# Information Communication to Rural Cassava Farmers in Nigeria: A Pilot Study

**Chimezie P Uzuegbu[1] & Moses M. Naga[2]**
Department of Library and Information Science, Michael Okpara University of Agriculture, Umudike, Nigeria[1]. Department of Library and Information Science, North Eastern Hill University, Shillong, India[2].

**Abstract**

**Purpose:** *This paper evaluated the effectiveness of information communication sources and channels through which rural cassava farmers get information, and substantiate it with their level of awareness, access and use for publicly available to cassava farming inputs in Nigeria.*

**Design/Methodology/Approach:** *The survey research design was adopted for the study. One hundred and thirty-one cassava farming households, drawn from sixty-eight (68) villages under Olokoro Clan in Abia State of Nigeria were selected for the study. A structured interview schedule was used to collect data. Quantitative and qualitative approach was used to analyse data.*

**Findings:** *The study finds that cassava farmers' awareness, access and use of cassava farming inputs is poor despite the accessibility of thirteen information communication sources and channels available in the villages studied. They include friends and relatives, mobile phones, newspapers, agricultural workshops/seminars/conferences, agricultural extension workers, radio, churches, Internet, farm demonstrations, television (TV), village leadership, education and research institutions, and posters/handbills/billboards.*

**Practical Implication:** *Discussion of the findings shows that the listed information communication sources and channels are not effective for communicating farming-related information to rural farmers in Nigeria. This underscores the need for experimental studies that will explore practicable methods of improving effective information use among rural farmers in Nigeria and other developing countries.*

**Originality/Value:** *This paper is the first of its kind to evaluate the effectiveness of various information communication sources and channels available for communicating farming-related information to rural farmers in Nigeria.*

***Keywords:*** *Information communication, information communication channels, rural cassava farmers*

## Introduction

Information communication is used in this paper to refer to various sources and channels through which rural cassava farmers become aware, effectively access and utilise information on cassava farming inputs. Sources and channels are intertwined avenues of communicating and receiving information. They encompass man, institutions, technology and systems. Information communication is effective when it results in complete understanding on the side of information receiver and generates corresponding feedback. An effective feedback cycles on participatory interaction, consequent clarification, access and utilisation of information, creation of knowledge and vice versa. This paper appraises the effectiveness of information communication using level of awareness, access and use of information.

In Nigeria where cassava is a staple crop and many rural farmers are into cassava farming, awareness of, access to and use of right information pertaining to cassava farming is a great necessity to rural farmers. Communicating information to rural cassava farmers on cassava farming inputs such as the health and economic reasons for preferring new cassava varieties, where and how to access improved cassava cuttings, the right method of planting improved cassava cuttings, how to secure agricultural loans and access other available inputs is imperative. This has become more crucial as the global market on cassava products look up to Nigeria to lead the export market. Unfortunately, Nigeria, the largest producer of cassava, is one of the least exporters of cassava products (FAOSTAT, 2012) despite the suitability of soil and climatic conditions of the country for cassava farming. Consequently, the Nigerian government is committed to address this worrisome situation. Remarkably, a funded collaborative effort of Nigerian scientists and international agricultural-based organisations led to the propagation of an improved cassava variety called pro-vitamin A cassava in

2012. The cuttings of this improved cassava variety has been multiplied by root and tuber crop institutions in Nigeria and is in circulation to cassava farmers across the country.

Irrespective of this effort, the rural cassava farmers who happen to be the main cultivators of cassava in Nigeria (Adesina, 2013) are still subsistence farmers farming only for their daily needs. This is a problem and has been linked to several factors by researchers and policy makers. Okogbenin et al. (2012) opine that the problem is rooted in lack of information and knowledge of best farm practices associated with improved cassava varieties. Adesina (2013) links the situation to scarcity and cost effective nature of fertilizers as well as inaccessibility of pro-vitamin A cassava cuttings. Asante-Pok (2013) maintains that providing post-harvest technology and reliable market structure are viable solutions to the problem. Amidst these, emphasis has made on the need to provide effective information services to cassava farmers in Nigeria (Ajani & Onwubuya, 2013; Akinnagbe, 2010; Afolami, Obayelu & Vaughan, 2015; Donkor & Owusu-Sekyere, 2014; Okwoche & Asogwa, 2012; Omoregbee & Banmeke, 2014). The emphasis is very important now that the Nigerian government has launched several farming inputs to assist cassava farmers, especially the farmers in rural areas. Some of the key inputs include: subsidised pro-vitamin A cassava stem cuttings; subsidised urea and NPK (Nitrogen, Phosphorus and Potassium) fertilizers; loan facilities; and new farming methods and innovative post-harvest practices.

**Statement of the problem**

In spite of the availability of these inputs, even as they are publicised through television, radio, newspapers and other related channels, anecdotal observation shows that many cassava farmers in rural areas are not cultivating the pro-vitamin A cassava cuttings on their farms. Theirmajor reason is that they have not heard about the pro vitamin A cassava variety. The few farmers that have heard about it are yet to access the cuttings. With this happening, no one knows how far rural cassava farmers are even aware of the publicly available inputs let alone accessing and utilising them. Yet, there is no available scientific paper to describe the situation. This obvious gap, therefore, suggest the need for pilot study in order to understand the problem, get a glance of the information environment of rural cassava farmers in Nigeria, and determine the scope of research required, if there will be need for any.

**Objectives**: this paper seeks to achieve two specific objectives:

i. find out the information communication sources and channels through which rural cassava farmers know about cassava farming-related information

ii. assess the effectiveness of the information communication sources and channels vis-à-vis cassava farmers' extent of awareness, access to and use of publicly available cassava farming inputs in Nigeria

**Literature Review**

Information need is a natural phenomenon that is triggered by several factors beyond cognition, psychology and emotion (Wilson, 2006). Information need, the upshot of information seeking, is most times influenced by changes in the society that bring about information and its accompanying importance. The availability of such information and its relevant purpose constitute the state of information need among people and lead to information seeking (Prasad, 2000). Meanwhile, information sources and channels through which people seek for information varies given to biographical variables. Age, gender, occupation, education, culture, tradition, environment, amongst others are the possible factors that influence peoples' choice and suitability of information communication sources and channels. However, this review is not concerned with the activities of these variables but loops on literatures that discuss information communication sources and channels vis-à-vis their effectiveness in communicating farming-related information to rural farmers in developing countries like Nigeria.

Current and available studies provide insights into assorted sources and channels of information communication to farmers in Nigeria and other developing countries. The studies of Umunna (2008), Lwoga, Stilwell & Ngulube, (2011), Okwu and Daudu (2011), Uzuegbu (2016) contain lists of diverse information communication sources and channels of rural farmers. This review identifies some the various listings, separates duplicate items and discusses them in view of their

effectiveness in communicating farming-related information to rural farmers.

Farmers' friends and relatives is the first source of information identified in this review. Rural farmers depend mainly on their family members, neighbours and colleagues to access farming-related information (Lwoga, Stilwell & Ngulube, 2011). Friends and relatives manifest what Okwu and Daudu (2011) identified as part of interpersonal channels of information communication. Its effectiveness depends on the individual ability of farmers to interact with others. In rural settings the most obvious form of this communication method occur as face-to-face verbal interactions. Scholars in medical science find this method of communication effective but laments on its cost and time consuming implications (Shannon, 2012; Shannon & Myers, 2012).

Agricultural extension workers are staff of agricultural institutions recruited, trained and deployed to rural communities to propagate innovative farming methods and practices (Ayoola, 2001; Iwuchukwu & Igbokwe, 2005). This is the situation in Nigeria as well as in other developing countries. In Nigeria, Umunna (2008) finds that rural farmers depend more on agricultural extension workers for information access, contrary to the report of Anderson and Feder (2004) who find agricultural extension services ineffective for transforming rural farming in developing countries. In corroborating the latter, researchers have outlined the reasons for the ineffectiveness of agricultural extension workers to include poor education background (Aina, 2007; Chukwuemeka & Nzewi, 2011; Vidanapathirana, 2012), use of unsuitable communication strategies (Uzuegbu, 2016), job conditions of extension workers, particularly on the quotient of farmers and villages extension workers are required to cover (Agbamu, 2005; Iwuchukwu & Igbokwe, 2012; Vidanapathirana, 2012).

Television (TV) is consistently listed as an information channel or source to all rural dwellers (Bachhav, 2012; Bello and Obinne, 2012; Ekoja, 2003; Elly and Silayo, 2013; Ifukor, 2013; Jones, 1990; Kamba, 2009; Meyer, 2004; Ojiambo, 1990; Talbot, 1998). TVs are audio-visual technologies which appeal to the senses of sight and hearing (Koumi, 1994). However, Uzuegbu (2016) doubts the effectiveness of TVs in communicating farming-relating information to rural dwellers as he writes thus:

> *TVs are audio-visual information resources. They enhance creativity and leave emotional feelings with the audience. Likewise, they allow flexibility as users can watch any TV channel of their choice. Yet, TV contents revolve around music, drama, news, announcements and advertisements. Besides, TV requires one's attention to watch it and therefore may not be utilized more by busy people such as rural dwellers… Moreover, where there is no electricity or power supply the use of TV as a channel of information service delivery is largely defeated. And this is exactly the situation in many rural communities… Remarkably therefore, TV is not likely to be a very effective information delivery channel to rural dwellers, especially because its programmes would not effectively address the peculiar information needs of rural dwellersin Sub-Saharan Africa. (Uzuegbu, 2016, pp. 51-52).*

Another information communication channel that is frequently associated to rural farmers is the radio. Radios are electronic media. They are cheap as compared to TVs, and are flexible to use. Using a radio allows convenience in that one can tune in to prefer stations and listen to news and programmes at workplaces, homes, in cars while on transit and in other places (Kellow & Steeves, 1998). Nevertheless, the sparing use of radio as information source among rural farmers in developing countries has been spotted in several studies. Perhaps, if not for the oral nature of radio, its low cost and independence of electricity (Lwoga, Stilwell & Ngulube, 2011), there might not be traces of its use among rural farmers. The negligible use of radio among rural farmers is notable and arouses the need to find out why it cannot be depended upon for effective information communication to rural farmers. First, Hu, Keller and Fleming (1989) point to the problem of language, arguing that language of communication in radio programmes may not be understood by the listener. It is for this reason that researchers are suggesting that radio programmes should be redesigned to satisfy rural peoples' information needs (Nakabugu, 2001; Nazari & Hasbullah, 2008). This means that radio programmes must take cognizance of

the information relevant to rural farmers, consider their dialect, literacy level and so forth. Secondly, Ekoja (2003) writes that since radio allows individuals to tune into frequency bands and/or stations of their choice, it cannot guarantee uniformity of information received by rural farmers. Uzuegbu (2016) opines that the tendency to become distracted on what is being communicated on the radio at one time or the other cannot be ignored given to the fact that people often listen to radio when they are working.

Information communication technology (ICT) derivatives such as mobile telephones, Internet, email services and others has been perceived as potent tools for communicating agricultural-related information to rural farmers in developing countries (Kalusopa, 2005; Gakuru, Winters & Stepman, 2009). Mobile telephones in particular are valuable assets of this age (Maral & Bousquet, 2009). With mobile telephones, people connect to and speak with anybody on the globe possessing same gadget and connected to a network. Nowadays, researches make mention of mobile telephones when studying rural farmers' information communication sources and channels. But, the impact of mobile telephones on farmers' access to farming information has not been specifically studied. However, in Tanzania, a cluster of ICT tools accessible to rural farmers have been assessed and mobile phones as well as the Internet and e-mail services were found to be less utilised by rural farmers (Lwoga, Stilwell & Ngulube, 2011). This situation coincides with Uzuegbu's (2016) submission that ICT-related tools cannot be depended upon to supply farming-related information to rural dwellers in Sub-Saharan Africa.

Okwu and Daudu (2011) listed opinion leaders as source of information for rural farmers. From their description, opinion leaders are not different from what can be regarded as village leaders, village chiefs, traditional heads or other titles appropriate for describing people appointed to lead a community of rural dwellers, represent them and/or take decisions on their behalf. Characteristically, this category of people can strengthen information communication to their denizens. They pass down information through their town criers – a category of people that is better described in the following excerpt from Apata and Ogunrewo (2010):

> *Several channels and methodology are being use to bring information to audience; such as the media, internets, institutions, social functions, Town-criers, but in the traditional African settings where most residence are illiterates the mode of passing information to such categories of people are through "Town-criers" (City of East Yorkshire, 2007). This medium of information dissemination is found to be effective, cheap, simple and reliable (Abraham, 2009). The uses of Town Criers are still in vogue in some traditional towns and villages in Africa and some part of the Caribbean (Meyer, 2005)*

Presently in Nigerian villages, these category of people – village leaders and their town criers – are active and cannot be ignored because they exercise reasonable influence on the information environment of rural people, taking advantage of the communal structure of rural life – that is, the collective style of living that makes rural people distinct (Uzuegbu, 2014).

Books, newspapers, brochures, farm manuals, newsletters and other types of print information resources have also been considered as potential information sources and channels for rural farmers. However, researchers opine that print resources, which naturally require formal education and the ability to read, especially in English, are not appropriate for rural dwellers (Aderibigbe, 1990; Aina, 2007; Dosa, 1985; FAO, 2005; Saracevic, 1986). This implies that print information resources would not be effective for information communication to rural farmers regardless of the quality of information they may contain and how regular they appear in studies on rural farmers' information sources.

Researchers have also itemised agricultural workshops, seminar and conference programmes as well as farm demonstrations or exhibition exercises as means by which rural farmers access agricultural-related information (Okwu and Daudu, 2011; Umunna, 2008). By nature, these sources are training-oriented (Uzuegbu, 2016). Communicating information through these channels deploys the face-to-face interaction method or the electronic approach. The former is considered effective when communicating information to rural farmers because it allows for questions and interactions between resource persons and participants

(Herod, 2001; Marsapa and Narinb, 2009; Talbot, 1998). But there is no available study to show how this has worked on rural farmers' effective access and utilisation of farming-related information.

Other miscellaneous sources through which rural farmers access farming-related information include signs and symbols (oral or visual), emblems, diagrams, pictures and posters, handbills, billboards, etc. They constitute the indirect methods of communicating information (Belch & Belch, 2004; Bhatia, 2000) and might not be reliable because of their covert nature. Besides, there is no study to show the impact of one or more of these miscellaneous channels on rural farmers' effective access to farming-related information.

## 1. Method

Survey research design was employed for this study. The researchers purposively selected sixty-eight (68) villages under Olokoro Clan in Abia State of Nigeria (See Fig. 1.) The main reason for the purposive selection is to avoid information misrepresentation. As well, the researchers' knowledge of farmers' dialect and terrains in the villages was imperative. From a total of two thousand three hundred and eighty-seven (2,387) cassava farming households identified in sixty-eight (68) villages, one hundred and thirty-one (131) cassava farming households were selected across the villages as sample population. This sample represents 10% of the entire population, at an error margin of 5% and confidence level of 95% (http://www.select-statistics.co.uk/sample-size-calculator-proportion).

In this study, household participation was based on accessibility. A structured interview schedule was used to collect data from the sample population. A cassava farming household was regarded as a respondent. Household heads or any member of cassava households capable of receiving and giving information were selected as respondents for the study. Interview schedule questions required the respondents to: (i). identify the various formal and informal sources and channels of receiving and communicating cassava farming information among them, and (ii) reveal the level of their awareness, access to and use of four cassava farming inputs. The cassava farming inputs include: pro-vitamin A cassava stem cuttings, government's 50% subsidized fertilizers, special loan facilities for rural farmers and new post-harvest practices associated with the cassava crop in general. Table 1 provides background information on these cassava farming inputs.

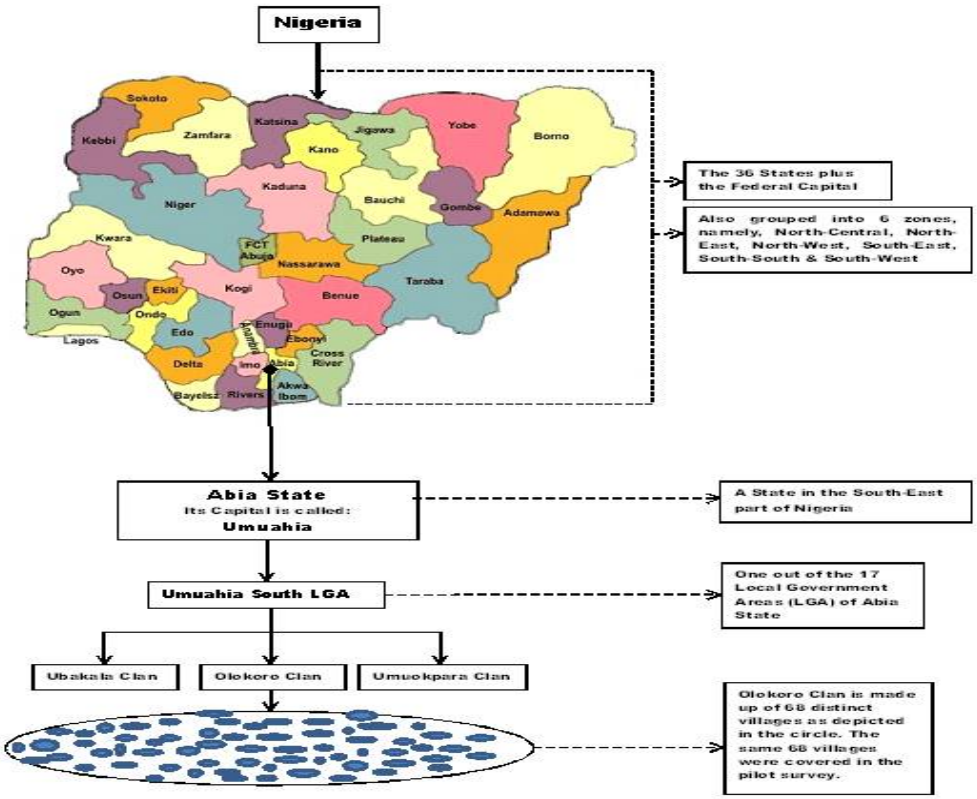


Fig. 1: Chart of the Study Area

Table 1: Background Information on the Cassava Farming Inputs

**a). Pro-vitamin A cassava variety stem cuttings**

This is the latest cassava variety in Nigeria which the Nigerian government has sponsored its propagation and distribution across cassava farmers in the country. Planting the stem cuttings assures early (from 6 months) harvest against 10-12months maturity period for the old varieties. The variety is rich in vitamin A (plant-sourced beta-carotene) which makes it a cheap and easy antidote for blindness and other vitamin A deficiency diseases among rural dwellers in Nigeria, since cassava meals constitute over 80% of their daily food. In addition, the variety has in-built resistance to plant mosaic diseases, which affect the production of old varieties of cassava. To source the stem cuttings, rural cassava farmers pay only 50% of current market value to access cuttings through government's agricultural departments such as Agricultural Development Programme (ADP), National Root and Crop Research Institute (NRCRI), etc. However, there are scientifically experimented farming practices associated with the pro-vitamin A cassava stems which the rural farmers need to know. This includes cutting size, planting format, the right month to plant, the right month/time to apply fertilizer, the right time to weed the farm, etc.

**b).Government's 50% subsidised urea NPK (Nitrogen, Phosphorus & Potassium) fertilizers**

As a requirement for accessing this package, cassava farmers must be registered in the farmers' database of Nigeria, maintained by the Federal Ministry of Agriculture and Rural Development, Nigeria. The register is updated regularly. A farmer, not more than one from a household, gets 2 bags of fertilizer in a farming season. Eligible farmers receive SMS alerts on their mobile phones containing redemption voucher code and address of a dealer shop in the nearest city to visit and redeem the fertilizer.

**c). Special loans and facilities for rural farmers**

The Nigerian government also made provision for special loans and facilities for rural farmers in general. The financing agencies saddled with the task of disbursing the loans to eligible farmers are: Bank of Agriculture (BOA) Limited, Nigeria; Microfinance Banks available in rural communities; and, the National Directorate of Employment (NDE). As criteria, rural farmers can easily access the loan by forming cooperative societies, with a minimum membership of 20 farmers per cooperative.

**d). Cassava post-harvest practices**

The richness of the cassava crop in general is evident on its value added products such as high quality cassava flour, exportable cassava chips, cassava cake, cassava bread, and other bakery products. Other products derived from cassava include dry-cleaners' starch, sweeteners, glues and several other items producible from cassava starch. In view of recent concerns of Nigerian government, rural farmers' awareness on these cassava by-products, acquisition and application of relevant skills to produce one or more of the items can improve rural farmers' income from cassava and lead to overall human development.

## Findings

Data collection was complete and represented the entire sampled population. Quantitative and qualitative approach was used to analyse data. Figure 2 summarise the overall findings, showing the information communication sources and channels available in the villages studied, and their perceived impact on cassava farmers' awareness, access to and use of four cassava farming inputs.

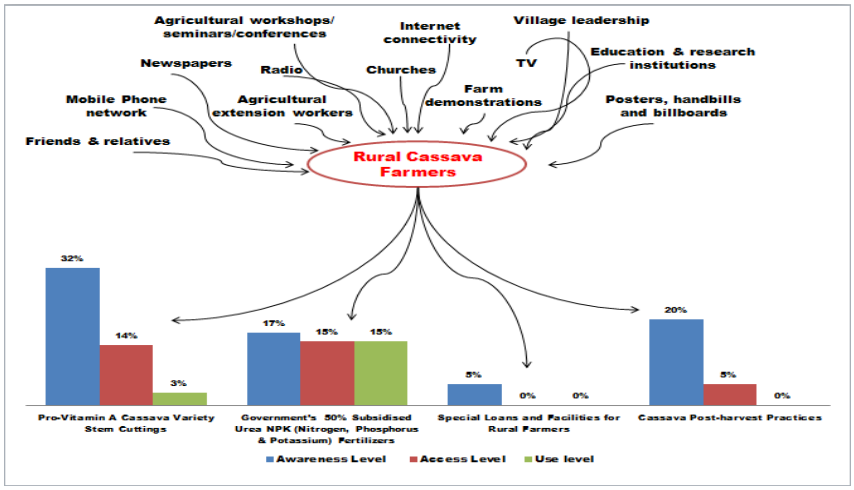


Fig. 2**:** Distribution of information communication channels in the villages studied and their perceived impact on cassava farmers' awareness, access to and use of cassava farming inputs

From the findings, thirteen different information communication sources and channels are accessible to the cassava farmers and include: friends and relatives, mobile phones, newspapers, agricultural workshops/seminars/conferences, agricultural extension workers, radio, churches, the Internet, farm demonstrations, television (TV), village leadership, education and research institutions, and posters/handbills/billboards. In stating that these information communication sources and channels are available in cassava farmers' villages implies that the cassava farmers are having them as tools for connecting to farming-related information and/or subscribing to them as accessible information communication systems. Despite the farmers' accessibility to these information communication systems, cassava farmers overall level of awareness, access to and use of available cassava farming inputs is still poor. This means that all the available information communication sources and channels are ineffective in communicating farming-related information to the cassava farmers.

From a total of 131 cassava farming households only 41 (32%) were aware of the availability of pro vitamin A cassava stem cuttings, 18 (14%) had accessed the stem cuttings and only 4 (3%) households were utilising the stem cuttings appropriately on their farms. On government's 50% subsidized fertilizers, 22 (17%) cassava farming households were aware of the input while 20 (15%) had accessed and utilised the input on their farms. Under the special loan facilities for rural farmers, only 7 (5%) cassava farming households were aware that loans are available for them, but no cassava farming household had accessed nor benefitted from the input. Concerning post-harvest practices associated with the cassava crop, 26 (20%) cassava farming households were aware of the new post-harvest practices, 7 (5%) had complete information on how to undertake the new post-harvest practices successfully, but no household is actually producing any of the several by-products of cassava.

In sum, it is deduced that the information communication sources and channels available in the cassava farmers' villages are not effectively communicating information that can bring farmers to a desirable level of awareness, prompt their effective access to and utilisation of cassava farming inputs that are publicly available for them in Nigeria.

## Implication of Findings

This study identified a total of thirteen information communication sources and channels for communicating cassava farming information to cassava farmers in selected villages in Nigeria. It is noted from the findings that the same information communication sources and channels are ineffective in enhancing cassava farmers' awareness, access to and use of cassava farming information. To corroborate the findings, the suitability of the information communication sources and channels is hereby discussed one after another.

### *Friends and relatives*

Friends and relatives are vital sources of information to rural farmers (Lwoga, Stilwell & Ngulube, 2011; Okwu & Daudu, 2011). But the success of friends and relatives as information communication sources and channel depends on individual efforts of the farmers to interact with

people and obtain information from them. Interpersonal communication is therefore a vital necessity for utilising this channel of information communication. As such, farmers must recognise their need for information and source it from family members, neighbours, friends and relatives. Whereas the suitability of this source of information communication depends on the extent to which the information giver (friends and relatives) is rightly informed, a situation where no one in a village has information to share with others leaves everyone without information.

***Mobile phones***

Mobile phones are modern systems of communication over the space or internet (Maral & Bousquet, 2009). At the moment, mobile telephones have enhanced communication among people from various parts of the world. Its services are fast, real-time, increasingly affordable and rapidly improving. People nowadays not only execute voice calls and short message services (SMS) over mobile phones, but also perform video calls, group chatting and enjoy several online communication services. Despite this increasing features and advantages of mobile telephones, there is no available evidence to specifically show its impact on rural farmers' access and use of farming-related information. Rather, studies that examines the inferred relevance of mobile phones on rural farmers' access to farming-related information find it ineffective (Lwoga, Stilwell & Ngulube, 2011; Uzuegbu, 2016). Apparently, the accessibility of mobile phones to cassava farmers in this study did not impact on the farmers' awareness, access and use of publicly available farming inputs. Even the fertilizer input which is being facilitated through farmers' mobile phones (See Table 1, input b) is obviously not effective because most rural farmers may not be conversant with the mobile technology as to navigate and open the message folder to read messages delivered to their mobile phones. Thus, the rudimentary digital knowledge required to use mobile phones profitably needs to be imparted on rural farmers.

***Newspapers***

Newspapers are grouped under the print media. Researchers have clearly noted that print information resources, which include newspapers, are not relevant to rural dwellers because majority of them usually have little or no formal education (Aderibigbe, 1990; Aina, 2007; Dosa, 1985; FAO, 2005; Saracevic, 1986). So even though some cassava farmers in this study stated that they have access to newspapers – English written newspapers in particular – such access can be regarded meaningless from the context of farmers' farming-related information needs. There is no doubt about this statement, especially when this study observes that the available newspapers are not printed in farmers' local dialect.

***Agricultural workshops/seminars/conferences***

Agricultural workshops/seminars/conferences refer to formal training sessions in the field of agriculture organised from time to time and intended to benefit the rural farmers. Regularly, information communication via workshops, seminars or conferences takes the form of face-to-face discussion or electronic communication methods such as video conferencing, online discussion forums and networking. The face-to-face discussion method has been regarded as an effective information communication method especially when dealing illiterate or timid people (Herod, 2001; Marsapa & Narinb, 2009; Talbot, 1998). This group of people hardly express themselves correctly especially in official settings where comments are usually made using formal language. Even though this is the case of many rural cassava farmers in Nigeria, platforms such as agricultural workshops, seminars or conferences are not likely to be effective forums for communicating farm-related information to rural farmers. This is mainly because the feedback cum clarity system characterised with such forums is poor. This study further observes that most rural farmers will rather opt to reserve themselves and remain in ignorance, than to express themselves in the public and eventually get embarrassed for wrong expression.

***Agricultural extension workers***

Whereas Umunna (2008) finds rural farmers depending more on agricultural extension workers in order to access and utilise farming-related information, Anderson and Feder (2004) are of a contrary view, arguing that agricultural extension workers are not effective in communicating innovative research results to rural farmers. The findings of this pilot study supports the latter because cassava farmers' awareness, access and use of publicly available farming inputs is poor despite the presence of agricultural extension workers. Uzuegbu (2016) may be correct that information communication strategy is a major problem for agricultural

extension workers. Besides,poor educational background, work conditions characterised with unrealistic field targetsand so forth has also been attributed to the ineffectiveness of agricultural extension workers in developing countries (Agbamu, 2005; Aina, 2007; Chukwuemeka & Nzewi, 2011; Iwuchukwu & Igbokwe, 2012; Vidanapathirana, 2012).

***Radio***

This study observes the presence of radio in rural farmers' information environment and agrees with researchers that radio is often accessible to rural farmers (Lwoga, Stilwell & Ngulube, 2011). However, the radio is also not effective in communicating farming-related information to rural farmers (Ekoja, 2003; Uzuegbu, 2016) despite its advantage over similar media like television (Kellow & Steeves, 1998). This is exactly why its accessibility to cassava farmers could not improve the farmers' awareness, access and use of cassava farming inputs. Abruptly, even though the radio is a good information communication channel, cheap and flexible to use, it is evidently not suitable in communicating farming-related information effectively to rural cassava farmers in Nigeria.

***Churches***

Churches are places of worship. According to Uzuegbu (2014), one feature of a rural settlement is that its denizens stand for a common religion, belief and practice. In Nigeria, particularly within the villages covered in this pilot survey, the villagers are Christians-predominantly Catholics. In this study, several responses put the church as information source. Usually the church enforces some submissive relationship between the laity and the clergy. This kind of relationship puts the laity at obedience to instructions passed down from the Clergy. However, the extent to which the clergy is informed determines the completeness of information he will communicate. In this study, the completeness of information cassava farmers received from the church must be incomplete, particularly as it concerns accessing and utilising cassava farming input. This is because some level of field involvement is required. Maybe, this will be a major barrier to rural cassava farmers' dependence on the church to access and use farm-related information. Albeit, the church is a good channel for bringing rural farmers to the awareness of relevant information available in the society.

***The Internet***

The Internet is a satellite telecommunication system, generally grouped under the electronic media. It is a modern system of communication over the space. Its derivatives include the World Wide Web services, online computing, digital telephony, e-mail services, web publishing, modern radio broadcasting, television and other information signal transmission services (Maral & Bousquet, 2009, p.7). Notwithstanding, Lwoga, Stilwell & Ngulube (2011) study found the Internet less important in farmers' information access. Their finding concurs with Uzuegbu's (2016) assertion that ICT-associated tools cannot be depended upon to supply farming-related information to rural dwellers in Sub-Saharan Africa.

***Farm demonstrations***

Farm demonstrations are usually given by agricultural extension workers. Presently in Nigeria, the impact of farm demonstrations is not significant. First of all, the extension worker-to-farmer ration is one-to-ten thousand (1:10,000) except in Bauchi State of Nigeria where the State Government has a special arrangement that puts the ratio at one-to-one thousand (1:1,000) (http://leadership.ng/news/371394/adp-manager-calls-recruitment-deployment-agric-extension-workers). Secondly, extension workers are usually not core staff of the agricultural institutions deploying them. They are usually on *ad hoc* employment, trained by the agricultural departments and deployed to villages with a mission to multiply the farming knowledge chain. Unfortunately, this scenario has left some of the extension workers working more for their pockets than according to the government blueprint. Thirdly, extension workers often choose their friends in their coverage areas as their contact farmers. An ideal contact farmer provides land for farm demonstration and in the end shares extension seedlings and knowledge with other farmers in his village. But as deduced from interactions with cassava farmers in one of the villages covered in this study, contact-farmer selection is usually biased. Often than not, beneficiary contact-farmers show no concerted effort to share with other farmers the farming knowledge and seedlings they obtain. This overall situation is pathetic and questions the effectiveness of information communication to all rural farmers through farm demonstration and exhibition activities of extension workers.

***Television (TV)***

This study finds television listed in the available sources and channels of information communication to rural cassava farmers, confirming the regularity of the item in several studies on rural information sources and channels (Bachhav, 2012; Bello and Obinne, 2012; Ekoja, 2003; Elly and Silayo, 2013; Ifukor, 2013; Jones, 1990; Kamba, 2009b; Meyer, 2004; Ojiambo, 1990; Talbot, 1998). But despite all its features: appealing to the senses of sight and hearing (Koumi, 1994); enhancing creativity and leaving emotional feelings on the audience; it does appear that television has no impact on the cassava farmers' awareness, access to and use available cassava farming inputs. This finding corresponds with Uzuegbu (2016).

***Village leadership***

Village leadership refers to the elected men and women governing a village. A typical village leadership in Nigeria is constituted to enforce order and peace among the denizens while overseeing the general progress of the village. Over the years, they have proved to be vital players in rural development. In fact, most rural development programmes fail to work when the village leadership is ignored. Besides, Okwu and Daudu (2011) finds them indispensable in information communication to rural farmers. For instance, this study observes that the village denizens were more accessible to the researchers when they were approached through their village heads, via the town criers. This was contrary to the researchers' initial attempts to identify and reach out to the cassava farmers individually. Evidently, the town crier system of communication is still active (Apata & Ogunrewo (2010). Hence, effective rural-oriented information communication must be such that acknowledge the village leadership and its information communication systems.

***Education and research institutions***

Education and research institutions were listed in this study as accessible sources of information communication to cassava farmers. They represent various forms of formal education systems cutting across nursery, primary, secondary, technical and vocational schools. Its highest bodies include higher educational institutions such as monotechnics, polytechnics, colleges of education and universities. Over the years, they have played vital roles in informing people. One of the indispensable roles of education and research institutions is knowledge transfer. However, the suitability of education and research institutions is not feasible when it comes to meeting peculiar information needs of the illiterate rural populace (Talbot, 1998).

***Posters, handbills and billboards***

Posters, handbills and billboards represent all forms of signs and symbols (oral or visual), emblems, diagrams, pictures and all other forms of indoor and outdoor communication platforms. Whereas they are generally regarded as communication channels and sources, majority of them are practically covert (Belch & Belch, 2004; Bhatia, 2000). This means that they are indirect or disguised forms of information communication. They are regularly distributed or pasted on strategic points, intended to inform people on one programme or the other. Few cassava farmers have seen such signs and symbols displayed at strategic locations in their villages from time to time. But all the same, it is deduced that posers, handbills and/or billboards were not found to be communicating any farming-related information let alone information pertaining to cassava farming inputs.

**Conclusion and Recommendation**

This paper notes the poor level of cassava farmers' awareness, access to and use of cassava farming inputs available for them in Nigeria. This is despite the existence of a total of thirteen formal and informal information communication sources and channels accessible to rural cassava farmers in Nigeria. They are listed to include friends and relatives, mobile phones, newspapers, agricultural workshops/seminars/conferences, agricultural extension workers, radio, churches, Internet, farm demonstrations, television (TV), village leadership, education and research institutions, posters/handbills/billboards. To corroborate the findings, discussion of each of the information communication sources and channels show that they are not effective for communicating farming-related information to rural farmers in Nigeria. Consequently, this study finds the need for empirical studies into practicable methods of steering effective information use among rural cassava farmers in Nigeria. Hence, embarking on field experimental studies is recommended in order to provide grounds for modelling different rural-farmer-oriented information services with the aim of identifying an effective information

delivery structure for rural farmers in Nigeria and other developing countries.

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