ISSN: 6109 – 5942
Volume 8, Number 2, 2023
International Journal of Agricultural Extension and Technology

PERCEPTION OF FARMERS ON THE EFFECTIVENESS OF EXTENSION COMMUNICATION TECHNIQUES ON CROP FARMERS PRODUCTIVITY IN ETCHE LGA, R/S

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ABSTRACT

This study examined the perception of farmers on the effectiveness of extension communication techniques on crop farmer's productivity in Etche Local Government Area, Rivers State. The population of the study is 184 registered crop farmers. A multi – stage sampling technique was used to select 144 respondents from the sample size. A structured questionnaire was used to elicit information from the respondents. The reliability of instrument was 0.89 coefficients. Descriptive statistics such as frequency distribution, percentage, mean and inferential statistics such as regression analysis were used to analyze the data collected. Results revealed that majority (58.3%) of the respondents were between 41 – 50 years; 58.33% were male; 47.22% had secondary education; 46.53% were married; 50.6% had household size of 6 – 10 persons; 51.39% had farm size of 1 – 3 acres of farmland; 91.67% had had farming experience of 11 years and above; 29.17% had income bracket of ₦90,000 and above per annum. The major extension communication techniques used on the area include: home training/phone calls (82.64%), town crier (80.56%), radio (47.22%) and village drum (43.06%). The study revealed that the major perception of farmers on extension communication are home training with farmers, demonstration of farm project and use of traditional techniques with mean scores of 2.99, 2.81 and 3.00 respectively. The result on the relationship between socio – economic characteristics of crop farmers and extension communication techniques were significant in terms of educational qualification, household size and farming experience but there were no significant relationship with marital status, age, farm size, gender and regularity of visit to farmers. The result also showed a significant relationship between extension communication techniques and its effectives on crop farmers' productivity in the study area. The study concluded that for greater productivity in the study area, the extension communication techniques used must be improved on and the related constraints must be considered. It was recommended, among others, that extension agents should at all times appropriate extension techniques such as demonstration, home training and organization of extension programmes which provides adequate opportunities for crop farmers to learn and act accordingly.

Keywords: Assessment, Perception, Effectiveness, Extension, Communication Techniques, Farmers and Productivity

INTRODUCTION

Agriculture as a field of study is concerned with activities of rearing animals, cultivation of soil to grown crops and improvement of the quality of agricultural produce, products and by products for utilization by man, animals and industries. Agriculture is the mainstay of the economy of many nations and in most developing countries; agriculture provides employment for over 70 percent of the entire population (Anthony, 2010). For instance, in Benin, Tossou and Zinna (2005) asserted that agriculture is the foundation of the economy, accounting for about 70 percent of export income and 40 percent of Gross Domestic Product (GDP). Agriculture is the backbone of Indian economy as the sector remains the principal source of livelihood for more than 62 percent of the population and contributes 14.2 percent to the Gross Domestic Product (GDP) (Raghavalu, 2012). In

Mozambique, agriculture is the pillar of the national economy with 80 percent of the population employed in the agriculture sector and 11 percent of the entire population (Anthony, 2010) contribution to the national GDP (Ministry of Agriculture, 2010). The strength of the Ghanaian economy is based on agriculture, which contributes about 45 percent to the nation's GDP and employs about 70 percent of its labour force (Okorley, Gray and Reid, 2009). In the case of Nigeria the situation is not very different. In addition to petroleum sector, agricultural sector is a key sector in the Nigerian economy with the sector accounting for over 26.8 percent of the national GDP and two thirds of the employment (Umaru and Zubairu, 2012). The rural farmers are the backbone of agricultural production in Nigeria. The term "extension" tends to be associated with agriculture and rural development, cooperative extension, advisory services, technology transfer, as well as the transfer and exchange of practical information (Ahmed, Tadeusz and Piotr, 2015). The effectiveness of extension is related to communication strategies or techniques developed and their applications to bring about social transformation. Extension communicator methods are devices, modes or channels used to create situations in which new information can pass freely from the source (extension worker or research institutes) to the farming communities (Ayanda, 2019). There are various extension communication techniques used as tools by the extension workers to effect desirable changes in the behavior of farmers which include; group training, demonstration plot, adopted villages, on – farm adaptive research and mass media (Nwaekpe, Anyaegbunam, Asumugha, Ekwe and Okoye, 2014). Extension communication is important because it assists the farmers to be aware of the problems and defining the problems for them and messages on extension communication are always based on farmers experience or agricultural research findings. Usually, there are government information departments responsible for the communication of information between government and the farmers and the public regarding agricultural policies. The success of extension service delivery or techniques depends on the expertise and technical know – how of the extension personnel which could be achieved by providing adequate and relevant information to wide range of farmers who live significantly in the rural areas (Tambari, Abubakar, Attahiru and Moyi, 2014).

Statement of Problem

Farmer's lack of information is a mystery that continues to debilitate the efforts to improve agricultural information in most African countries (Lwoga et. al., 2011). For instance, in Nigeria, the prevailing agricultural situation is characterize by low levels of productivity indicating that the mechanisms of communicating agricultural information have not achieved the desired goal. Agricultural extension service involves a lot of activities such as teaching, training, demonstration, planning among others. However, in Nigeria, rural farmers rely upon indigenous or traditional forms of information for improve cultivating framework farming. Such information (indigenous or neighborhood information) alludes to abilities and experience increased through oral convention and practice over numerous ages. According to Isife, Nnodim and Ochomma (2009), rural people/farmers are endowed with traditional skills and knowledge but they are at the primitive levels which need to be improved upon to fit in properly with modern skills and development technology. The improvement could be done through capacity building extension agents delivering extension services to them. Extension agents are not only concerned with educating and making sure about selection of a specific practice yet additionally convey meditations that are intended to improve, crate and instigate advancements that are intended to fathom hazardous circumstances among farmers. Strengthening the exchange of information and knowledge between farmers, community groups, research institutes and intermediary organizations (such as non – governmental organizations and government extension agencies) is a necessity for effective implementation of extension agenda. Therefore, strategies and tools for improving livelihoods and reducing vulnerability. First, there is need to identify range of techniques, approaches and methodologies for developing strategies for getting research into use in the rural areas. It is based on these problems that the researcher tends to seek answers to the following research questions: What are the socio

– economic characteristics of crop farmers in the study area? What are the types of extension communication techniques accessed by crop farmers? What are the perceptions of farmers on the effectiveness of extension communication techniques? What are the extents utilization of information on extension communication techniques to improve productivity? And what are the factors that militate against effective use of extension communication techniques in the study area.

Objectives of the Study

The main objective of this study is to analyze the Assessment of the use of Radio in Dissemination of Agricultural Information to Fish Farmers in Okrika Local Government Area of Rivers State.
Specific objectives of the study were to:

i. describe the socio-economic characteristics of fish farmers in the study area;
ii. ascertain type of extension communication technique accessed by crop farmers;
iii. examine the extent of utilization of information on extension communication techniques to improve productivity; and
iv. determine factors that militate against effective use of extension communication techniques in the study area

Research Hypotheses

$H0_1$: There is no significant relationship between socio – economic characteristics of crop farmers and the type of extension communication techniques utilized

$H0_2$: Respondents rating on the type of extension communication techniques accessed and its effectiveness on farmers' productivity

LITERATURE REVIEW

Theoretical Literature

Agricultural Extension Theory

There are four models in agricultural extension: linear top-down" transfer of technology information; participatory bottom-up approaches; one to one advice or information exchange; and formal or structured education and training (Black, 2010). Despite criticism of linear technology transfer models, there is a need to provide for active participation by farmers in research and development processes. One – to – one exchange of information and advice, whether form farmer to farmer or from professional adviser to farmer (and vice versa), will continue to be important. So too will be the lifting of levels of formal education and training among farmers. New information technologies will facilitate some forms of education, training and information exchange, but will need to be supplemented by other extension strategies. For a technology to be adopted, it must be in line with the knowledge that the farmer has as well putting in mind their cultural norms, beliefs and values as a community. For agricultural information technologies to work well, they must be integrated with what the community uses. There is therefore a need to understand farmer's knowledge, attitude and perceptions towards management of diseases (Mokotjo & Kalusopa, 2010), in addition having a one-to-one advice or information exchange enables an integration of knowledge and perception as perceived by the community and not as seen by the researcher. For instance, agricultural extension programmes staff provides formal or structural education and training to farmers. As farmers also exchange information on a one-to-one, it is easier to improve on
Productivity as perception and attitude are shared and best adopted if learnt from fellow farmer. This theory is relevant to this study since it is important to transfer knowledge to the community through a linear "top-down" transfer of information in order to understand what the community perceives of the knowledge through a participatory "bottom-up" approach where farmers give the informed information.

Diffusion of Innovation Theory

This study adopted the innovation diffusion model, which is also referred to as Roger's innovation diffusion theory (Rogers, 2003), on the other hand, adopters' perception on perceives attribute of the technology can also largely determine adoption behaviour of an adopter unit. This means that, even with full farm household information, farmers may subjectively evaluate the technology differently from scientists. This implies that adopter's characteristics determine the adoption behaviour of adopter unit. Remarkably, until many users adopt a new technology, it may be slow at times across individuals. Roger's diffusion of innovation theory is the most appropriate for investing the adoption of technology in higher educational environments (Medlin, 2001; Parisot, 1995). In fact, most diffusion research involves technological innovations. Rogers (2003) usually used the word technology action that reduces the uncertainty in the use cause-effect relationships involved in achieving a desired outcome. Adoption is a decision of full use of an innovation as the best course of action available and rejection is a decision not to adopt an innovation while diffusion is a process in which an innovation is communicated through certain channels over time among members of a social system. As expressed above, innovation, communication channels, time and social system are the for key components of the diffusion of innovation which is very essential component in other to effective disseminate information to the farmers. This theory is very useful to this study because it talks about ways in which information can effectively get to the farmers to increase their productivity. In other to explain the problem of the study, this thesis will rely on the theories of extension communication, social cognitive theory and people center theory because these theories provide thorough explanation of extension communication techniques practices. The theories are adequate in explaining the variables that influences extension communication techniques among crop farmers. The extension communication theory explain how important it is to transfer knowledge to the community through a linear "top-down" transfer of information in order to understand what the community perceives of the knowledge through a participatory "bottom-up" approach where farmers give the informed information. The social cognitive theory examines human behaviour in connection to the influence of personal characteristics, environmental factors and on-going interactions among community members, all of which can influence individual's participation. The people centered theory explains how it can enable the empower them to make decision on issue affecting them and participate in social and economic development. The bases on this theory are that people should take the initiative to participate in activities that will enhance their developments.

Conceptual Framework

The breakdown below represents the entire process of perception of farmers on the effectiveness of extension communication techniques on crop farmer's productivity in Etche Local Government Area, Rivers State. It takes into description socioeconomics characteristics, extension communication techniques, perception of crop farmers on extension communication techniques, benefits of extension communication techniques and factors militating against extension communication techniques.

Dependent Variables (A) shows crop farmer's productivity which includes cassava, rice, maize, yam; the main principle of crops for food or cash.

Independent Variable (B) is extension communication techniques. The understanding of extension communication technique among crop farmers in the area may be positive or negative, resulting in respondent adoption or non-adoption of the technology.

Moderating Variables (C) which shows socio-economic characteristics such as age, sex, level of education, marital status, household size, farming experience, income and membership or social group.

Intervening Variable (D) comprises of factors that can limit the productivity of the farmers and also means of getting knowledge form extension workers to improve their farm work.

Outcome/Effects (E) which shows benefits of extension communication techniques if communication of agricultural knowledge through any means used by extension workers is properly applied or utilized by the crop farmers will lead to high productivity, increased income, improvement in farming practices, increasing food security, improves rural livelihoods and promotes agriculture as an engine of economic growth.

Concept of Crop Production in Nigeria

Crop production is one of the fundamental branches of agriculture. Crop production is the basis for providing the living the livestock industries as raw materials of plant origin such as food, textile, pharmaceutical, fuel and other. Crop production is a branch of agriculture which includes the cultivation of crops in field cultivation vegetable growing and fruit growing etc. This industry gives necessary food. Livestock industry, in turn, uses by products such as straw, silage and food industry waste. Agricultural enterprises have a powerful production potential, despite the difficult condition s of production, caused by high price for production resources low attractiveness of rural areas and difficulties in obtaining loans.

Concept of Extension Communication

Extension is the activity that disseminates research findings and advice to farmers on agricultural practices and improves farmer's capability and communication so as to help them in their decision making related to farming (Bruin, GAC and merman, 2001). In essence, agricultural extension is the transfer of appropriate technologies and production recommendations to the clientele (end users) taking into cognizance the interest of the farmer.

Extension therefore informs advices, teaches farmers about new improved research results and new agricultural techniques and brings feedback to research and input agencies. Agriculture extension assists the farmers to identify and analyses their production problems and become aware of the opportunities for improvement. Agricultural extension service is one of the agencies transforming subsistence farmers into modern and commercial agriculture which promote household food security (Ojeka, *et. al.,* 2016). Exposure to such activities as provided by extension service is intended to increase farmers' ability to optimize the use of their resources both human and materials resources. Agricultural extension service otherwise referred to as advisory service according to Agbamu (2005), is the application is scientific research work and new knowledge by individuals or researchers to agricultural practices through farmer education. It could also be referred to as a series of embedded communicative intervention that are meant among other goal to develop and induce innovation to the people or farmers which helps them to resolve problematic situation (McGill, 2016). More so, it could be viewed as the process of enabling change in individuals (farmers) communities and industries which are industries which are involved in the primary industrial sector and in the national resources management (Harry & Smart 2016). The extension service have a vital role to play in increasing agricultural production through their linkage role between researcher and end users (farmers).without extension, most research endeavor will be futile exercise. The agricultural extension services need to communicate research results to farmers and other rural dweller in order to move the agriculture and rural sector forward. The farmers' problems also to be communicated to the research institution as these are very crucial and consequently, the agricultural sector of the economy (Isife, 2008).

Extension Communication Methods

Agricultural communication methods are those devices used to create situation in which communication can occur between agricultural extension officers and farmers. They are procedures used to create effective learning of agricultural practices. The purpose of using agricultural

communication method is to crate opportunity to establish rapport over subject matter content between the communications and information receivers or learners. Agricultural extension has evolved proven communication methods, which are used to encourage farm people to adopt improved practices. Different communication methods are used in offering extension services in order to appeal to the different senses of our audience – to ensure that learning takes place through their sense of hearing, sight, smell, tough or taste, or through a multi – sensory approach.

Constraints of Extension Communication in Nigeria

A myriad of problems were known to place agricultural extension service in developing countries. The problems varied with countries because varying extension systems were practiced in different places, and each system has its own peculiar problems, however, a lot of the problems are common to the different developing countries because of similar socioeconomic circumstances and stage of development (Agbamu, 2005).

i. **Inadequacy and instability of Funding**

Agricultural Extension programmers require adequate funding to ensure successful extension service delivery. Due to poor foreign exchange earnings and low gross domestic product of developing countries, they are unable to adequately provide the funds needed to operate efficient agricultural extension system. Finance is needed to purchase audio-visual aids and other communication related facilities, office equipment and secretariat material up to the zone and allowances of staff in the service (Williams and Olowu, 1990).

ii. **Ineffective Agricultural Research-Extension Linkages**

Effective communication links between researchers and extension agents are vital in the identification and pooling of farmers problems/research needs, modification of technologies through verification at the on-farm trails and in initiating further research.

The linkages between agricultural research and extension organization were weak in some developing countries. Weak research extension linkages affected the quality of knowledge generation and knowledge management upon which the long term success of an extension organization depended. There is currently a weakening of agricultural research-extension linkages in Nigeria because of the lesser involvement of village extension supervisors in collecting farmer's needs for the formulation of research themes/plans and the technology review meetings between the two organization not held regularly any longer. The strengthening of institutions was required to enhance agricultural research extension linkages in developing countries.

iii. **Use of Poorly Trained Personnel:** As agriculture develops and intensifies, the agricultural extension workers must develop his or her skills and knowledge. The opportunity for the right type of staff training is low. The educational level of majority of the extension workers is still low, the quality of extension services offered to farmers in the developing countries is still poor. Another major factor that has been responsible for poor quality of personnel and poor delivery was the poor type of pre-service training that the staff had prior to joining the extension service. The universities, colleges and polytechnic in less developed countries where the agricultural extension officers were trained did not have the required facilities for grooming agricultural graduated and imparting skills to them. Consequently, these insufficiently qualified, inexperience and poorly trained personnel cannot do much to improve the quality of extension service offered to farmers (Agbamu, 2005).

Research Methodology

Study Area

The study covered Etche Local Government Area in Rivers State, Nigeria. Etche has a boundary with Imo State in the North, Ikwerre LGA in the west, Omuma LGA in the East and Oyigbo LGA in the south. Etche is one of the 23 Local Government Areas in Rivers State, and amongst the 13 federal constituencies representing River State, in Rivers State, in Nigeria's National Assembly and part of the Rivers East Senatorial District. It was created on 23rd March, 1989. The local government area covers 774.7km2 and a population density of 453.4km2, the area has a population of 249,939 according to the 2016 census. It lies within latitude 4045'N – 5017'N and longitude 6055'E – 7017'E. Etche Local Government Area has its headquarters at Okehi. Traditional ruler's council in the thirty communicates that makes up the area is spread in five (5) clans namely; Ozuzu, Igbo, Umuselem, Mba and Okehi. Etche is known to be one of the major sources of urban foods in Rivers State. The people of Etche are mostly engaged in agriculture, earning the nickname 'the food basket of the state'. The crops that are common in Etche includes: cassava, yam, maize, vegetables, cucumber, cocoyam, vegetables and pineapple among other. Dominant perennial crops grown in the area are: Oil palm, plantain, banana, coconut, cashew, breadfruits, mango, native peas, raffia palm, orange, pawpaw, guava, timber (Niger Delta Development Commission 2010).

Population of the Study

The population of the study comprised of all registered crop farmers in the Etche Local Government Area of Rivers State. As stated in Rivers State Agricultural Development Programme (RISADEP), the total registered farmers in Etche LGA are one hundred and eighty four (184) crop farmers.

Sampling Procedure and Sample Size

The study adopted a multi – stage sampling procedure. Firstly, the study area was stratified into five (5) clans. The clans are Ozuzu, Igbo, Okehi, Ulakwo and Mba. In the second stage, three (3) communities were selected from Ozuzu, Igbo and Okehi, two communities from Ulakwo and one community from Mba clans using purposive sampling techniques based on high crop production activities, making it a total of twelve (12) communities. The communities selected are: Elele, Orwu, Ogida, Umuechem, Abara, Okoroagu, Akwuobo, Egbeka, Nwuba, Odagwa Akwa and Obite. Finally, registered crop farmers were proportionately selected from the selected from the selected communities to make a total of one hundred and forty four (144) crop farmers for the study as shown in table 1 below;

Table 1: The Table below Shows the List of selected Communities in Etche LGA and the Number of Respondents Selected

Clans	Ozuzu	Igbo	Okehi	Ulakwo	Mba	Total 5
Communities	Isu, Egbu, Ihie, Elele, Orwu, Ogida	Chokocho, Okomoko, Egwi, Umuechem, Abara, Okoroagu	Akwukabi, Obibi Igbodo, Akwuobo Egbeka, Nwuba	Afara, Nihi Odufor, Odagwa Akwa	Ndashi, Akpoku Umuoye, Obite	27
Selected Communities	Elele, Orwu, Ogida	Umechem, Abara, Okoroagu	Akwuobo, Egbeke, Nwuba	Odagwa Akwa	Obite	12
Registered Farmers	46	48	45	30	15	184
Proportionate Selection of Sample Size	36	38	34	24	12	144

Method of Data Collection

The researcher developed data for this study from primary sources such as questionnaire, personal observations and interviews. Copies of the questionnaire developed by the researcher were provided to the respondents in their various communities. The questionnaire were designed and directed to crop farmers. The questionnaires were made up of five (5) components. Firstly, it contained questions about crop farmer's socio – economic characteristics, which includes the gender, age, marital status, family size, income level, educational level, among others. The second segment contained the type of extension communication techniques accessibly by crop farmers. The third section was directly on the perceptions of crop farmers on effectiveness of extension communication techniques. The fourth components of the questionnaire contented the extent of utilization of information extension communication techniques to improve farmers' productivity while the fifth section was on the factors that militate against effective use of extension communication techniques in the area.

Method of Data Analysis

The data collected was subjected to descriptive and the data from respondents was analyzed using descriptive statistics which are frequency, mean, percentage etc. furthermore, the 4 point Likert Scale such as Very Effective, Effective, Little Effective and Very Little Effective, and linear regression analysis and test re-test were used to test the research hypothesis.

RESULTS AND DISCUSSION

Socio – economic Characteristics of the Respondents

The socio-economic characteristics of the respondents are contained in table 2 below. Majority (67.36%) of the respondents fell within the age bracket of21-50 years. 29.90% fell within the age bracket of 51 years and above. while only 2.78% were less than 20 years. The mean age of the farmers was 42. This agrees with the findings of Elenwo and Emodi (2019) who observed that majority of the respondents were aged 40 ~ 49 years which implies that the crop farmers are active age in terms of agricultural activities. Age is considered as an important variable because of its influence on people`s attitude, skill and aspiration (Onwubuya, Nenna and Ugbaja, 2015; Obioha, 1995; Okolo. 2004). The table indicated that (58.33%) of respondents were male while 41.67% were female. This is an indication that there are more men in fam1ing than women. This disagrees with the findings of Ayokare and Idjesa. (2009) that majority of the respondents were female. Educationally, majority (47.22%) of the respondents had secondary education; 28.47% had primary education; 15.28% of the respondents had tertiary education; while 9.03% had non-fom1al education. it shows that greater number of the respondents can read and write. According to Okojie (2002), the more educated a farmer is the more likely he adopts an innovation. As asserted by Olaniyi, Adetumbi and Adereti (2013). The literacy level of the respondents could afford them the opportunity of learning new things and use of research findings. This finding is in line with the finding of Ayinde, Torimiro and Koledoye (2014) that farmers in Osun State were literates. Indeed, high educational qualification helps in achieving the objectives of agro technology transfer programmes (Madukwe et al., 2000; Agwu, 2000). Martially, the study reviewed that 46.53% of the respondents were married; 25.69% were widowed; 15.97% were divorced while 11.81% were single. This implies that majority of those that engage in farming in the study area are married men and women. This study agrees with the assertion o1` Mbah. Ezeano and Agada (2016), that there is greater involvement of married people in farming activities in order to ensure household food security. The table further shows that majority (93.74%) of the respondents had a household size of 1-15 persons. while 6.25% had a household size of 15 persons and above. The household size mean of the respondents was 9 persons. This is an indication that the respondents had a large household size which could serve as a source of labour on family farms. 'This situation is also explained from the observation of Ekong (2010), that household size is affected by the need for manual labour. This finding is in agreement with Muhammed- Lawal et al (2009) and Akpomuvia

(2010) assertions that a range of 4 - 6 members constitute the modal household size among the rural farmers in Nigeria.

Majority 51.39% of the respondents had a farm size of 1-3 acres of farmland, 28.47% had farm size of 7 acres and above farmland and 17.36% had farm size of 4-6 acres of land; while 2.78% of the respondents had farm size of less than 1 acre. The mean of the farm size is 2.20. This implies that the respondents practice small-scale farming because of fragmented land holdings in the study area. This study is in line with the finding of Issa, Auta and Adedokun (201 1) which states that about (61%) of the respondents cultivate between 1 and 5 hectares of land.

Table 2 below also indicates that 91.67% of the respondents had farming experience of 11 years and above, 8.33% had a farming experience less than one to 6 years. Finally, 73.62% of the respondents had income bracket of ₦50,000 and above per annum; while 26.38% of the respondents had income bracket of less than ₦ 10,000 - ₦ 50,000 per annum.

Table 2: Socio – economic Characteristics of the Respondents

Variables	Frequency (144)	Percentage (%)	Mean (x)
AGE (Years)			42years
< 20	4	2.78	
21 – 40	47	32.64	
41 – 50	50	34.72	
51 and above	43	29.86	
Gender			
Male	84	58.33	
Female	60	41.67	
Educational Level			
Non formal education	13	9.03	
Primary school	41	28.47	
Secondary school	68	47.22	
Tertiary education	22	15.28	
Marital status			
Single	17	11.81	
Married	67	46.53	
Divorced	23	15.97	
Widowed	37	25.69	
Household Size			9 persons
1 – 5 persons	21	14.58	
6 – 10 persons	73	50.69	
11 – 15 persons	41	28.47	
15 persons and above	9	6.25	
Farm Size (Acres)			2 acres
< 1	41	28.47	
1 – 3	74	51.39	
4 – 6	25	17.36	
7 and above	4	2.78	
Farming Experience (Years)			11 years
1 – 5	2	1.39	
6 – 10	10	6.94	
11 and above	132	91.67	
Income Per Annum (N)			₦65,000
< 10,000			
10,000 – 30,000			
50,000 – 70,000			
70,000 – 90,000			
90,000 and above			
Regularity of visit to farmers			
Fortnightly	43	29.86	
Monthly	22	15.28	
Quarterly	79	54.86	
Total	**144**	**100**	

Perception of Farmers on Effectiveness of Extension Communication Techniques

Table 3 showed the Perception of farmers on effectiveness of extension communication techniques in the study area. The major perceptions of farmers on extension communication techniques include: home training with farmers ($\bar{x}$=2. 91), demonstration of farm project ($\bar{x}$=2. 81), and use of

traditional techniques ($\bar{x}$=3.00). This indicates that most respondents enjoyed receiving information and technologies through these extension techniques

Table 3 Perception of Farmers' on Effectiveness of Extension Communication Techniques

Perceptions	To Effective	Effective	Little Effective	Very Little Effective	Total Score (n=144)	Mean ($\bar{x}$)
Organization of workshops/seminar	4	5	14	121	180	1.25
Use of audio aid such as radio	32	50	37	25	377	2.62
Organization of demonstration farm Project	35	53	49	7	404	2.81
Use of leaflets/handbills	63	24	38	19	419	2.91
Use of visual aid such as television	29	38	31	46	338	2.35
Traditional techniques such as village drum and town crier	28	34	49	33	345	2.39
Use of journals and magazines	47	64	19	14	432	3.00
Organization of agricultural shows	0	0	33	111	177	1.23
	0	0	69	75	213	1.48

Source: Field Survey, 2022

Extension Communication Techniques Accessible to Crop Farmers

The extension communication techniques accessed by crop farmers and their corresponding frequencies in the study area are shown in table 3 below. The extension communicator techniques accessible to the farmers include: Home training/phone calls (82.64%), demonstration of farm projects (61.81%), field/farm works (13.19%), seminar/workshops (6.25%), agricultural shows/exhibitions (0.00%), radio (47.22%), journals/magazines/newspapers (0.00%), leaflets/handbills (2.00%) and traditional methods like town criers (80.56%). From the analysis, it is evident that such extension communication techniques like agricultural shows/exhibitions and journals/magazines/newsletters, were not well employed in communicating with the farmers.

Table 4: Extension Communication Techniques Accessible to Crop Farmers

Extension Communication Techniques	Frequency	Percentage
Home training/phone calls	119	82.64
Demonstration farm projects	89	61.81
Field/farm works	19	13.19
Seminar/workshop	9	6.25
Agricultural shows	0	0.00
Television	18	12.50

Radio	68	47.2
Journals/magazines	0	0.00
Leaflets/handbills	36	25.00
Traditional techniques	-	-
Town crier	116	80.56
Village drum	62	43.06

Extent of Utilization of Extension Communication Techniques in Improving Crop Productivity

Table 4 below shows the extent utilization of extension communicator techniques in improving crop productivity in the study area. The major extension communication techniques utilized by crop farmers include: radio ($\bar{x} = 2.62$), demonstration farm project ($\bar{x} = 2.81$), home training/phone calls ($\bar{x} = 2.91$), leaflets/handbills, television and traditional techniques such as village drum and town crier ($\bar{x} = 2.79$).

Table 5: Extent of Utilization of Extension Communication Techniques in Improving Crop Productivity

Variables	High Extent	Little Extent	Very Little Extent	Not At All	Total Score (n = 144)	Mean ($\bar{x}$)
Workshops/seminar	4	5	14	121	180	1.25
Radio	32	50	37	25	377	2.62
Demonstration of farm project	35	53	49	7	404	2.81
Home training/phone calls	63	24	38	19	419	2.91
Leaflets/handbills	20	30	37	57	301	2.10
Television	14	19	42	69	266	1.85
Traditional techniques such as village drum and town crier	37	51	46	10	403	2.79
Journals and magazines	27	13	30	74	281	1.95
Agricultural shows	0	0	29	115	173	1.20

Factors Affecting Effective Use of Extension Communication Techniques

The major constraints include: irregular training and visit by the extension agents ($\bar{x} = 2.76$), lack of trust on extension agents ($\bar{x} = 2.81$), lack of farmers participation on programme development ($\bar{x} = 2.84$), some extension practices run contrary to farmers needs and customers ($\bar{x} = 2.79$), and high cost of adopting new innovations ($\bar{x} = 3.01$).

Table 6: Factors Affecting Effective Use of Extension Communication Techniques

Variables	To A Very Great Extent	To A Great Extent	To A Little Extent	To A Very Little Extent	Total Score (n = 144)	Mean ($\bar{x}$)
Irregular training and visits by the extension agents	44	41	39	20	397	**2.76**
Lack of cooperation from local leaders	7	10	61	66	246	1.71
Illiteracy level of farmers	15	39	52	38	319	2.22
Inadequacy of existing programmes	59	27	27	31	402	2.79
Lack of social infrastructures such as electricity	47	46	32	19	257	2.84

Lack of finance	9	15	56	64	404	1.78
Lack of trust in extension agents	46	42	38	18	434	2.81
High cost of adopting new innovations	52	49	36	7		3.01

Note: Mean Score: ≥ 2.50 = constraint; <2.50 = not constraint

Test of Hypotheses

Hypotheses 1

Table 6 shows the relationship between socioeconomic characteristics of the crop farmers and extension communication techniques accessible to farmers in the study area. The value of the coefficient of multiple determinations (R2) was 0_260. This implies that 26% percent of the variation in the extension communication techniques accessed by farmers can be attributed to the joint action of their socio-economic characteristics in the regression model. The result indicated that three of the socio-economic characteristic of the crop famers (educational level, household size and farming experience) were significantly related with the extension communication techniques in the area.

The level of education (X_4) of the respondents had a positive significant effect on extension communication techniques accessed by farmers with t-value 2.288 at 0.05 probability level, this implies that the more educated crop farmers the more the use of extension communication techniques. This could be due to the fact that education enhances the adoption of innovation in affirmation to this assertion, Oladipo and Adekunle (2010) observed that individuals with higher educational attainment usually foster in adoption of innovation, this study also corroborate the findings of Nenna (2014) and Aldosari. Al- Shunaifi, Ullah, Muddassir and Noor (2017), that the higher the years of education the more knowledgeable the farmers will be in the technicalities involved in the use of extension communication methods. Boz and Ozcatalbas (2010) found educational level to have significant effect on the use of modem information channels. The ineffectiveness of other delivery channels could be due to the literacy demand and high cost of use (Issa, Auta and Adedokun, 2011).

Household size (X5) is negatively related to extension communication techniques with a t- value -2.789 which was significant at 5 percent level of probability. This implies that household size influenced the extension communication techniques accessed by crop farmers. This means that if other socio-economic characteristics of the respondent are held constant reducing household size will encourage the use of extension communication techniques by crop farmers. This can be attributed to high cost of innovation and additional expenses on family finance. Larger family size may hamper the use of innovation as it will increase the financial load on the household sustenance. Haq et. al., (2010) in agreement with assertion observed that larger household size negatively affects involvement in programs as a result of lower educational attainment of the family members. Farming experiences (X6) had negative and significant relationship with extension communication techniques accessed by farmers with a t-value of -2.946 which was significant at 5 percent level of probability. This indicates that extension communication techniques are significantly linked to the farmers farming experiences.

Table 7: Simple regression analysis establishing the relationship between the socio - economic characteristics of the respondents and the type of extension communication techniques accessed

Variables	Coefficient	t-value	Sig	R	R^2	Standard Error
Gender (X_1)	-0.032	-.672	0.504	0.0510[a]	0.260	0.47820
Age (X_2)	-0.066	-.770	0.445			
Marital Status (X_3)	0.011	-.141	0.888			
Education (X_4)	0.294	2.288	0.026*			
Household Size (X_5)	-0.302	-2.789	0.007*			
Farming Experience (X_6)	-0.380	-2.946	0.005*			

Regularities of visit to farmers (X_7)	-0.118	-.880	0.383
Constant	2.534	5.062	0.000

Note: *P ≤0.05 = Significant, P >0.05 = not significant

Hypothesis 2

Table 7 below shows the relationship between the respondents rating on the type of extension communication techniques accessed and its effectiveness on crop productivity. From the regression tables below, the model summary result indicated that there is a strong and positive correlation between extension communication techniques and crop farmers` productivity. This is evidenced on the value of the co-efficient of the correlation (R) which is 0.896. This value indicates that the strength of the relationship between the variables under study is about 89.60%. The co-efficient of determination (R^2) showed a value of 0.803 which indicates that about 80.30%.

The computed t-statistics for the study showed t-computed as 4.036 at a significant value of 0.05. Using the conventional 5% level of significance, the critical value of t-statistic at 5 degree of freedom (df) is 2.57l. Since the t-calculated is greater than t-critical value (i.e. 4.036>2.571), we reject the null hypothesis and accept that there is a significant relationship between type of extension communication techniques accessed and its effectiveness on crop farmers productivity in the study area. Again, F-computed value 16.290 at significant value of 0.05 is an indication that the model is significant. Thus we conclude that the model is statistically fit, significant and reliable for decision making.

The linear regression model formula can be stated as:

CFPROD = -77.971 + l.225EXCST + μ.

This means that a unit change in the type of extension communication techniques accessed will lead to 1.225 unit changes in its effect on crop farmers` productivity. The implication of this result showed that extension communication techniques go a long way in affecting the productivity of the crop fanners in the study area. This finding is in agreement with Onwubuya, Nenna and Ugbaja (2015) and Adebayo et al., (2003) who reported that the ultimate aim of an extension system is toe effectively and efficiently deliver information to end users in a comprehensible and utilizable manner.

Table 8: SPSS of the Table of Simple Regression for EXCST and CFPROD

Dependent Variable: CFPROD Method: Least Square Method

Independent Variable: EXCST

Variables	Coefficient		t-value	Sig. Value
	B	Std. Error		
C	-77.971	115.490		
EXCST	1.225	0.304	3.664	0.016

Calculated Summary Result: R 0.896; R^2 = 0.803; F – test = 16.29

CONCLUSION

The study has empirically assessed influence of extension communication techniques on crop farmers' productivity in Etche Local Government Area, Rivers State. Specifically, the study covered all the objectives stated such as socio-economic characteristics of respondents, major type of extension communication techniques accessed by crop farmers which include home training/phone calls, radio, demonstration of farm projects and traditional techniques like town crier, identified perception of crop farmers on effectiveness of extension communication techniques. The study also found out the major factors that militate against effective use of extension communication techniques. Finally, the study found out that there is a significant relationship between socio-economic characteristics of crop farmers and the type of extension communication accessed.

RECOMMENDATIONS

Based on the findings from the study, the following recommendations were established:

1. Appropriate extension techniques such as demonstration, home trainings and organization of the extension programmes which provides adequate opportunities for famer to learn and stimulate mental and physical activities should be used at all times.
2. The extension communication techniques not utilized by crop farmers such as agricultural show, journals or magazines. seminar or workshops among others should be improved on for easy access by farmers.
3. The factors that mitigate the effective use of extension communication techniques such as high cost of adopting new innovation, lack of farmer's participation on programme development, irregular training and visit by the extension agents among others should be considered.

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