ANALYSIS OF CONTACT FARMERS INVOLVEMENT IN AGRICULTURAL EXTENSION SERVICE DELIVERY IN IMO STATE, NIGERIA.

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ABSTRACT
The study analysed contact farmers involvement in Agricultural Extension Service Delivery in Imo State. It specifically examined the influence of socio-economic characteristics of contact farmers on their involvement in extension service delivery, assessed contact farmers performance in teaching and communication, determined contact farmers involvement in technology dissemination and identified barriers faced by contact farmers in extension service delivery. One hundred (100) contact and Non-contact farmers were selected through multi-stage sampling technique. Primary data were collected using structured questionnaire and analysed using percentage, mean statistic and binomial logit model. Result showed that gender, age, field experience, access to mobility and income were statistically significant at 1% level of probability. The contact farmers (C.Fs) are found to have performed well in some aspects of teaching and communication, such as fast provision of beneficial messages to farmers (m=2.6), practical teaching (m=2.7), skill demonstration (m=2.5) and using language farmers understand easily (m=2.8). Contact farmers are perceived to be involved in technology dissemination with various problems associated with it. Among the problems identified, poor government policy support ranked first as the most pressing while poor communication infrastructure and technical know-how of extension agents were rated least problems. The study called for adequate training of the contact farmers to prepare them effectively for challenges in extension service delivery.
Keywords: Agriculture, Contact farmers, Extension service delivery, Involvement.

INTRODUCTION
Increased agricultural production is ensured through adoption of improved agricultural technology which can only be achieved through effective and efficient extension service delivery. This remains one of the most crucial and critical means to reach farming household in rural areas globally (Chukwu, 2014). Looking at agricultural extension service which aimed at providing farmers with necessary educational skills and technical information to enable them make effective farm management decisions to enhance their daily practices, effective extension delivery is an essential factor for the accelerated development of agriculture in developing economics (Nwaiwu *et al*; 2014). To enhance the delivery services, extension agent-farmer ratio should be adequate and encouraging for wider coverage. Unfortunately, there is short fall in extension coverage as a result of low turnout of Extension agents in the field, hence the involvement of contact farmers (C.F.) This is to bring home the potentials of modern agriculture through extension in a faster and wide spread manner as complementary extensionists to cover areas and farmers not reached by extension agents (EAs).

The term C.F. is used to describe those group of farmers formerly selected, regularly trained and re-trained by EAs in the use of proven agricultural technologies in the hope that they would share their experience with other farmers (Awoniyi and Akinleye, 2013). Understanding the circumstances that characterize C.F. complementary roles and participation towards achieving the objectives of agricultural extension is key to understanding how best to use CF for greater extension service delivery. Such understanding, according to Agbamu (2011) lies in the knowledge of the inadequacies associated with C.F. involvement in extension service delivery. The difficulty to effectively gauge the extent to which C.F. have helped in achieving these objectives at rural farmers household level is as a result of poor knowledge of their involvement and performance in extension service delivery. Their teaching and communication ability is yet to be ascertained.

A study by Ikeh (2001) asserted the relevancy of C.F. in extension delivery and posited it was a good decision in a right direction, but still doubt their full involvement in this delivery services.
The study further found that some socio-economic variables of the C.F. influence negatively their involvement in the service delivery and called for proper check to it.

In view of the need for C.F. involvement in extension service delivery and doubt about their performance and adequate involvement, this study on analysis of C.F, involvement in agricultural extension service delivery was carried out with the following objectives:

i) examine the influence of socio-economic characteristics of C.F. on their involvement in extension service delivery;
ii) assess C.F. performance in teaching and communication;
iii) determine non-contact farmers perception of C.F. involvement in technology dissemination;
iv) identity barriers faced by C.F. in agricultural extension service delivery;

A hypothesis of no significant relationship between the socio-economic characteristics of C.F. and their

involvement in agricultural extension delivery was postulated.

MATERIALS AND METHODS

The study was carried out in Imo State located in the rainforest zone of Nigeria (Imo ADP, 2013). It lies between latitudes $5^{\circ}45^{'}$ and $6^{\circ}\ 35^{'}$ North of the equator and longitudes $6^{\circ}\ 35^{'}$ and $7^{\circ}\ 28^{'}$ East of the Greenwich meridian (Chineke *et al*; 2011). Imo State covers an area of about 5,067,20km^2, with a population of 3,934,899 persons with many subsistence farmers (NPC, 2006) and NBS (2007).

A multi-stage sampling technique was used to select 100 C.F. and non-contact farmers. Thirty (30) contact and non-contact farmers were drawn each from Orlu and Okigwe zones. While forty (40) contact and non-contact farmers were drawn from Owerri zone. Primary data were collected using structured questionnaire. Both descriptive and inferential statistical tools were employed for data analysis. Performance in teaching and communication of C.F. was analysed using mean statistic; while C.F. involvement in technology dissemination as perceived by non-contact farmers and problems associated with their involvement were achieved using percentage. The binomial logit model was applied to examine the socio-economic characteristics of C.F. and their involvement in extension service delivery. A discriminatory index of 2.5 was used to decide C.F. performance in teaching and communication.

The implicit binomial logit model is stated as follows:

$p(Y=1)\ e\beta x1+e$

$Y= \log(p/1-p) =$

$f(X_1,X_2,X_4,X_5,\ X_6,X_7,X_8,X_9\ ei)$

where the logit of a number p between0 and1 is given by the formula: p is the probability while 1-p is the corresponding odds, and the logit of the probability is the logarithm of the odds. p is the probability while 1-p is the corresponding odds and the logit of the probability is the logarithm of the odds.

Y = contact farmers status (Dummy variable; Involvement in agricultural extension delivery = 1, no-involvement = 0)

X_1 = Age (years)

X_2 = Gender (Male = 1, Female = 0)

X_3 = Educational level (years)

X_4 = Field experience (years)

X_5 = Mobility (Access to mobility = No access to mobility = 0)

X_6 = Household size (Number of persons)

X_7 = Income (₦)

X_8 = Extension contact

X_9 = Area of coverage

ei = error term

RESULTS AND DISCUSSION

Table 1 showed the binomial logit model analysis of socio-economic characteristics of C.F. and their involvement in extension service delivery. Result gave R^2-value of 0.584 implying that gender(t = 6.110), age (t = 11.494), marital status (t = 1.333), household size (t = 1.101), education (t = 0.032), field experience (t = 7.118), extension contact (t= 0.981), access to mobility (t = 5.133), area of coverage (t = 0.981) and income (t = 7.133) explained 58.4% of the variation in the involvement of C.F. in extension service delivery. However, among the socio-economic variables regressed against C.F. involvement in extension, result indicated that gender, age, field experience, access to mobility and income were statistically significant at 1% level of probability. The result is in corroboration with the finding of Saito (2009) who stated that access and delivery of agricultural extension services are by default biased towards the male gender.

Table 1: Binomial Logit model analysis of socio-economic characteristics of contact farmers and their involvement in extension service delivery.

Variables	Coefficient	Standard error	Wald test	p-value	Exponential coefficient (B)
Gender ($X_{1)}$	2.578	1.643	6.110**	0.000	9.031
Age (X_2)	1.612	0.312	11.494**	0.006	4.103
Marital status (X_3)	0.421	0.224	1.133^{NS}	5.230	0.123
Household size (X_4)	0.210	0.610	1.100^{NS}	8.814	0.201
Education (X_5)	1.124	0.213	0.032^{NS}	7.101	0.381
Field experience (X_6)	3.217	2.231	7.118**	0.003	1.442
Extension contact (X_7)	1.223	1.021	0.981^{NS}	4.571	0.031
Access to mobility (X_8)	6.884	1.132	5.133**	0.000	3.241
Area of coverage ($X_{9)}$	0.092	0.421	1.102^{NS}	3.122	0.721
Income (X_{10})	2.102	2.001	7.133**	0.000	1.301
Constant	4.113	1.413	3.214**	0.000	0.023

Source: SPSS computation from field survey, data 2017

R^2 = 0.584.

Note: ** indicates significant at 1% level of probability**

Result in Table 2 is on the perceived performance of C.F. in teaching and communication. Findings showed that C.F. has performed well in areas of allowing farmers to visit their farms (m =3.1), provision of

beneficial messages to farmers (m = 3.0), fast communicating new technologies to farmers (m = 2.0), practical teaching (m =2.7), skill demonstration (m = 2.5), and use of language farmers understand easily (m = 2.8). Their performance in teaching and communication cannot be said to be adequate in view of various areas presented in table 2. Effiong and Etim (2012) substantiated this result when they stated in their findings on rural livelihood and food security that non-contact farmers are directed to visit the farms of C.F which are used to carry out demonstrations in agricultural innovations. This called for their intensive training to equip them strongly in challenges of extension delivery.

Table 2: Distribution of Contact Farmers' Performance in Teaching and Communication

Areas of effectiveness	Poor	Fair	Good	Very good	Sum	Mean
Allows farmers to visit their farms	07	10	46	37	313	3.1*
Knowledge of subject matter	22	34	38	06	228	2.3
Knowledge of farming problem	31	38	24	07	235	2.4
Provision of beneficial message	9	6	62	23	299	3.0*
Communicate new technologies to farmers fast and good	6	36	49	9	261	2.6*
Punctuality	51	22	7	10	190	1.9
Practical teaching	12	27	41	20	269	2.7*
Theoretical teaching	38	21	16	25	228	2.3
Communicate your problems to extension agents	31	23	38	8	223	2.2
Good presentation of topics	33	46	13	8	196	2.0
Knowledge of new technologies	21	33	35	11	236	2.4
Integrate theory and practical well	35	22	23	2	156	1.6
Listen to your problems	34	41	20	5	196	2.0
Give fair treatment to all farmers	26	36	30	8	220	2.2
Explain improved technology clearly	34	37	20	9	206	2.1
Allow farmers to discuss	20	30	39	11	241	2.4
Conduct small plot adoption techniques (SPATs) properly	27	43	24	6	209	2.1
Demonstrate skill	19	37	22	22	247	2.5*
Human relation skill	23	34	21	22	242	2.4
Use of language farmers understand easily	7	31	36	26	281	2.8*

Source: Field survey data, 2017

M ≥2.5 (*Significant) M < 2.5 (Not significant)

Result in Table 3 showed perceived involvement of C.F. in technology dissemination by the Non-contact farmers. Finding shows that C.Fs. are involved in technology dissemination as indicated by majority (57.0%) of the Non-contact farmers. This confirms the findings and views of researchers who have worked and written on the participation of C.F. in extension service delivery such as Asiabaka (2002); Agbamu (2011); Agbarevo et al; (2013); Adejo *et al*; (2012) who found that extension agents involve C.Fs in farmer to farmer extension contact. Awoniyi and Akinleye (2012) stated that the reason informing the involvement of C.F. in disseminating agricultural technologies include to complement the efforts of extension agents whose disproportionate ratio to farmers makes extension service delivery in Nigeria grossly inadequate.

Table 3: Distribution of non-contact farmers by their perceived involvement of contact farmers in technology dissemination

Involvement	Frequency	Percentage
a. Contact farmers are involved in technology dissemination	57	57.0
b. Contact farmers are not involved in technology dissemination	43	43.0
Total	**100**	**100**

Source: Field survey data, 2017

Results on problems associated with C.F. involvement in extension service delivery is shown in Table 4. Findings revealed that various problems are associated with their involvement in extension delivery. Poor government policy support was seen as the most pressing problem and ranked first, while poor communication infrastructure and poor technical know-how of EAs were rated as least problems. Asiabaka (2012), Agbamu (2011), Okoroma and Anaeto (2013), Nwachukwu (2013) in their separate findings agreed that poor government support in the form of grants, subsidies, trainings, has often discouraged C.F. from engaging in farmer-to-farmer extension, as they consider the task time consuming

and energy sapping for which they must be given some gratification. These problems need to be checked in order to achieve the aim of involving the C.F. in extension service delivery.

Table 4: Distribution of contact farmers by problems associated with their involvement in agricultural extension service delivery

Barriers	*Frequency	Percentage	Rank
i. Poor government policy support	89	89	1st
ii. Lack of improved technologies	66	66	4th
iii. Poor logistics support	34	34	7th
iv. Poor access to mobility	47	47	6th
v. Conservativeness of the farmers	56	56	5th
vi. Inadequate finance	32	32	8th
vii. Poor feeder roads	31	31	9th
viii. Tradition and culture of the people	23	23	11th
ix. Illiteracy of farmers	68	68	3rd
x. Poor communication infrastructure	22	22	12th
xi. Lack access to timely agricultural information	69	69	2nd
xii. Poor training from extension agents	31	31	9th
xiii. Poor technical know-how of extension agents	22	22	12th

Source: Field survey data, 2017 ***multiple response recorded**

CONCLUSION

Convincingly, contact farmers are involved in extension service delivery, but have not performed excellently in teaching and communication aspect. This could be as a result of the associated problems which has manned their performance. This therefore called for need for intensive training of the C.F. especially in the areas of teaching and communication which is the focal point in technology dissemination and adoption.

REFERENCES

Adejo, R.E.; Okwu, O.J. and Ibrahim, M.K. (2012). Challenges and prospects of privatization of Agricultural Extension Service Delivery in Nigeria. *Journal of Agricultural Extension and Rural Development, 4 (3) 63-68.*

Agbamu, J.U. (2011). Problems and prospects of agricultural extension service in developing countries. Madukwe, M.C. (Ed.), Agricultural extension in Nigeria. Ilorin: Agricultural Extension Society of Nigeria (AESON) pg 101.

Agbarevo, M.N.B; Machiadikwe, N; and Benjamin N; (2013). Farmers' perception of Effectiveness of Agricultural Extension Delivery in Cross River State. Journal of Agriculture and Veterinary Science; 2 (6) 1-7.

Awoniyi, S.M and Akinleye S.O. (2013). Relative performance of contact and Non-contact ADP farmers in food crop production in Osun State: Department of Agricultural Economics, College of Agricultural Sciences, Olabisi Onabanjo University, Yewa Campus, Ayetoro, Ogun State, Nigeria; Accessed online: 12-06-2012.

Asiabaka, C.C. (2002). Agricultural Extension: A handbook for Development practitioners. Molsyfem United Services, Omoku, Rivers State; 148-152

Asiabaka, C.C. (2012). Imo Farmers Field School. In: FUTO News magazine. A Quarterly publication of Federal University of Technology, Owerri, Nigeria, 81 (2): 23.

Chineke, T.C.; Idinoba M.E. and Ajayi O.C. (2011). Seasonal evapotranspiration signatures under a changing landscape and ecosystem management in Nigeria: implications for agriculture and food security; American journal of science industrial resources 2(2): 191- 204.

Chukwu, A.O. 2014. Farmers Perception of Opinion Leaders in Agricultural Extension Delivery. International Journal of Agriculture and Rural Development 17(3): 1967-1972.

Effiong, J.R. and Etim, D.O. (2012). Concept of Rural livelihood and Food security for Growth and Development in Nigeria. Proceedings of 26th Annual Conference of Farm Management Association of Nigeria. October 15th – 19th, 2012 (Pp 287-290).

Imo-ADP (Imo State Agricultural Development Program) (2013). Imo State Agricultural Project implementation completion review report. (Accessed 28 February, 2016). Pp, 1-54.

Ikeh, A.N. (2017) Assessment of contact Farmers' Involvement in Agricultural Extension Service Delivery in Imo State, Nigeria. Unpublished M.Sc theses, Department of Agricultural Economics, Extension and Rural Development, Imo State University, Owerri, Nigeria.

NBS (National Bureau of Statistics) (2007) National Bureau of Statistics Official Gazette (FGP 71/52007/2, 500(OL24): Legal Notice on Publication of the Details of the Breakdown of the National and State Provisional Totals,

2006 census. www.nigerianstat.gov.ng (accessed 28 February, 2016).

NPC (Nigeria Population Commission) (2006) Nigeria population commission, Nigeria Federal Government Initiative of individual head count by gender-spread, state by state. In: MOFI NEWS: (accessed 28 February, 2016). Jan-Feb, 2007, 6(3): Nigeria.

Nwachukwu, I. (2003). Agricultural Communication: Principle and practice. Umuahia: Lamb House Publishers.

Nwaiwu, J.C., Onubuogu, G.C. and A.O. Chukwu. (2014). Empowering Small-Scale Farmers through the Adoption of Soil degradation Technologies: A case study of Arable Crop Farmers in Imo State, Nigeria: 2015 Cambridge Business and Economics Conference; July 1-2, 2015; Cambridge, UK; Pp 1-12

Okoroma, E.O. and Anaeto F.C. (2013). Organizational Efficiency of Extension service in Agricultural Development Programme (ADP) in Imo State. International Journal of Agriculture and Rural Development, SAAT, FUTO. 16 (1): 1372-1377.

Saito, A (2009). Access to Fertilizer subsidy among Food crop farmers in Osun State, Nigeria. International Journal of Agricultural Economics *and Rural Development 1 (2): 1-7.*