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CHALLENGES FACED BY COCOYAM FARMERS IN ACCESSING AND UTILIZING INFORMATION AND COMMUNICATION TECHNOLOGIES IN JOS SOUTH LOCAL GOVERNMENT AREA, PLATEAU STATE, NIGERIA

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Abstract
The research was conducted in Jos South Local Government Area of Plateau State, Nigeria to assess challenges faced by cocoyam farmers in accessing and utilizing ICT devices. Questionnaire was used to collect data from a sample size of 118 cocoyam farmers in the four districts of the study area using purposive sampling technique. The respondents' mean age was 35years, about 50.8% of the respondents were married, with household size of 7 persons. Majority (95.8%) of the respondents had one form of formal education or the other and 7 years of farming experience. Results further indicate that the respondents had high level accessibility and utilization of mobile phone ($\bar{x}$= 4.08) ($\bar{x}$= 3.86), radio ($\bar{x}$= 3.96) ($\bar{x}$= 3.72) and television ($\bar{x}$= 3.25) ($\bar{x}$= 3.66); but internet (x=3.04) ($\bar{x}$= 2.72) had a high level accessibility and a low level of utilization. Nonetheless, other ICT devices available in the area such as prints/libraries ($\bar{x}$=2.83) ($\bar{x}$= 2.69), information kiosk ($\bar{x}$=2.56) ($\bar{x}$= 2.61) and video machine (x=2.21) (x=1.47) had low level of accessibility and utilization by the farmers. Data also revealed that personnel (x= 3.56) among others were the challenges faced by cocoyam farmers in accessing and utilizing ICTs by cocoyam farmers in the study area. The study recommends that rural infrastructure especially electricity should be improved upon, provision of stable power supply, ICT training centres should be established by the community stakeholders to facilitate effective agricultural extension service delivery within the study area.

Keywords: Challenges, Cocoyam, farmers, Accessing, Utilizing, ICTs .

1.0 Introduction

Cocoyam, a herbaceous perennial plant belongs to the family Araceae and is grown largely for its starchy edible roots, though all its parts are edible. It is an important crop in the tropics that lines among staple food after cassava and yam (Enwelu et al., 2014). The bulk of its production is in Africa, with West and Central Africa, notably, Nigeria, Ghana,

and Cameroon contributing to over 60% of the total African production (Onyeka, 2014). Nigeria ranks world largest producer of cocoyam with an annual production of 5.49 million metric tonns, equivalent to 45.9% of world production and 72.2% total output in West Africa (NRCRI, 2021). However, the bulk of cocoyam production is in the Southern Nigeria (Ezeh, 2013); nonetheless considerable cultivation of cocoyam is also carried out in other parts of the country, especially in the North Central Nigeria, Plateau State in particular. Cocoyam ranks third in importance among the root and tuber crops cultivated and consumed in Nigeria. It is grown for its corm, which is consumed after boiling, frying or roasting (Enwelu et al., 2014).

Cocoyam is among the world's most important root and tuber crops (Food and Agriculture Organization (FAO), 2012). Falade and Okafor (2013) revealed that cocoyam is one of the under exploited tropical plants with promising values. It is grown for home and industrial use, sale and as planting material and it's generally grown by both men and women. It is generally farmed by rustic farmers, who operate within the subsistence economy and most of what is produced is used up locally (Okoye and Onyenweaku, 2006). Among the major tropical root and tuber crops: yam, cassava, potato, cocoyam is the most obscured in many respects, first the total area cultivated and tonnage produced, secondly the average global yield per hectare is much lower than the other tuber crops; thirdly, it is the most restricted in terms of the ecologies in which it can be grown and fourthly cocoyam cultivation in the humid forest has a low status in most of the producing areas; unvaryingly, there is no reputation accompanying cocoyam consumption (Onwele and Charles, 2013; Onyeka, 2014).

In the past decades, Nigeria's agricultural sector had experienced steady decline in productivity. However, in recent times, indices have shown that the sector has started experiencing a steady but slow growth (Oladipo, 2013). This growth was necessitated by

population growth, changing climate and technology needs (Henri-Ukoha et al., 2012). Although, in Nigeria, cocoyam production and processing do not keep pace with other major root and tuber crops, it is still cultivated far below potential yield. Cocoyam farmers are considered the most impoverished in many societies with minimum access to resources and little control over decisions that affect their lives; consequently, they are placed on the wrong side of digital device, with limited access and use over information and communication technologies (Jayita et al., 2017).

Information and communication technologies (ICTs) are umbrella that encompasses any communication device or application, comprising radio, television, cellular phones, computer and network, hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as video conferencing and distance learning (Omotayo, 2005). They are devices that aid in communication among people using electronic means for capturing, processing, storing and disseminating information as well as services and applications that are involved in the management of information, thereby facilitating communication quickly and easily. ICTs are significant devices that play important role in assisting rural development among the developing nations (Jayita et al., 2017). Emenari (2004) proposed ICT as one of the main driving forces that can convey development, change and great transformation in the lives of people, especially in developing nations.

According to Nwajinka (2004), ICTs are requisite technologies for development in all sectors of agriculture and a major structure in social and economic development in developing nations like Nigeria, where interconnectivities and information flow can be established between rural communities and the more developed regions. Quaye et al. (2010) declared that ICTs are what rural inhabitants need to climb to the heights developed regions had reached; as they are helpful in empowering farmers through

knowledge and building their capacity to receive rural and agricultural development goals. The introduction of ICTs is conveying modifications to traditional agriculture and contributing to substantial progress in agricultural productivity and sustainability; empowering farmers with right information at the right time and places essential information for improving the efficiency and viability of small marginal holdings (Gbughemobi et al., 2021).

ICT also creates supports throughout value chains, especially through increased access to more effective information through many smartphone apps (Jayita et al., 2017). Access to information holds the key to successful agricultural development (Gbughemobi et al., 2021). Access thus, refers to the ways and means in which individuals, communities and institutions are exposed to the use of ICT which considers such elements as affordability and availability of the technologies. Information and Communication Technologies (ICTs) usage in Nigeria has gone a long way, but despite its existence, there exists limited access and usage of the technologies among cocoyam farmers, particularly in Jos South LGA. Cocoyam farming system is a fundamental aspect of rural economy associated with rural development, which focuses on elevating cocoyam farmers' contributions towards economic and social enhancement through agriculture.

ICT's major role in agriculture is to disseminate agriculture related information and to trade farmers' produce (Onyeka, 2014; Jayita et al., 2017); thus ICT is fundamental in boosting farmers' aptitude to feeding the nation in a sustainable way.

2.0 Objectives of the Study

This study however, assessed the challenges faced by cocoyam farmers in accessibility and utilization of ICTs in Jos South LGA, Plateau State, Nigeria. Specifically, the study intends to:

i. describe the socio-economic characteristics of the respondents;

ii. determine the level of accessibility and utilization of ICT facilities by the respondents and

iii. identify constraints faced by farmers in accessing and utilizing of ICTs in the study area.

3.0 Methodology

The research work was carried out in Jos South Local Government Area (LGA). Jos South LGA is one of the seventeen LGAs in Plateau State, Nigeria and has four (4) districts including: Du, Gyel, Kuru and Vwang with its headquarters in Bukuru. The major ethnic group in the LGA is Berom, besides other minor settlers like the Hausas, Yorubas and Igbos among others. Jos South LGA is located between latitudes 9^{o} 30^{1} to 10^{o} N and longitude 8^{o} 3^{1}E and has an estimated population of about 306,716 (National Population Commission (NPC), 2006).

Agriculture forms the major livelihood activity of the indigenes, with more than 75% of the population engaging in it. They also engage in petty trading, hunting, mining and brewery of local drinks. Common crops grown in the area include 'acha', potato, millet, sorghum, maize, cocoyam and beans among others. Cattle, small ruminant rearing, piggery and poultry farming are worthwhile businesses in the area.

The population of this study involved all farmers who grow cocoyam in the study area. Thirty (30) cocoyam farmers from each of the four (4) districts in the LGA were purposively selected to give a sample size of hundred and twenty (120) respondents for the study. The farmers were selected because among farmers in the study area, these were specifically into cocoyam production. Structured questionnaire was used for data collection. Two copies of the questionnaire were not filled properly and which were discarded in the course of data analysis, leaving a total of one hundred and eighteen (118)

copies, which were used for the analysis. Data were analyzed using frequency, percentage, mean score, and standard deviation.

4.0 Results and Discussion

4.1 Socio-economic Characteristics of Respondents

Table 1 shows that most (53.4%) of the respondents were females, while 46.6% were males. This impliess that cocoyam production in the study area is carried out by both women and men although it is mostly grown by women. This is in agreement with Tokula & Ekwe (2009), who stated that cocoyam is generally grown by both men and women, but in some areas, it is grown mostly by women in demarcated areas. The mean age of the respondents was 35 years. This implies that the respondents were young people, energetic and in their productive age. This finding is in line with Ajayi *et al.* (2008) who reiterated that the active ages of 40 years are mostly the labor force engaged in food production.

Table 1 also shows that most (50.8%) of the respondents were married. This implies that married people were more involved in cocoyam production in the study area, demonstrating that married people engage in any viable economic activities. This coincides with Nto et al. (2014) who observed that married people are responsible and can diversify their sources in order to generate income. However, Mbah et al. (2022) corroborated that 80 % of rural farmer were married.

Table 1 further revealed that majority (95.8%) of the respondents had one form of formal education or the other, while about 4.2%of the farmers had non-formal education. The finding entails that the respondents were literate enough and can access new technologies that will improve cocoyam production. The result indicates that level of formal education affects access to ICTs in the study area.. According to Ezeh (2013), literate individuals are keen to acquire and utilize information.

Table 1 also revealed that the average farming experience of the respondents was 7 years, which was quite a long time. This implies that the respondents had gained some levels of experiences in cocoyam farming and if properly equipped with required technical information and guidance, will do well in their production endeavours. Several years of farming experience is an added advantage that will help farmers improve on methods and skills used in production, thus farmers with many years of farming experience are more willing to adjustment towards accepting current recommended technologies. This aligns with Ezeh (2013) who reiterated that the higher the farming experience, the more farmers would have gained more knowledge and technological ideas on how to tackle farming production problems and the higher would be their output and income.

Table 1: Socio-economic Characteristics of the Respondents (n = 118)

Parameters	Frequency	Percentage	Mean
Sex			
Male	55	46.6	
Female	63	53.4	
Age (Years)			
≤ 30	49	41.6	
31-45	45	38.2	34.6
46-60	21	17.8	
61-75	3	2.5	
Marital Status			
Single	48	40.7	
Married	60	50.8	
Divorce	4	3.4	
Widow	6	5.1	
Level of Educational			
Primary Education	23	19.5	
Secondary Education	61	51.7	
Tertiary Education	29	24.6	
Non-Formal Education	5	4.2	
Farming Experience (Years)			
≤ 5	35	29.7	
6-10	50	42.3	7.0
11-15	21	17.8	
16- above	12	10.2	

4.2 Level of Accessibility and Utilization of ICTs by Cocoyam Farmers in Jos South LGA, Plateau State.

Table 2 shows that ICT devices such as Mobile phone ($\bar{x}$= 4.08) ($\bar{x}$= 3.86), Radio ($\bar{x}$= 3.96) ($\bar{x}$= 3.72), Television ($\bar{x}$=3.25) ($\bar{x}$= 3.66) and Audio cassette ($\bar{x}$=17) ($\bar{x}$= 3.04) had high accessibility and utilization, respectively in the study area; This implies that the

respondents had high level of accessibility and utilization of the conventional (old) ICTs, which are mobile phone, radio, television and audio cassette; however, internet ($\bar{x}$= 3.04) ($\bar{x}$= 2.72) was accessible but not highly utilized, while computer ($\bar{x}$= 2.91) (x= 2.77), Prints/Libraries ($\bar{x}$= 2.83) ($\bar{x}$= 2.69), information kiosk ($\bar{x}$= 2.56) ($\bar{x}$= 2.61) and video machines ($\bar{x}$= 2.21) ($\bar{x}$= 1.47) had low accessibility and utilization.

Although cocoyam farmers in the study area had high level of accessibility and utilization to the available conventional ICT devices, contemporary (modern) ICT tools such as internet computers, video machine among others had low level of accessibility and utilization. Conclusively, there was a general low level of accessibility and utilization of available ICT devices by cocoyam farmers in the study area. The findings support the declaration of Gbughemobi *et al.* (2021) that 95% of farmers had access to conventional ICTs such as Radio, Television and Mobile phone.

Table 2: **Level of Accessibility and Utilization of ICTs by Cocoyam Farmers in Jos South LGA, Plateau State (n=118)**

Variables	Accessibility		Utilization	
	Mean Score	Standard Deviation	Mean Score	Standard Deviation
Mobile phone	4.08	1.14	3.86	1.11
Radio	3.96	1.15	3.72	1.27
Television	3.25	0.13	3.66	1.11
Audio cassette	3.17	1.09	3.04	1.17
Internet	3.04	1.24	2.72	0.94
Computer	2.91	1.37	2.77	0.84
Prints/Libraries	2.83	0.96	2.69	0.45
Information kiosk	2.56	1.32	2.61	1.28
Video machines	2.21	0.74	1.47	1.37
Official e-mail address	2.09	1.88		
Cut – off Mean	x = 3.00		x = 3.0	

4.3 Constraints faced by cocoyam farmers in accessing and utilizing ICTs in Jos South LGA.

Constraints faced by cocoyam farmers in accessing and utilizing ICTs in the study area include lack of technical personnel ($\bar{x}$=3.95), low level of education ($\bar{x}$=3.70), poor power supply ($\bar{x}$=3.67), farmers' perception ($\bar{x}$=3.60), farmers' cultural background ($\bar{x}$=3.56), farmers' resistance to new tools ($\bar{x}$=3.55), rural poverty ($\bar{x}$=3.51), lack of technical know-how ($\bar{x}$=3.42), and illiteracy ($\bar{x}$=3.39) among others (Table 3). This implies that cocoyam farmers in the study area were bedeviled by cultural, socio-economic and technical challenges. This result agrees with Salamanca (2008) who stated that lack of infrastructure in developing countries, slow incorporation of ICTs in rural communities and the need for skills associated with the use of new technologies by rural communities and stakeholders were constraints to ICT accessibility.

Table 3: Constraints faced by cocoyam farmers in access of ICTs in Jos South LGA

Challenges	Mean Score	Standard Deviation
Cultural background of the rural community	3.56	0.60
Farmer perception of the scanty usefulness of ICT	3.60	0.19
Harmonization of knowledge and language	3.10	0.65
Inadequate ICTfacilities	3.29	1.04
Insufficient infrastructure	3.36	0.85
Lack of personnel	3.95	0.83
Lack of resources	3.29	0.73
Level of education	3.70.	0.34
Limited digital know-how	3.42	0.87
Low level of incorporation of ICT in rural communities	3.85	0.54
High level of rural poverty	3.51	1.273
High level of illiteracy	3.39	1.133
Instable power supply	3.67	1.192
Resistance to new tools	3.55	0.27
High cost of service (repairs)	4.10	4.76524
Poor funding of extension program	3.72	1.08514

Cut –off mean ($\bar{x}$ = 3.00)

5.0 Conclusion and Recommendations

5.1 Conclusion

Majority of the respondents were females, young, married, literate and experienced in cocoyam farming. There was high level of accessibility and utilization of mobile phone, radio and television among the cocoyam farmers. However, while internet had high level of accessibility and low level of utilization, other ICT devices such as computer, print and libraries, video machines and e-mail had both low level of accessibility and utilization. Challenges faced by cocoyam farmers in accessing and utilizing ICTs in the study area included personnel, level of education, power supply, farmers' perception, cultural background, rural poverty, illiteracy among others.

5.2 Recommendations

The study recommends the need for improvement in rural infrastructure, especially electricity for stable power supply. There is need to provide training centres to necessitate well-organized agricultural extension service delivery within the LGA. Finally cocoyam farmers should be encouraged to adopt contemporary ICTs such as computer linked internets, libraries and e-mails as to promote effective agricultural extension service delivery in the study area.

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