

FACTORS AFFECTING EFFECTIVENESS OF EXTENSION COMMUNICATION BETWEEN EXTENSION AGENTS AND COCOYAM FARMERS IN IVO LGA OF EBONYI STATE, NIGERIA.

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ABSTRACT

This study determined factors affecting effectiveness of extension communication between extension agents and cocoyam farmers in Ivo LGA of Ebonyi State, Nigeria. Multi-stage random sampling technique was employed in collecting data from sixty (60) cocoyam farmers using a semi-structured questionnaire. Descriptive statistics and probit regression model were used to summarize data. The result showed that the factors that influenced effectiveness of extension communication between extension agents and the cocoyam farmers were age, education level, extension contact and ownership of phone which were significant determinants of effectiveness of extension communication between extension agents and cocoyam farmers at varied signs and levels. The study therefore recommended that more qualified people should be trained and employed as extension agents so as to solve the problems of low extension agents to farmer ratio, which causes unavailability of extension agents to farmers and poor performance in farm visits by extension agents.

Keywords: Effectiveness, Extension Communication, Extension Agents, Cocoyam Farmers, Ivo L.G.A.

INTRODUCTION

Cocoyam (*Colocasia esculenta* and *xanthosoma mafafa*) is herbaceous perennial plant belonging to the family Araceae that is made up of 100 genera and 1500 species

and are grown primarily for their edible roots, although all parts of the plant are edible. Cocoyam that is cultivated as food crop belongs to either the genus *Colocasia* or the genus *Xanthosoma* and is generally

composed of a large spherical corm (swollen underground storage stem), from which a few large leaves emerge. The corm produces lateral buds that give rise to side-corms (cormels, suckers) or stolons (long runners, creeping rhizomes) depending on the species and variety. Cocoyam is an important staple food in Nigeria. It is highly recommended for diabetes patients in phytomedicine, a daily consumption of roasted cocoyam with palm oil for three months is recommended for diabetes treatment. It is also recommended for children with allergy, the aged, and other persons with intestinal disorders (Plucknett, 1970; Ohiri *et al*, 1996). Nigeria is the largest producer of cocoyam in the world with an annual production of 533 million metric tones per annum (FAO, 2008). Cocoyam ranks third after cassava and yam among staple root and tuber crops in Nigeria, in terms of importance, total output and production area. It has high economic potential, not only as food (main meal, snacks and adjunct in thickening soup) but as an agro-industrial raw materials for pharmaceuticals, confectionery and livestock industries (FAO, 1990; Kundu *et al*, 2012). Effective communication between the extension workers and the cocoyam farmers is necessary for the adoption of agricultural innovation. Communication process is also important to change the values and attitude of the farmer towards the

modern techniques of farming. Through communication process, extension workers are able to pass information to farmers and farmers on the other hand are able to channel their problems to the extension agents. Communication in agricultural extension is the process by which information on agriculture is transferred from the source to the receivers who are mainly the farmers for the purpose of changing their behaviours towards achieving desired results. Effective communication therefore, is when a communicator has presented his/her message in such a way that it is received by the person being communicated as the communicator intended. The objectives of this study were to describe the socio-economic characteristics of the cocoyam farmers and determine factors affecting effectiveness of extension communication between extension agents and cocoyam farmers in Ivo Local Government Area of Ebonyi State.

METHODOLOGY

The study was conducted in Ivo Local Government Area of Ebonyi State, Nigeria. The area was chosen for the study owing to the fact that farming is the predominant occupation of the people. Ivo L.G.A lies between Latitudes 5° 43' and 5° 51' North of the Equator and Longitudes 7° 29' and 7° 35' East of the Greenwich Meridian. It has

an annual rainfall range of about 1,200mm to 1,600mm and temperature range from 27⁰c to 33⁰c. The Local Government Area is made up of three autonomous communities namely Ishiagu, Ihie and Akaeze and comprises 32 villages. A multistage random sampling technique was used in this research. First, from the three communities, 4 villages each were randomly selected to give a total of 12 villages. From the villages that were selected, 5 cocoyam farmers each were randomly selected to give a total of sixty (60) cocoyam farmers. A semi-structured questionnaire was used in soliciting from the farmers. Descriptive statistics such as means, percentages and frequencies distribution were used to analyze objectives (i) while objective (ii) was captured using probit model. The model is expressed by (Gujarati, 2003);

$$P_i [y = 1] [Fz_i] \dots\dots\dots(1)$$

Where

$$Z_i = \beta_1 + \beta_1 X_1 + e \dots\dots\dots(2)$$

$$Y_1 = \beta_1 + \beta_2 X_{2i} + \dots\dots\dots + \beta_k X_{ki} + N \dots\dots\dots(3)$$

Y_i^* is unobserved but $y_i = 0$ if $y_i^* < 0$, if $y_i^* \geq 0$

$$P(y_i = 1) = P(y_i^* \geq 0)$$

$$P(u_i \geq -\beta_1 + \beta_2 X_{2i} + \dots\dots\dots + \beta_k X_{ki}) \dots\dots\dots(4)$$

$i = 1, 2 \dots 60$ farmers

Where Y_1 = the effectiveness of communication to cocoyam farmers.

(Dichotomous variable 1 = effective; 0 = not effective)

B = A vector of unknown coefficient.

X_1 = vector of characteristics of i^{th} individual and it's independent variable which is defined as follows;

X_1 = Gender (1 = male; 0 = female)

X_2 = Age of farmers (years)

X_3 = House hold size (Number)

X_4 = Marital status (Yes = 1, if married, 0 = otherwise)

X_5 = Years of formal education (years)

X_6 = Farming experience (years)

X_7 = Farm size (hectares)

X_8 = Extension contact (no of time)

X_9 = Membership of farmers association (membership = 1, otherwise = 0)

X_{10} = Farm income (Naira)

X_{11} = Mobile phone ownership (have = 1, otherwise = 0)

X_{12} = Access to electricity (Access = 1, otherwise = 0)

μ = Error term.

RESULTS AND DISCUSSION

Socio-economic Characteristics of the Respondents

Table 1 showed that the mean age of the cocoyam farmers is 47 years. This result has a lot of positive implications as the able bodied middle aged farmers can cope better with the daily challenges of farm enterprises and readily accept new innovation (Nwaneri *et al.*, 2017) while majority (78.3%) of the

cocoyam farmers were females and 61.7% of them were married. The mean household size of the cocoyam farmers was 6 and a large proportion (98%) of the farmers were literate with diverse formal educational levels ranging from primary school education to tertiary education. The cocoyam farmers had 17 years as mean farming experience and 0.6 hectares as mean farm size.

Majority (56.7%) of the cocoyam farmers did not belong to any agricultural association and had mean annual farm income of ₦107,678 while only 40.0% of them had access to credit. According to Ijere (1998) credit is a catalyst that activates other factors of production and makes under-used capacities functional for increased production.

Table 1: Distribution of Cocoyam Farmers Based on Socio-Economic Characteristics.

Characteristics	Frequency	Percentage
Age		
11-20	1	1.7
21-30	7	11.7
31-40	21	35.0
41-50	20	33.3
51-60	8	13.3
Mean = 47.3		
Gender		
Male	13	21.7
Female	47	78.3
Householdsize		
1-5	28	46.7
6-10	27	45.0
11-15	5	8.3
Mean 6.4		
Marital Status		
Single	14	23.3
Widow(er)	7	11.7
Divorced/separated	2	3.3
Level of Education Attained		
No Formal Education	1	1.7

Primary	5	8.3
Secondary	30	50.0
Tertiary	24	40.0
Farming Experience		
1-10	9	15.0
11-20	24	40.0
21-30	20	33.3
31-40	7	11.7
Mean = 17.44		
Farm size		
< 0.5	16	26.7
0.5-1.0	20	33.3
1.1-1.5	12	20.0
>1.5	12	20.0
Mean = 0.6		
Extension contact		
Very regular extension contact	14	23.3
Regular extension contact	15	25.0
Less regular extension contact	7	11.7
Membership status		
Member	26	43.3
Non-member	34	56.7
Farm income		
1000-4000	5	8.3
41000-80000	9	15.0
81000-120000	25	41.7
>120000	21	35.0
Mean = 107.678		
Credit Access		
Yes	24	40.0
No	36	60.0

Factors affecting Effectiveness of Extension communication between Extension Agents and Cocoyam Farmers

Table 2 showed estimates of the probit regression model which was used to determine factors that influenced effectiveness of extension communication between extension agents and cocoyam farmers in Ivo L.G.A of Ebonyi State, Nigeria. The model posted a log likelihood value of -15.24650, a Psedo R^2 value of 0.630731 and a goodness of fit chi-square value of 52.08365 which was statistically significant at $p < 0.001$. Overall four variables (age, educational level, extension contact and ownership of mobile phone) were revealed as significant determinants of effectiveness of extension communication between extension agents and cocoyam farmers. The coefficient of age (-0.053625) has a negative significant effect ($P < 0.05$) on effectiveness of extension agents in knowledge transfer. This suggests that technological transfer decline as cocoyam farmers in the study area become older. The coefficient of education (1.00E-05) has a positive significant effect ($P < 0.05$) on

effectiveness of extension agents in communicating with the farmers on cocoyam based technologies. Nwaneri *et al* (2016) posits that a person's level of educational attainment is likely to affect his or her degree of business alertness and ability to seize business initiatives and advantages. The coefficient of extension contact (0.710942) has strong positive significant effect ($P < 0.05$) on communication effectiveness between extension agents and the cocoyam farmers. Lastly, the coefficient of mobile phone ownership (0.806111) was positive and statistically significant at 10.0% level. This implies that owning a mobile phone by the cocoyam farmers increased the chance of them communicating effectively with extension agents. According to Ibezim and Osondu (2014) use of information and communication technologies such as mobile phone portend great potentials for agricultural extension service delivery by making it possible to extend quality information faster in a bottom-top and interactive channel of communication.

Table 2: Binary Probit Regression Estimates of Factors Affecting Effectiveness of Extension Communication between Extension Agents and Cocoyam Farmers.

Variables	Estimated coefficient	Standard error	Z-Statistic	Prob.
Constant	-2.354512	2.142179	-1.099120	0.2717
Sex	-0.514423	0.797826	-0.644781	0.5191
Age	-0.053625	0.025811**	-2.077609	0.0377
Household Size	0.014397	0.148091	0.097216	0.9226
Marital status	-0.036802	0.563026	-0.065365	0.9479
Education level	1.00E-05	4.47E-06**	2.242310	0.0249
Farming Experience	0.044117	0.060135	0.733630	0.4632
Farm Size	-0.084644	0.131143	-0.645431	0.5186
Extension Contact	0.710942	0.312076**	2.278103	0.0227
Membership to association	0.361534	0.715298	0.505432	0.6133
Farm income	-0.021292	0.321551	-0.066216	0.9472
Mobile Phone ownership	0.806111	0.433033*	1.861547	0.0627
Access to electricity	0.060608	0.746335	0.081207	0.9353
Relationship with extension agents	0.497587	0.774255	0.642666	0.5204
Log likelihood	-15.24650			
Chi ² statistic	52.08365			
Prob	0.000001			
Pseudo R ²	0.630731			

Source: Field survey, 2017

**, * Significant at 5.0% and 10.0% alpha levels respectively.

CONCLUSION AND RECOMMENDATION

The study revealed that age, educational level, extension contact and ownership of mobile phone were significant determinants of effectiveness of extension

communication between extension agents and cocoyam farmers. Based on the findings of this research, the following recommendations were made: More qualified people should be trained and employed as extension agents so as to solve

the problems of low extension agents to farmers ratio, extension agents should endeavor to provide follow-up appointment with farmers always, farmers should be educated on the benefits of belonging to cooperative societies and regular meeting attendance by the extension agents and extension agents should make policies to encourage the use of mobile phones by farmers.

REFERENCES

- FAO (1990). *Roots, Tubers, Plantains and Bananas in Nutrition*. FAO, Rome Italy.
- FAO (2008). *Agricultural Technology development FAP Repository Documents Statistics*.
- Ibezim, G.M.C. and Osondu, C.K. (2014). *Information and Communication Technologies (ICTs) Compliance of Extension Personnel in Imo State Agricultural Extension Service Delivery System of Nigeria*. *International Journal of Agricultural Science, Research and Technology in Extension and Education Systems*, 4(2): 115-121.
- Ijere, M.O. (1998). *Agricultural Credit and Economic Development*. In: Ijere M.O. and Okories A. (eds). *Reading in Agricultural Finance*. Longman, Lagos, pp 4-9.
- Kundu N. Campbell, P., Hampton, B., Lin, C., Ma, X., Ambulou, N., Zhao, X.F., Galoubeva O., Holf D. and fulton. A.M. (2012). *Antimetastatic activity isolated from colocasia esculenta (taro)*. *Anti cancer drugs* 2: 200-211.
- Nwaneri, T.C., Ume, S.I., Chukwu, O.A., Ben-chukwu M.A., Orji, P.N and Aroh, J.E (2016). *Economics of Okra Marketing in Ivo Local Government Area of Ebonyi State, Nigeria*. *Proceedings of 50th Annual Conference of Agricultural Society of Nigeria (ASN)* held in N.R.C.R.I Umudike, Abia State, Nigeria. 3rd – 7th October, Pp 24-26
- Nwaneri. T.C., Chukwu, O.A., Okoroafor, I.B., Orji, P.N and Aroh, J.E. (2017) *Adoption of Cassava Processing Technologies by Farmers in Afikpo North L.G.A of Ebonyi State, Nigeria*. *International Journal of Agriculture, Management and Technology*. 1(1): 74 – 79
- Ohiri, A.C., Nwokocha, H.N., Okwuowilu, P.A. and Chukwu, G.O. (1996). *Literature review and survey of farmers on the effects of inorganic fertilizers on quality and shel-life of root and tuber crops*. Final report submitted to NAFCON (nig) Ltd, NRCRI, 54P.

Plucknett; D.L. (1970). The states and future of major aroids, colocasia, xanthosoma, Alocasia crystonsperma and amorphol-phallus in tropical root crops tomorrow proc.int.symp tropical root crops, Hawaii 1. 127-135.

Ume, S.I. Nwaneri, T.C. Kadurumba, C. and Ulo. E.V. (2014) Status and prospect of cocoyam farming in South Eastern Nigeria. Proceedings of 4th Annual Conference of the Agricultural Society of Nigeria. Held at University of Abuja Nigeria Nov 24-27th 2014. Pp 992-995.