	84.2	3.33
Above 5	19	15.8	
Annual income (Naira)			
≤ 50,000	46	38.3	
51,000-100000	45	37.5	83933.33
Above 101,000	28	24.1	

Source: Field Survey, 2021

Awareness of available ICTs tools for accessing agricultural information

The findings in Table 2 indicate that majority (89.2%) of the respondents were aware of radio as an ICT tool followed by mobile phone (81.7%) and television (70.0%). while a few (24.2%) of the respondents were aware of internet, video (21.7%), online paper (13.3%) and CD-ROM (11.7%). This implies that the majority of the respondents were aware of electronic forms of ICT

especially, Radio, Mobile phones and Television. Pandey (2017) suggested that different ICT communication devices or applications are necessary to educate the farmers. He further stated that the application such as mobile phones can be a great help to farmers in changing their attitude toward ICT tools. However, Boniface, Jose and Sakeer (2019) reported that awareness of ICT is highly needed by farmers to be able to benefit maximally from the new tools for agricultural information dissemination and retrieval.

Table 2: Distribution of respondents according to awareness of available ICTs tools for accessing agricultural information

ICT Tools	Percentage
Radio	89.2
Television	70.0
Mobile phone	81.7
Video	21.7
Online papers	13.3
Computer	24.2
Internet	23.3
CD ROM	11.7

Source: Field Survey, 2021

Parentheses indicate Percentages ICT tools used for accessing agricultural information

Table 3 shows the most frequently used ICT tool in accessing agricultural information was radio (WMS=1.83) followed by mobile phones (WMS=1.58) and television (WMS=1.51). This indicates that radio, mobile phones and television were the most frequently used ICT tools by the cassava farmers in the study area. This finding corroborates that of Abbas *et al*., (2009) who reported that radio is the most frequently used ICT tool by farmers as it is the prominent medium of communication among farmers in Nigeria.

Table 3: Distribution of respondents according to ICT used for accessing agricultural information

ICT tools	Sometime %	Often %	Rarely %	Never %	WMS	Rank
Radio	9.2	73.3	8.3	9.3	1.83	1st
Mobile phone	23.3	42.5	3.3	30.8	1.58	2nd
Television	24.2	35.0	7.5	33.3	1.51	3rd
Online newspaper	3.3	0.8	23.3	72.5	0.49	4th
Internet	9.2	2.5	10.0	78.3	0.43	5th
CD ROM	0.0	0.8	7.5	91.7	0.09	6th

Source: Field Survey, 2021

Agricultural information accessed through ICT

The prominent agricultural information accessed through ICT were information on land clearing methods (70.8%), length of cassava cutting stems (73.3%), fertilizer application rate and method (72.5%) and plant spacing for cassava for optimum yield (60.8%) as shown in Table 4. This implies that most of the agricultural information accessed is important technical information that can improve the yields of cassava in the study area.

Table 4: Distribution of respondents according to agricultural information accessed through ICT

Agricultural information	Percentage
Land clearing methods	70.8
Length of cassava stems	73.3
Fertilizer application rate and method	72.5
Plant spacing for cassava for optimum yield	60.8
Weed management	30.0
Pest control on cassava farm	35.0
The harvesting time of cassava tubers	20.0
Storage method of cassava	20.8
Marketing price of cassava	9.2
Value addition to cassava produced	8.3

Source: Field Survey, 2021

Parentheses indicate percentages attitude toward ICT usage for accessing agricultural information

The result in Table 4 shows the percentages of responses to attitudinal statements by the respondents. It was revealed that more than half of the respondents strongly agreed or agreed with the attitudinal statements such as ICT tools are not suitable for illiterate farmers (60.8%), timing of agricultural programmes on radio and television as ICT tools are properly scheduled to access agricultural information(58.3%), ICTs are reliable tools for meeting information needs of farmers (54.2%), ICTs tools keep me abreast of latest technology in agriculture around the world (49.2%), ICTs is a valuable tools for accessing weather information(48.3%) and erratic power supply is a limiting factor to the use of the ICTs (46.7%). This implies that the respondents had favourable attitude towards ICT because it is beneficial to them as indispensable tools for accessing agricultural information. Lokeswart (2016) had earlier posited that favourable attitude towards ICT could enhance its adoption and use among rural farmers.

Table 4: Distribution of respondents according to farmers' attitude towards ICT usage for accessing agricultural information

Attitudinal Statements	SA	A	U	DA	SD
Erratic power supply is a limiting factor in the use of the ICTs	46.7	20.8	10.0	19.2	3.3
I have sufficient time to access and use ICT for agricultural information retrieval	0.8	32.5	11.7	42.5	12.5
I cannot afford the cost of using ICTs for accessing agricultural information	30.8	46.7	8.3	14.2	0.0
The use of ICTs will not facilitate timely farm inputs delivery	5.0	15.0	60.8	8.3	10.3
The use of ICTs has exposed me to other developmental information	11.7	41.7	30.8	14.2	1.7
ICT tools are not suitable for illiterate farmers	11.7	60.8	14.2	6.7	6.7
Access to ICT facilities alone would not solve farmers problems	22.5	48.3	10.0	10.0	9.2
I don't need to be educated to use ICTs for accessing agricultural information	2.5	47.5	14.2	18.3	17.5
I cannot understand or interpret weather information from the ICTs	2.5	38.3	5.8	41.7	11.7
The use of the ICTs will increase my farm yield	10.8	18.3	44.2	15.0	11.7
The use of ICTs does not provide me with market information and opportunities	7.5	24.2	38.3	16.7	13.3
The use of ICTs is a distraction from other domestics' chores	19.2	50.0	4.2	15.8	10.8
ICTs is of no benefit to rural farmers	17.5	15.8	51.7	7.5	7.5
ICTs tools keep me abreast of latest technology in agriculture around the world	20.8	49.2	20.0	5.8	4.2
The use of ICTs updates farmers with government policies on agriculture	25.8	15.0	48.3	10.8	0.0
ICTs is a valuable tool for accessing weather information	10.8	48.3	24.2	10.8	5.8
ICTs are reliable tools for meeting information needs of farmers	26.7	54.2	12.5	6.7	0.0
Use of the ICTs will facilitate timely execution of my farm operations	12.5	19.2	66.7	1.7	0.0
Use of the ICTs interferes with my domestic work	4.2	64.2	8.3	19.2	4.2
The timing of agricultural programmes on radio and television as ICT tools are properly scheduled to access agricultural information	58.3	14.2	3.3	18.4	5.8

SA - Strongly Agreed; A - Agreed; U - Undecided; DA - Disagreed; SD - Strongly Disagreed

It is evident in Figure 1 that more than half (55.2%) of the farmers had favourable attitude towards the use of ICT while the remaining (44.8%) had unfavourable attitude towards ICT usage for accessing agricultural information. This finding is in line with Akinnagbe and Oladipupo (2018) had

earlier reported favourable attitude of farmers towards ICT usage in Ekiti State. They posited that favourable attitude would have effect on farmers' productivity and income as well as achieving desirable communication link between farmers and extension agents.

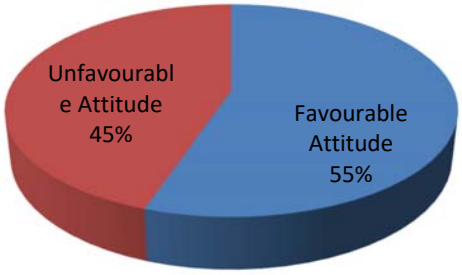

Figure 1: Pie Chart showing Categories of Cassava Farmers' attitude towards ICT usage

Relationship between selected socio-economic characteristics and the attitude towards ICTs usage

Data presented in Table 5 shows that there were positive and significant relationships between household size ($r = 0.352$, $p \leq 0.05$), years of farming experience ($r = 0.482$, $p \leq 0.05$), farm size ($r = 0.381$, $p \leq 0.05$) and attitude towards ICTs usage for accessing agricultural information. Conversely, age ($r = -0.201$, $p \leq 0.05$) shows a negative and significant relationship with attitude towards ICT usage. This implies that household size, farming experience, farm size and age of farmers significantly influenced the attitude of the respondents towards ICT usage for accessing agricultural information.

Table 5: Summary of correlation analysis showing the relationship between selected socio-economic characteristics and the attitude towards ICTs usage

Socio-economic variables	Correlation coefficient	p-value
Age	-0.20	0.02
Household size	0.35	0.00
Farming experience	0.48	0.00
Farm size	0.38	0.00

Source: Field Survey, 2021

CONCLUSION AND RECOMMENDATIONS

The study concluded that the respondents were aware of various ICT tools and the most frequently used ICT tools for accessing agricultural information were radio, mobile phones and television. They had access to technical and economic agricultural information on cassava production such as land clearing methods, length of cassava cutting stems, fertilizer application rate and method and plant spacing for cassava for optimum yield. The respondents exhibited favourable attitudinal dispositions towards ICTs usage. Age, household size, farming experience and farm size influenced the attitude of cassava farmers towards ICT usage for accessing agricultural information. It is recommended that adequate awareness on the use of ICT should be intensified, and agricultural information delivery should be encouraged by the extension organizations through the use of the identified ICT tools used by the farmers in order to sustain favourable attitude among Cassava farmers in the study area

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