Information and communication technology usage for marketing among agricultural produce dealers in Ogbomoso north local government area, Oyo state

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Abstract: The research focused on Information Communication Technology usage for marketing among Agricultural produce dealers in Ogbomoso North Local Government Area of Oyo State. Data were collected through an interview schedule from 108 respondents through random sampling of 70% from a list of 154 registered produce dealers in Ogbomoso North Local Government, Oyo state. Descriptive statistics such as percentages, mean and standard deviation were used to present the data, and Pearson Product Moment Correlation was used to analyse the data. The findings revealed that the ICT devices available in the area for buyers and sellers included radio, television, internet, newspaper, E-mail, computer, telephone, (Social media apps) WhatsApp, Facebook, and telegram. However, radio was the most readily used ICT device which ranked 1st, followed by telephone which ranked 2nd, and television which ranked 3rd. It was also observed that ICTs facilitated easy access to sellers of Agricultural produce and increased the income of the produce dealers. Several factors constrained the use of ICT devices, among these factors, were lack of knowledge for using ICT devices which ranked 1st with a mean score of 2.3 while the unavailability of ICT centres for training purposes, erratic power supply for ICT, low level of education and low income of farmers to purchase ICT equipment were all ranked 2nd with mean of 2.1 respectively. This study thus recommended that the Agricultural Produce Dealers' Association should organize training programmes on the use of ICT devices to improve their knowledge and facilitate better marketing of Agricultural produce.

Keywords: Produce, Information, Dealers, Marketing

INTRODUCTION

The adoption and application of Information and Communication Technology (ICT) in the agricultural sector plays an important role as it helps to facilitate the transfer of knowledge, enhances agricultural productivity, and meet global food needs (Anyan and Frempong, 2018). Besides labour, land and capital, information is a key resource required for the growth of the agricultural sector, and the flow of information is facilitated using ICT. The introduction of ICT, better known as electronic agriculture (e-agriculture), has positively impacted agriculture and enhanced its all-round development without neglecting the marketing of agricultural produce. However, its level of usage determines to a large extent, the success that can be achieved with it (Eweoya et al., 2021).

E-agriculture is defined as an emerging practice that involves exchanging ideas, information, and resources to enhance the development of agriculture and rural development through the use of Information and Communication Technologies for sustainable agricultural practice (Food and Agriculture Organisation (FAO), 2005). ICT provides access to timely information, which enhances the efficiency of market interaction and strengthens the value chain. Aker and Mbiti (2010) posited that information flow is facilitated by ICT, and there is a reductio n in communication costs due to the enhanced communication between buyers and sellers. ICT increases market efficiency and production in the agricultural sector and enhances economic growth (Chavula, 2014) as its application has the tendency to synchronize data

between the suppliers and buyers and also facilitates the process of decision making. It also aids attitude change and promotes the adoption of skills (Chikaire et al., 2017). The marketing of agricultural products involves various interconnected activities from the point of production to the final consumer (Patel and Skula, 2014). The activities include production, harvesting, transportation, processing, packaging and so on, all of which cannot occur without the transfer of adequate information (Vadivelu and Kiran, 2013). ICT has a great influence on agricultural marketing because of the ease associated with traders getting information both on the products and buyers.

Furthermore, marketing has been plagued with restricted access to information among active players in rural communities. The lack or restricted access became predominant due to Information Communication Technology's dearth amongst farm group leaders and agricultural produce dealers who engages in buying and selling of agricultural crops and has led to huge losses for the dealers and everyone involved in the marketing process. It becomes important, then, to examine the role of ICT usage among agricultural produce dealers as it helps them to effectively market their agricultural produce (Krell et al., 2021). The level of education of agricultural dealers also affects to a great extent how they can utilize ICT tools to enhance the marketing of their agricultural produce. This implies that their ability to acquire, adopt, and utilize Information and Communication Technology platforms and networks greatly determine how they can harness them to market their agricultural produce and make

profits (Gavai, Musungwini, & Mugoniwa, 2018). Therefore, the use of ICTs supports agricultural extension services, because it can be very effective in delivering timely and relevant information to farmers, even to those in remote areas, hence this study;

1. described the socio-economic characteristics of the agricultural produce dealers
3. identified the ICT devices available and frequency of use among agricultural produce dealers for marketing agricultural produce.
4. investigated the effect of ICTs use in marketing among the agricultural produce dealers
5. identified the constraint faced by the produce dealers on the usage of ICT for marketing

Hypothesis of the study was stated that there is no significant relationship between the socioeconomic characteristics of the respondent and the ICTs usage for marketing among Agricultural produce dealers.

METHODOLOGY

The study area, Ogbomoso North Local Government Area (LGA) in Oyo state, Nigeria, is in the south-western part of Nigeria. It lies on the plateau of Yoruba land. The geographical location of this area is 4*10 1E of the Greenwich Meridian and 8*10 1 N of the equator (Ogunkan and Jelili, 2010)). It lies between Latitudes 8 05'N and 8 11'N Longitudes 4 12'E and 4 19'E. The terrain is gently undulating with sub-dendritic drainage pattern. The area is a derived savannah region It is the largest Local Government Area in the city, being the city's major economic nerve with a population of 198,859 people (National Population Commission (NPC), 2006). The LGA is bounded by Ogbomoso South, Orire and Surulere LGAs to the West and East respectively. The major occupation of the people is farming. The population of the study was all the Agricultural produce dealers in Ogbomoso North Local Government Area, Oyo State. The list of registered members of Nigeria Agricultural produce dealers Association in the LGA was obtained and simple random sampling technique was used to select respondents for the study. Through random sampling procedure, seventy percent of the 154 produce dealers on the list were selected, and it gave a total sample size of 108 produce dealers.

The dependent variable of this study was the use of ICTs for marketing among agricultural produce dealers and was measured as frequency of use on a four (4) point rating scale of regularly, occasionally, rarely, and never and scores were assigned values of 3, 2, 1 and 0 respectively. The cut-off point of 1.5 was generated as (3+2+1+0)/4. Data were analyzed using descriptive and inferential statistics. The descriptive tools used were frequency distribution, percentages, mean and ranking. While Pearson Product Moment Correlation (PPMC) analysis was used to test the relationship between selected socio-economic characteristics and the use of ICT by the produce dealers.

RESULTS AND DISCUSSION

Table 1 shows that majority (69.4%) of the respondents were male while 30.6% of the respondents were female. This result implies that both the male and female were involved in the produce business in the area; however, males were dominant among the agricultural produce dealers. About 45.0% of the respondents were married, 17.5% of the respondents were single, 9.3% were divorced while those separated and divorced were 13.9 respectively. This result implies that majority of the respondents were married and is similar to the findings of Chikaire, *et al*., (2017) on the effect of ICT where majority of the respondents were married. The average years spent schooling by the respondents was 6.1 years ± 3.93 while 13% did not have formal education. This result implies that majority of the respondents were literate though with a low level of education and are likely to be receptive to change and adoption of innovations like the use of ICT for their enterprise. Asiabaka (2002), stated that the resultant effect of lack of education is resistance to change regarding the spread of information on agricultural innovations that are meant to change the lives of farmers positively.

Also, 65.7% of the respondents were traders, 30.6% of the respondents were farmers while 3.7% of the respondents were artisans. This result implies that majority of the respondent were majorly into buying and selling various agricultural produce. The average age of the produce dealers was 35.5years ±7.4 implying that they were still in their active years. The result further shows that majority (91.7%) of the respondents were involved in Cashew trading, 75.9% were involved in trading Cocoa, 59.3%, 39.8% and 22.2% were involved in trading Maize, Soybeans and Rice paddy respectively while 14.8% of the respondent were involved in trading other kinds of crops such as millet and sorghum. This result implies that majority of the respondent were involved mostly in cashew trading which might be because of the high production and value chain activities in the study area (Aremu-Dele *et al.,* 2021). Also, more than half (50.9%) of the respondents had between 4-6 members, with an average of about 4 people in their household. This implies that majority of the respondents were registered members of an association. All (100.0%) the respondents were cosmopolite and travelled an average of five times in a month. deals

Table 1: Distribution of the Respondents by their Socio-economic Characteristics

Socio-economic characteristics	Frequency	Percentage	Mean (SD)
Sex			
Male	75	69.4	
Female	33	30.6	
Marital status			
Single		72.5	
Married	49	45.4	
Divorced	10	9.3	
Separated	15	13.9	
Widowed	1	13.9	
Years spent in school			
No formal education	14	13.0	
1-5	33	30.5	
6-10	42	38.9	6.12 years (±3.93)
11-15	14	13.0	
>15	5	4.6	
Major Occupation			
Farming	33	30.6	
Trading	71	67.5	
Artisans	4	3.7	
Civil servant	0	0	
Age			
≤30	28	25.8	
31-40	52	48.3	35.5years (±7.4)
41-50	26	24.2	
Above 50	2	1.9	
*Crop marketed			
Maize	64	59.3	
Cocoa	82	75.9	
Rice paddy	36	33.3	
Cashew	99	91.7	
Soy beans	43	39.8	
Palm kernel	24	22.2	
Other	16	14.8	
House hold size			
1-3	47	43.6	
4-6	55	50.9	4 people (±2)
Above 6	6	5.5	
Cospomoliteness			
Yes	108	100.0	
Travel out of your location			
<=6	84	77.8	
7-10	15	30.8	5 times (±5)
Above 10	9	8.4	

*Multiple responses; **SD**-Standard Deviation
Source: Field survey, 2021

Available ICT devices and social media applications used by the produce dealers

The produce dealers ranked Radio as 1st, Telephone was ranked 2nd and Television was ranked 3rd while on social media category WhatsApp was ranked 1st and Facebook was ranked 2nd possible because of the presence of the national body of the association on this social media. Newspaper and was ranked 6th, Computer and E-mail were ranked 8th, while Telegram use was ranked 10th. This implies that the most used devices by the produce dealers were radio and telephone. This study is in line with Singh *et al* (2015) and Chikaire (2018) who found that the most used devices were radio, telephone and television. Also, using a cut-off point of 1.5, the result implies the three ICTs mostly used by the dealers were Radio, Telephone and Television.

Table 2: Distribution of available ICT and social media applications used by the produce dealers

S/N	ICT devices	Always	Occasionally	Rarely	Never	Mean score	Category Ranking
1	Radio	2(1.9)	31(28.7)	75(69.4)	0(0)	2.7	1st
2	Television	12(11.1)	60(55.6)	34(31.5)	2(1.9)	2.2	3rd
3	Internet	41(38.0)	31(28.7)	4(3.7)	32(29.6)	1.1	4th
4	Newspaper	25(23.1)	21(19.4)	16(14.8)	46(42.6)	1.1	4th
5	E-mail	29(26.9)	19(17.6)	2(1.9)	58(53.7)	0.7	6th
6	Computer	28(25.9)	20(18.5)	3(2.8)	57(52.8)	0.7	6th
7	Telephone	3(2.8)	28(25.9)	75(69.4)	2(1.9)	2.6	2nd
	Social Media						
8	WhatsApp	8(7.4)	23(21.3)	55(50.9)	22(20.4)	2.0	1st
9	Facebook	21(19.4)	39(36.1)	26(24.1)	22(20.4)	1.6	2nd
10	Telegram	47(43.5)	6(5.6)	0(0)	55(50.9)	0.6	3rd

Source: Field Survey, 2021   **Cut-off point**=1.5

Effect of ICTs used in marketing among agricultural produce dealers produce

Easy access to sellers and buyers of Agricultural produce was ranked 1st with mean score of 2.6, increased income of Agricultural produce marketed was ranked 2nd with mean of 2.3, proper linkage with the produce buyers, fast linkage with the buying agents as intermediary in distribution of Agricultural produce, proper linkage with producer of agricultural produce, finding new buyers and timely information on government schemes were all ranked 3rd with mean of 2.2 respectively, while reduction of stress involved in business transactions was ranked 4th with mean of 2.1. This is like the findings of Chavula (2014) that ICTs helps to provide timely information. This implies that the highest effect of ICT usage was easy access to sellers of agricultural produce leading to increase in the income of agricultural produce dealers.

Table 3 Distribution according to the effect of ICTs use in marketing among crop produce sellers and buyers

S/no	Effect of ICTs usage	High effect	Moderate effect	Low effect	No effect	Mean	Rank
1	Easy access to sellers of agricultural produce	65(60.2)	38(35.2)	4(3.7)	1(0.9)	2.6	1st
2	Increase the income of the agricultural produce marketers	49(45.4)	42(38.9)	17(15.7)	0(0)	2.3	2nd
3	Finding new buyers	39(36.1)	51(47.2)	16(14.8)	2(1.9)	2.2	3rd
4	Proper linkage with the produce buyers	18(16.7)	51(47.2)	39 (36.1)	0.0	2.2	3rd
5	Fast link with the buying agents	21 19.4	43 (39.8)	44 (40.7)	0.0	2.2	3rd
6	Proper linkage with producer of agricultural produce	32(29.6)	68(63.0)	8(7.4)	0(0)	2.2	3rd
7	Timely information on government schemes	39(36.1)	48(44.4)	20(18.5)	1(0.9)	2.2	3rd
8	Reduction of stress involved in business transactions	28(25.9)	63(58.3)	16(14.8)	1(0.9)	2.1	4th

Source: Field survey data, 2021

Constraints faced by the Agricultural produce dealers in the use of ICT

Lack of knowledge for using ICT devices was ranked 1st constraint faced by the dealers in their use of ICT for marketing. The dealers also expressed that their lack of training on how to handle ICT, erratic power supply, low level of education and inability to purchase sophisticated ICT due to low income makes it difficult for them to use ICTs and were all ranked 2nd respectively. Also, high cost of ICT facilities, inability to understand the language used to package information about phone usage which are usually in English language because their years of schooling was low and might be that they cannot read the instruction for the use of the ICT. The produce dealers further indicated that unavailability of ICT centres for training purposes limits their use of ICT (Table 4).

Using a cut-off point of 1.5 reveals that the produce dealers were aware that authentic agricultural information exists and they are aware that every needed information exits. This shows that all the perceived constraint listed above, affect respondents' use of ICT devices, however some pose greater hindrance while others are less important constraints. This study is in line with the claims of FAO (2005), that the distribution of information is limited by the lack of the help of trained personnel.

Table 4: Distribution according to the constraints facing the produce dealers on the usage of ICT

SN	Constraints	Very severe	Severe	Mild	Not a constraint	Mean	Rank
1	Lack of knowledge for using ICT devices	55(50.9)	31(28.7)	16(14.8)	6(5.6)	2.3	1st
2	Erratic power supply for ICT use	57(52.8)	20(18.5)	18(16.7)	13(12.0)	2.1	2nd
3	Low level of education	31(28.7)	64(59.3)	6(5.6)	7(6.5)	2.1	2nd
4	Low income of farmers for the purchasing of some ICT equipment	33(30.6)	57(52.8)	11(10.2)	7(6.5)	2.1	2nd
5	Lack of ICT training	50(46.3)	33(30.6)	14(13.0)	11(10.2)	2.1	2nd
6	Language barrier	46(42.6)	26(24.1)	21(19.4)	15(13.9)	2.0	6th
7	High cost of ICT facilities	33(30.6)	55(50.9)	10(9.3)	10(9.3)	2.0	6th
8	Unavailability of ICT centers for training purposes	42(38.9)	28(25.9)	22(20.4)	16(14.8)	2.0	6th
9	Inadequate agricultural information	21(19.4)	23(21.3)	43(39.8)	21(19.4)	1.4	9th
10	Lack of awareness of information	18(16.7)	13(12.0)	46(42.6)	31(28.7)	1.2	10th

Source: Field survey data, 2021

Test for hypothesis
The result of the analysis in table 5 shows that among all the selected socio-economics characteristics, years spent in school (r= 0.248, p≥ 0.05) and number of travels made by the produce dealers out of their location (r= 0.361, p≥0.05) were both significant. This implies the higher the number of years spent schooling the more the produce dealers will use ICT because they will be able to read and follow instruction on how to use ICTs. Also, the more they travel outside their location the more they use ICTs. This might be because as they travel and meet people who knows how to use ICT they possibly learn from them. Age (r=-0.094, $p \le 0.05$) and household size household size (r= 0.180, p≥ 0.05) were not significant.

Table 5: Result of Pearson Product Moment Correlation (PPMC)

Variables	Correlation coefficient (*r*)	*p*-value	Remarks	Decision
Age	-0.094	0.333	Not significant	Accept
Years spent in school	0.248*	0.010	Significant	Reject
household size	0.180	0.062	Not significant	Accept
Times travelled	0.361*	0.000	Significant	Reject

Source; Field survey data 2021

Hypothesis testing for relationship between socioeconomic characteristics of the produce dealers and their use ICT

p – Level of significance = 0.05
Decision criteria – When p ≤ 0.05, reject H$_0$

CONCLUSION AND RECOMMENDATIONS
The study concludes that the most used ICTs by the produce dealers who were in their active years with few years of schooling were radio, telephone and television and acknowledged that easy access to sellers of agricultural produce and increased income of the agricultural produce marketers were the effect of ICT usage in their business. Furthermore, the study established that there were many constraints inhibiting the use of ICT and this include lack of knowledge for using ICT devices, erratic power supply for ICT use, low level of education, low income of farmers for purchasing some ICT equipment and lack of ICT training. It is therefore recommended that;

1. The Agricultural Produce Dealers' Association should organize training programmes on the use of ICT devices to improve their knowledge and to facilitate better marketing of Agricultural produce.
2. The association should partner with Government and organise adult literacy progamme to educate the produce dealers to be able to have requisite skill required for information management.

3. Agricultural Extension Agencies should work with the association to know how best to package the information to be disseminated.

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