

# Influence of Extension Communication Techniques on Crop Farmers' Productivity in Etche Local Government Area, Rivers State, Nigeria

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## ABSTRACT

The study examined the influence of extension communication techniques on crop farmers' productivity in Etche Local Government Area, Rivers State. Specifically, the study described the socio-economic characteristics of crop farmers, ascertain extension communication techniques accessible by crop farmers, assess the perception of farmers on the effectiveness of extension communication techniques, examine extent of utilization of information on extension communication techniques to improve productivity; and, finally, determine factors that militate against effective use of extension communication techniques in the study area. 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 analyse 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 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 in the area include: home training/phone calls (82.64%), town crier (80.56%), radio (47.22%) and village drum (43.06%). Lack of farmers' participation on programme development ( $\bar{x}=2.84$ ), some extension practices run contrary to farmers' needs and customs ( $\bar{x}=2.79$ ), lack of trust on extension agents ( $\bar{x}=2.81$ ), irregular training and visit by extension agents ( $\bar{x}=2.76$ ) and high cost of adopting new innovations ( $\bar{x}=3.01$ ) were identified as the major constraints. 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:** Influence, Extension Communication Techniques, Crop Farmers', Productivity

## Introduction

Agriculture as a field of study is concerned with activities of rearing animals, cultivation of soil to grow crops, and improvement of the quality of agricultural produce, products and by products for utilisation 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 per cent of the entire population (Anthony, 2010). For instance, in Benin, Tossou and Zinnah (2005) asserted that agriculture is the foundation of the economy, accounting for about 70 percent of export income and 40 per cent of Gross Domestic Product (GDP). Agriculture is the backbone of Indian economy as the sector remains the principal source of livelihood for more than 52 percent of the population and contributes 14.2 per cent

to the Gross Domestic Product (GDP) (Raghavulu, 2012). 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 per cent 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. Largely, the resource poor with fragmented farm plots, indigenous agricultural production and post-harvest activities, have continued to provide some level of sustenance and even contribute to the economic growth (Omotosho, Ogunlade and Muhammad-Lawal, 2012). Nigeria is largely described as an agrarian society with at least 70 percent of her estimated population living in the rural and sub-urban areas constituting the major food producers (Ibe, 2011). Agriculture is known to be the leading occupation in rural areas where there exists little or no opportunity for development (Widiyanti, Karsidi, Wijaya and Utari, 2020). Agricultural information is essential for improving agricultural production. Specifically, agricultural productivity can arguably be improved by relevant, reliable and useful information and knowledge.

Over the years, there have been several innovations in agriculture, which geared towards achieving the enhancement of crop production. As stated by Loevinsohn, Sumberg and Diagne (2012), the most common areas of innovation in crop production are new varieties of crops, soil fertility management, weed and pest management, irrigation and water management. Challa (2013) observed that by improved input/output relationships, new technology tends to raise output and reduces the average cost of production which in turn results in substantial gains in farm income. It can therefore be deduced that dissemination of information on agricultural innovation to crop farmers is a vital key to economic growth, greater productivity, sustainability and food security which in turn raise the living standard of the rural farmers.

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 communication 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 behaviour 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).

### **Objective of the Study**

The broad objective of the study was to evaluate the influence of extension communication techniques on crop farmers' productivity in Etche Local Government Area, Rivers state. Specifically, the study was designed to:

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

### Statement of Null Hypotheses

**H0<sub>1</sub>** There is no significant relationship between socio-economic characteristics of crop farmers and the type of extension communication techniques utilized.

**H0<sub>2</sub>** Respondents rating on the type of extension communication techniques accessed do not significantly affects their ratings on productivity.

### METHODOLOGY

The study covered Etche Local Government Area in Rivers State, Nigeria. Etche has a boundary with Imo State in the North, Ikwere 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 Nigeria's National Assembly and part of the Rivers East Senatorial District. It was created on 23rd March, 1989. The local government area covers 774.7km<sup>2</sup> and a population density of 453.4km<sup>2</sup>, the area has a population of 249,939 according to 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 rulers' council in the thirty communities 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 others. 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)

Survey design was used for this study. The population of this study comprised of all registered crop farmers in the Etche Local Government Area, Rivers State. As stated in Rivers State Agricultural Development Programme (RISADEP), the total registered farmers' in Etche LGA is one hundred and eighty four (184) crop farmers. 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 communities to make a total of one hundred and forty four (144) crop farmers for the study. Collected data was analyzed using descriptive and inferential statistics such as

frequency distribution, percentage, and mean. For the inferential statistics, the statistical tool used was linear regression at 0.05 significant levels.

**The Model Specification was thus:**

$$Y = b_0 + b_1 X_1 + b_2 X_2 + \dots + b_8 X_8$$

Where;

Y = Extension Communication Techniques

X<sub>1</sub> = gender

X<sub>2</sub> = age (years)

X<sub>3</sub> = marital status

X<sub>4</sub> = educational level

X<sub>5</sub> = household size

X<sub>6</sub> = farm size

X<sub>7</sub> = farming experience

X<sub>8</sub> = Regularity of visit to farmers.

**RESULTS AND DISCUSSION**

The socio-economic characteristics of the respondents are contained in table 1. Majority (67.36%) of the respondents fell within the age bracket of 21-50 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 Elenwa 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). 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 farming than women. This disagrees with the findings of Ezeano and Albert, (2012) 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-formal education. It shows that greater number of the respondents can read and write. According to Albert (2013); Chukwu and Elenwa (2020), the more educated a farmer is the more likely he adopts an innovation. Maritally, 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 of Nnodim et al (2012), 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 finding is in agreement with George *et al* (2020) and Elenwa and Okorie (2018) 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 (2011) which states that about (61%) of the respondents cultivate between 1 and 5 hectares of land. Table 4.1 also indicate 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

N50, 000 and above per annum; while 26.38% of the respondents had income bracket of less than N10, 000 – N50, 000 per annum.

**Table 1: Socio-Economic Characteristics of the Respondents**

Variables	Frequency n = 144	Percentage (%)	Mean (x)
AGE (Years)			42 years
<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 Person	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)			N65,000
< 10,000	7	4.86	
10,000 -30,000	12	8.33	
30,000 – 50,000	19	13.19	
50,000 – 70,000	29	20.14	
70,000 – 90,000	35	24.31	
90,000 and Above	42	29.17	
Regularity of visit to farmers			
Fortnightly	43	29.86	
Monthly	22	15.28	
Quarterly	79	54.86	

Total	144	100
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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 4.2. The extension communication techniques accessible to the farmers include: Home training/Phone calls (82.64%), Demonstration 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 the farmers’.

**Table 2: Extension Communication Techniques Accessible to the Respondents**

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	47.22
Journals/Magazines	0	0.00
Leaflets/handbills	36	25.00
Traditional techniques		
Town crier	116	80.56
Village drum	62	43.06

Source: Field Survey (2022).

### Perception of Farmers on Effectiveness of Extension Communication Techniques

Table 4.4 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	Very 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
Organisation of Home training.	63	24	38	19	419	2.91
Use of leaflets/handbills	29	38	31	46	338	2.35
Use of visual aid such as television	28	34	49	33	345	2.39



Traditional techniques such as village drum and town crier	47	64	19	14	432	3.00
Use of journals and magazines	0	0	33	111	177	1.23
Organization of agricultural shows	0	0	69	75	213	1.48

**Source:** Field Survey, 2022

### Extent of Utilization of Extension Communication Techniques in improving Crop Productivity

Table 4.5 shows the extent of utilization of extension communication 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 4: Extent of Utilization of Extension Communication Techniques to improve 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 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

**Source:** Field Survey, 2022

### 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 customs ( $\bar{x}$ =2.79) and high cost of adopting new innovations ( $\bar{x}$ =3.01).

Table 6: Factors Militating the Effective Use of Extension Communication Techniques

Variables	To 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 visit 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	409	2.84
Lack of finance	9	15	56	64	257	1.78
Lack of trust in extension agents	46	42	38	18	404	2.81
High cost of adopting new innovations	52	49	36	7	434	3.01

**Mean Score:**  $\geq 2.50$  = constraint;  $< 2.50$  = not constraint

**Hypotheses 1:** Table 7 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 ( $R^2$ ) 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 farmers (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. Household size ( $X_5$ ) 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. Albert et al, (2010) and Elenwa and Okorie (2019) 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 ( $X_6$ ) 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 <sup>a</sup>	0.260	0.47820
Age ( $X_2$ )	-0.066	-.770	0.445			
Marital status ( $X_3$ )	0.011	-.141	0.888			



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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

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**Source:** Field Survey, 2022 \* $P \leq 0.05$  =Significant,  $P > 0.05$  = Not Significant.

## CONCLUSION AND RECOMMENDATIONS

The study concluded that the major type of extension communication techniques accessed by crop farmers which include home training/phone calls, radio, demonstration farm projects and traditional techniques like town crier, identified perception of crop farmers on effectiveness of extension communication techniques. Also, the major factors that militate against effective use of extension communication techniques. Finally, there is a significant relationship between socio-economic characteristics of crop farmers and the type of extension communication accessed. Based on the findings from the study, the following recommendations were established: appropriate extension techniques such as demonstration, home trainings and organization of the extension programmes which provides adequate opportunities for farmers' to learn, and stimulate mental and physical activities should be used at all times.

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