
Farmers Knowledge of the Role of Extension Services in Akwa-Ibom State Nigeria

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Abstract

The study examined farmers' knowledge of the role of extension services in Akwa-Ibom State. Specifically, the study examined socio-economic characteristics of the farmers in the study area, ascertained level of farmer's knowledge on the role of agricultural extension in general agricultural development and also identified problems militating against farmers' knowledge of these roles in the state. Multistage sampling techniques were used in selecting 180 respondents for the study. Descriptive statistics was used for data analysis while Probit regression analysis was used to test the hypotheses. The results show that the farmers had high knowledge in areas of role and information transfer through agricultural extension, while they had low knowledge in areas of effective implementation of knowledge and information gained. This has impeded the expected food security the nation hopes to attain through proper training and implementation of programs by farmers. However, major constraints limiting farmers' knowledge in agricultural extension are poor understanding and application of technologies ($\bar{x} = 4.4$) as well as irregular visit and supervision of farmers by extension agents ($\bar{x} = 4.0$). Probit regression analysis shows that extension contact (2.705), level of education (3.389), farm status (3.282), income (2.505) and membership of cooperatives (6.012) were positive and highly significantly related to the level of farmers' knowledge in the state. The study therefore recommends that knowledge of extension service should be brought closer to the farmers, through participatory extension approach under stable policy and sustainable institutional arrangement.

Keywords: farmers' knowledge, extension services, agricultural development, Akwa-Ibom State.

Introduction

The history of the word extension dates back to 1850 when the universities of Oxford and Cambridge began to brainstorm on how they could serve the educational needs of the farmers living close to them. Thus “university extension” emerged when itinerant teachers went about giving lectures to the urban population in literary and social topics. From the 1980s agricultural topics were included for the rural farmers within the university community, (Jones, 2014).

The role of agricultural extension in social and economic development of the nation cannot be over-emphasized. Never before in Nigerian history has the necessity for educating and raising the productive capacity of the farmers been of such importance as it is today. Increased agricultural productivity depends primarily upon the acceptance of cultural and technological changes at the rural farm level. Thus, for Nigerian agriculture to improve, our farmers have no alternative but to learn and adopt recommended scientific farming techniques in place of their traditional practices. Perhaps, the slow development of Nigerian agriculture can be attributed to the inability of the Nigerian farmers to respond positively to new ideas or innovations. For farmers to respond positively to new ideas, they must be properly educated on how best to apply the new ideas or practices to their farming activities (Umeh; Ekumankama; Nwachukwu and Ekwe, 2015). This is because the new ideas are often complex, technical and can hardly be understood by most of our farmers. Nigeria cannot achieve increased agricultural productivity on rural farm level, except through the provision of basic agricultural education, particularly, the non-formal form which is the extension type that will help move millions of the farmers from traditional to progressive farming, thereby improving the overall quality of rural life. It is not very easy to define agricultural extension in a short concise, phrase or statement. Any attempt to define it properly would involve lengthy explanation of several principles and philosophies.

However, different authorities and experts have defined extension in different forms and ways, all ending on the improvement of the standard of living of the people. Fisher (2013) described extension as a system of education extending beyond the classroom to individuals on the farms and is available to every member of the family. Fisher, thus, analyzed extension in terms of family approach system whereby all members of the family are taken into consideration in planning extension programme. VandeBan & Hawkin (2012), in their opinion defined extension as involving the conscious use of communication of information to help people form sound opinions and make good decisions. They explained extension systematically as a process which helps farmers to analyze their present and expected future situations, helps farmers to become aware of the problems, which can arise in such an analysis, increase knowledge and develop into problems and help to structure farmers' existing knowledge, help farmers to acquire specific knowledge related to certain problems, solutions and their consequences so that they can act on possible alternatives, help farmers to evaluate and improve their own opinion-forming and decision-making skills. Hence, the role of extension agents in acquiring Agricultural Knowledge Information Systems (AKIS) is very important to enable them transfer technical knowledge and

also facilitate brokering and coaching of different farmers (World Bank, 2016; Umeh, 2016).

The extension service delivery system in Akwa Ibom is very poor. The number of extension workers in Akwa Ibom is very low compared to the number of farmers. The few available ones have no-means of mobility to visit the farmers. Many of them are not prepared to live in rural areas where farmers reside. Those that are ready to stay in the rural areas are not adequately remunerated. All these factors combine to bring about poor extension delivery to farmers in Akwa Ibom and hence, impede farmer's awareness on the role of agricultural extension (Abasi, 2009).

Therefore, the ability of farmers to contribute and participate effectively towards agricultural development depends on their ability to optimize the services of agricultural extension agents. The question therefore is: to what extent does farmers level of knowledge on the role of extension services play towards general agricultural development in Akwa-Ibom State. Specifically, the study examined the socio-economic characteristics of the farmers in the study area, ascertained the level of farmers' knowledge of the role of agricultural extension in general agricultural development and identified problems militating against farmers' knowledge of the role of agricultural extension in agricultural development in the state

Hypothesis

H₀1: Age, sex, level of education, farming status, farming experience, extension contact, income, sources of information and cooperative membership has no significant relationship with the level of farmers' knowledge in the role of agricultural extension in agricultural development in the state.

Methodology

The study was conducted in Akwa Ibom State. Akwa Ibom State is located in the coastal South-South region of Nigeria. The region is popularly called the Niger Delta region or the oil rich region of Nigeria. The state is located between latitudes 4°32'N and 5°33'N north and longitudes 7°51'E and 8°25'E east. It has a total land area of 7,246km². It is bordered in the east by Cross River State, in the west by Rivers and Abia States, and in the South by the Atlantic Ocean. Akwa Ibom State has a population of about 3,902,051 (NPC, 2006). The main crops grown in the area include cassava, cocoyam, yam, maize, melon, okra and vegetables (green, fluted pumpkin, water-leaf and bitter leaf). The livestock reared include; sheep, goats, pigs and poultry while fish is also cultured.

Multi – stage sampling technique was employed in the selection of the respondents for the study. In the first stage, Akwa Ibom state is stratified into three (3) agricultural zones namely Ikot Ekpene, Uyo and Oron. Two agricultural zones were randomly selected. The second stage involved the random selection of six (3) blocks from each of the selected agricultural zones. In the third stage, five (5) circles were randomly selected from each of the blocks earlier selected. Finally, six (6) cassava farmers were randomly selected from each circle and this gave a sample size of 180 respondents. Primary data for the study were collected through the use of questionnaires issued to respondents in the study area.

The socio-economic characteristics of the respondents was analysed with frequencies, means and percentages. Personal variables relating to the farmers (Age, sex, level of education, farm size, farming status, farming experience, extension contact, income, sources of information and cooperative membership) were listed and information on them elicited from the farmers.

The level of farmers' knowledge in the role of agricultural extension in general agricultural development in the state was measured using mean count. Farmers' knowledge relating to the role of agricultural extension in general agriculture development in the study area were organized in a 17 statements (items). Farmers' level of knowledge of each of these items was scaled in a four point Likert-type scale of: I know significantly (4 points), I know moderately (3 points), I know slightly (2 points) and I do not know at all (1 point). Values of the points were summed to get 10 and divided by the number of values to get 2.5 as the mean. In order to ascertain the knowledge need of the farmers and determine the best approach to enhance their knowledge of the topic, the items were grouped into three categories according to their mean scores. Items with mean score of 0-1.59 were categorized into low knowledge, items with mean score of 1.6-3.19 were categorized into moderate knowledge, while items with mean score of 3.2 and above were categorized into high knowledge.

To identify problems militating against farmers' knowledge of the role of agricultural extension in agricultural development in the state was measured by scaling list of problems militating against farmers knowledge on a 5-point Likert-type Scale and analysed using mean. Answers to each item raised in the list was scaled on a 5-point Likert-type Scale of very high (5), high (4), moderate (3), low (2) and very low (1). The values were summed to get 15 and divided by the number of values to get 3 as the mean. The Likert-type scaling is a method of ascribing quantitative values to qualitative perception to make it amenable to statistical analysis. Variables with decision score of 3.0 and above were accepted as positive in measuring or answering the question it is meant for in each objective but variables with decision score of less than 3.0 were regarded as negative in measuring or answering the question it is meant for in each objective.

Model specifications

Probit regression analysis was used to test the null hypothesis H_{01} .

$F_{zi} \dots (1)$

Where

$Z_i = \beta_0 + \beta_1 X_1$

$Y_1 = \beta_1 + \beta_2 X_{2i} \dots \beta_k X_k + u \dots (2)$

Y is unobserved but $Y_i = 0$ if $Y_i = 1$ If $Y_i > 0$

$P(Y_i = 1) = P(Y_i = 0)$

$P(U_1 = -\beta_1 - \beta_2 X_{2i} \dots \beta_k X_k) \dots (3)$

Where $i = 1, 2, \dots, 180$ (respondents)

Where Y_1 = level of farmers knowledge in the role of agricultural extension in agricultural development in the state. (Dichotomous dependent variable 1 = yes, 0 = No)

β = A factor of unknown coefficients

X_1 = Age of farmer

- X2 = sex
- X3 = level of education
- X4 = farm size
- X5 = farming status
- X6 = farming experience
- X7 = extension contact
- X8= income
- X9=sources of information
- X10= Membership of cooperative

Results and Discussion

Socioeconomic Characteristics

Table 1 shows that 64.1% were male. This implied that the female constitute 35.9% of the farmers studied. The mean age of the farmers was 42.5 years while their mean household size was 6. The table also shows that 50.9% of the respondents had secondary school level of education, 61% were full time farmers with up to 8years farming experience. Also, 85.9% of the farmers had contact with extension agents twice in a month while they belong to at least two cooperative societies.

Umeh and Ekwengene (2017) reported that male farmers were greater in number than their female counterparts in the study area. The study also agreed that the mean age of the farmers is within the working age. Farmers in this age bracket are more likely to participate in different research reforms in order to achieve breakthrough that will help the family become financially independent. The result also shows that there is appreciable level of literacy in the study area. Nwachukwu (2005) noted that high literacy level is a fertile ground for extension work because education helps the farmers to access information, weigh their action and make better, faster and informed decision. Umeh, *et al* (2015) reported full time farming enhances quick use of research innovations from agricultural extension than part time farming. Part time farmers are normally subsistence oriented. Furthermore, the result shows that the farmers belong to at least two cooperative societies. Umeh, (2016) reported strong significant positive relationship between number of extension staff, funding of extension service with formation of farmers' cooperatives. This showed that increased funding and adequate staffing of the ADPs greatly encourage formation of cooperative societies in the state. Therefore, high membership of cooperative societies by farmers in the study area indicates appreciable level of coordinated activities of the extension services towards agricultural development in the State.

Table 1: Farmers socioeconomic characteristics

Variables	Akwa-Ibom State farmers (n=180)
Gender (%)	64.1 (male)
Age (years)	42.5
Household Size (number)	6
Farm Size (hectares)	2.9
Education (% Secondary)	50.9%
Farming status (full time %)	61%
Years of experience (years)	8
Extension contact (%)	Once in a week (85.9%)
Cooperative membership (number)	2

Source: Field survey 2017.

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Table 2 indicates that farmers have high level of knowledge on four out of seventeen item statements tested. They are "I have agricultural information and new agricultural technologies for agricultural production through agricultural extension". (\bar{x} =3.52); "the visits of agricultural extension agents to the farmer's farms will help solve farmers' problems" (\bar{x} =3.4); "agricultural extension contributes to the training of farmers in different areas of agricultural work" (\bar{x} =3.6) and "posters and bulletins help to increase information and knowledge of farmers in the cultivation of different crops" (\bar{x} =3.6). These statements confirm that the farmers have the knowledge and information about the role of agricultural extension in the development of agriculture, especially in the role of extension in the transfer of information and technology to the farmers and helping them to use these technologies in general development of their farms.

Furthermore, nine items have scores for moderate knowledge. However, items that have score for very low knowledge are agricultural extension helps farmers on how to use agricultural mechanization in agriculture (\bar{x} =1.4), agricultural extension plays important role in agricultural marketing (\bar{x} =1.3) and Agricultural extension helps farmers to exploit the agricultural land in a scientific way (\bar{x} =1.2). This area bothers on effective implementation of knowledge gained through agricultural extension. Scientific assessment and preparation of land will aid mechanized farming. Effective mechanization of agricultural processes will lead to increased production which demands the farmers to implement their knowledge in agricultural marketing. The results imply that the farmers have high knowledge in areas concerning role and information transfer through agricultural extension while they have low knowledge in areas concerning effective implementation of knowledge and information gained. This is a key factor that will practically define and enhance the contribution of agricultural extension towards agricultural development. Donye and Ani (2014) agreed that agricultural extension has always been treated as a mere part of agriculture, and hence, it has failed to possess the expected operational autonomy needed for the transformation of adult farmer education process. This has impeded the expected food security the nation hopes to attain through proper training and implementation of programs by farmers.

Table 2: Level of farmers' knowledge of the role of agricultural extension in general agricultural development

Variables	Total	Mean	SD
I have agricultural information and technologies through Agricultural extension.	633	3.52***	0.70
Agricultural extension helps farmers to solve their problems on their own.	523	2.9**	0.59
The visits of agricultural extension agents will help solve farmers' problems.	651	3.4***	0.68
Agricultural extension contributes to the training of farmers in different areas of agricultural work.	647	3.6***	0.77
Agricultural extension helps farmers on how to eliminate the insects and diseases that affect the crops.	309	1.7**	0.68
Agricultural extension helps farmers on proper use of pesticides.	497	2.8**	0.68
Agricultural extension plays an important role in livestock and fisheries development.	517	2.9**	0.68
Agricultural extension helps farmers on the proper use of fertilizers.	559	3.1**	0.63
Agricultural Extension contributes to the increase of agricultural production in quantity and quality.	513	2.9**	0.66
Posters and bulletins of extension help to increase information and knowledge of farmers in crop cultivation.	654	3.6***	0.48
Agricultural extension helps farmers to exploit the agricultural land in a scientific way.	211	1.2*	0.48
Agricultural extension contributes to helping rural women.	518	2.9**	0.68
Agricultural extension contributes to helping rural youth.	420	2.3**	0.83
Agricultural extension helps on how to exploit the natural and human resources in rural areas.	355	1.9**	0.69
Agricultural extension plays important role in agricultural marketing.	242	1.3*	0.63
Agricultural extension helps farmers on farm mechanization.	258	1.4*	0.66
Agricultural extension helps farmers on the use of irrigation.	310	1.7**	0.51

Source: field survey, 2017

Problems Militating Against Farmers' Knowledge of the Role of Agricultural Extension in Agricultural Development

Table 4 shows that major problems militating against farmers knowledge of agricultural extension in agricultural development are poor understanding and application of technologies (\bar{x} =4.4), irregular visit and supervision of farmers by extension agent (\bar{x} = 4.0) and untimely dissemination of technologies (\bar{x} = 3.7). Abasi, (2009), in agreement reported that the numbers of extension workers in Akwa Ibom are very few compared to the number of farmers. The few available ones have no-mobility to visit the farmers. Many of them are not prepared to live in rural areas where farmers reside. Those that are ready to stay in the rural areas are not

adequately remunerated. All these factors combine to bring about poor extension service delivery to farmers in Akwa Ibom and hence, impede farmer's knowledge on the role of agricultural extension. Donye and Ani (2014) and Aremu, Kolo, Gana & Adelere, (2015). also observed that Nigerian Government has not given agricultural extension the desired attention as there is no policy yet to pave way and support large financial intervention for agricultural extension and farmer-education.

Thus, farmers are unable to fully implement new innovations aimed at boosting their productivity and output by extension. The low level productivity translates to various cycle of poverty, thereby leading to low level of production and agricultural development.

Table 3: Problems militating against farmers' knowledge of the role of agricultural extension in agricultural development

Variables	Total	mean	SD
Poor understanding and application of technologies	800	4.4	0.67
Untimely dissemination of technologies	660	3.7	0.61
Irregular visit and supervision of farmers by extension agent	728	4.0	0.60
Poor accessibility of technologies	385	2.1	0.76
Untimely availability of inputs	396	2.2	0.68
No change in yield	700	3.8	0.67
Land scarcity	363	2.0	0.68
Lack of fund	560	3.1	0.87
Irregular technology	422	2.3	0.62
Technologies does not agree with the culture of the people	451	2.5	0.45

Source: field survey, 2017

Relationship between Farmers' Socioeconomic Characteristics and Farmers' Knowledge of the Role of Extension Services

Table 4 shows that socioeconomic variables of the farmers such as extension contact ($\bar{x}=2.7$), level of education ($\bar{x}=3.39$), farm status ($\bar{x}=3.28$), income ($\bar{x}=2.51$) and membership to cooperatives ($\bar{x}=6.01$), had positive and highly significant relationship at 1% and 5% levels of probability respectively. This is in agreement with a *priori expectation*, because any increase in the extension contact, level of education, farming status, income and membership to cooperatives will lead to a corresponding increase in level of farmers' knowledge of the role of extension services in agricultural development. Improvement on these socioeconomic characteristics with constant training and capacity building through agricultural extension and rural advisory services is needed. This will ensure that farmers have high knowledge in areas concerning role and information transfer through agricultural extension and also ensure effective implementation of knowledge and information gained. Similarly, Garba (2011) reported that farmers' educational level and membership of organization were observed to be highly correlated with the adoption of the improved technologies by the farmers through extension service ($P<0.05$). Therefore, agreed that personal

characteristics of farmers could be a major influence in their adoption of improved technologies.

The null hypothesis that age, sex, level of education, farming status, farming experience, extension contact, income, sources of information and cooperative membership has no relationship with the level of farmers' knowledge of the role of extension services in agricultural development in the state was therefore rejected.

Table 4: Estimates of farmers' socioeconomic characteristics and farmers' knowledge of the role of extension services

Parameters	Estimate	Std. Error	Z-value
Sex	-0.001	0.176	-0.01
Age	-0.012	0.007	-2.80**
Marital status	-0.146	0.100	-1.46
Extension contact	0.040	0.023	2.715**
Level of education	0.023	0.058	3.39***
Farm status	0.005	0.016	3.28***
Income	0.000	0.000	2.51**
Sources of information	0.001	0.006	0.22
Membership to cooperatives	2.546	0.363	6.01***
Log likelihood	234.056		
Psuedo R2	56.870		
Pearson Goodness-of-Fit Test	323.271		
p-value	P<0.01		

Source: Field Survey Data, 2017

** P ≤ 0.5 and ***P ≤ 0.1

Conclusion and Recommendations

Farmers have high knowledge in areas concerning role and information transfer through agricultural extension while they had low knowledge in areas concerning effective implementation of knowledge and information gained. Major problems militating against farmers' knowledge of the role of agricultural extension in general agricultural development are poor understanding and application of technologies, irregular visit and supervision of farmers by extension agents and untimely dissemination of technologies. Extension service should be made more relevant to farmers through use of well trained, adequate staffing, and the use of participatory extension approach under stable policy and sustainable institutional arrangement should be practiced.

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