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LOCATION AND DISTANCE OF FARMERS TO AGRICULTURAL EXTENSION SERVICE: IMPLICATION FOR AGRICULTURAL DEVELOPMENT IN OYO STATE, NIGERIA.

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ABSTRACT

The study investigated the location and distance covered by farmers to agricultural extension service/unit among farmers in Oyo state. Furthermore, it tried to look at the implication on farmers' agricultural production. A multistage random sampling procedure was used to select 320 farmers from four agricultural zones (Ibadan/Ibarapa, Ogbomoso, Oyo and Saki) of Oyo State Agricultural Development programme (OYSADEP). Farmers were selected from 8 local government areas and from 124 villages. Both descriptive and inferential statistics were used to analyse the results from the study. Findings revealed that agricultural extension agents were within the reach of farmers as 79.1% of the farmers indicated that agricultural extension agents were the major source of agricultural information and also provided advisory service (77.8%). The mean distance covered by farmers to extension units was 17.8km but bad road network (77.5%) and low extension-farmer ratio (64.1%) were some of the major constraints identified by farmers as affecting extension service delivery. Regression analysis between distance of farmers to extension and other production incentives show a positive relationship ($p<0.00$) on income alone. Therefore, it is recommended that the government improve road conditions and also invest funds to support the Agricultural development Programme (ADP) system.

Keywords: Location, distance, extension service/unit, agricultural production.

1. INTRODUCTION

Agricultural extension remains the most important source of information used by farmers. Extension is basically an educational function. Its job may vary considerably from country to country, but without exception it is expected to inform, advise and educate in a practical manner. Agricultural extension services are established for the purpose of changing the knowledge, skills, practices and attitude of masses of rural people, school pupils, suppliers and buyers of agricultural products and many other institutions involved in activities affecting rural people (Fabusoro, Awotunde & Alarima, 2008; Oyegbami, 2014). At the Federal and State levels, governments continue to actively evolve policies and programmes aimed at facilitating the rapid development of the agricultural sector. One of these policies is to improve access to improved technologies for rapid increase in productivity, self-sufficiency in food and fibre production, enhanced income, and the improvement of the quality of life of the farmers.

The primary objective of both research and extension is to increase agricultural productivity and enhance farm income (Kwarteng & Towler, 1994). Attaining this objective requires communication between research and extension, such that technical production packages generated by research reach the farmers and are profitably used by them. In the past, lack of effective linkage between research and extension had been largely responsible for non-adoption

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of recommended practices (Oyebanji, 2000). Thus, the gaps in crop yield between those obtained by scientists on their research farms and those recorded by farmers in their fields had remained very wide (Omidiji, 1994). Recently, a lot of problems are associated with the delivery of extension services, especially in Nigeria. Among these problems are finance, poor extension-farmer linkage and large extension-farmer ratio (Omotayo, 2011). In order to close the gap, there is a need to maintain a clear line of communication between scientists, extensionists and farmers, so as to encourage mutual exchange of information for the benefit of those involved in the generation, transfer and usage of technologies.

Aliyu & Adedipe, (1997) asserted` that a flourishing agricultural extension system is a requirement for the socio-economic, political existence and rapid industrialisation of a country. For rapid agricultural development to take place, local input such as technology generated on a continuous basis through research and development activities, among others, must be ensured. The transfer of technology involves the transfer not only of information but also skill, preferably in ways that encourage the development of indigenous skills. One way to transfer information is by person-to-person contact. This is done by bringing together the people who have the technology (researchers) with the people who wish to acquire it (farmers). The most effective means of building human resource capability is through formal and informal training of the farmers and the extension workers. In this age of information technology, not a day goes by without hearing of new information technologies that can make decision making issues or programming task easier and more efficient. Proximity to service centres is regarded as an important factor in access and usage. Therefore, this study utilises Geographic Information Systems (GIS) technology to identify the location of agricultural extension units and determine their proximity (distance) to farmers and the implication on agricultural production.

Specific objectives

1. Describe the production characteristics of respondents in the study area.
2. Identify and describe the services rendered by agricultural extension agents to farmers.
3. Spatially analyse the location/distribution of agricultural extension units and determine distance covered by farmers to these unit/services.
4. Determine the effect of distance of farmers to ADPs on farmers crop production
5. Examine farmers perceived constraints to services of agricultural extension

Research Hypothesis

Ho1: Distance of farmers to agricultural extension service/units has no significant relationship with yield of selected crops.

2. METHODOLOGY

The Study was carried out in Oyo State. Oyo State is one of the 36 states of the Federal Republic of Nigeria. It is located in the south west geo-political zone and has an equatorial climate with dry and wet seasons and relatively high humidity. The study population consist of farmers involved in maize, cassava and yam production.

Sampling was based on four agricultural zones of the state ADP. These are Ibadan/Ibarapa, Ogbomosho, Oyo, and Saki zones. A multistage random sampling technique was used. Two local Government Areas (LGAs) were randomly selected from each zone to give a total of eight LGAs. The LGAs selected were Ido, Ibarapa central, Surulere, Ogbomoso South, Oyo West,

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Iseyin, Atisbo and Orelope. Five percent (5%) of the villages in each LGA were randomly sampled for effective data management to give a total of 124 villages. Three farmers from each village were also randomly sampled, giving a total of 372 respondents. Only 320 questionnaires were completed and used for analysis.

Data was obtained through personal interviews conducted with the aid of an interview schedule on the production characteristics of respondents, services rendered by extension agents, location of agricultural extension services/units and farmers perceived constraints to services of agricultural extension. Descriptive statistics such as frequency counts, percentage and mean were used to analyse the collected data. Inferential statistics such as regression analysis was used to find the relationship between variables. The productivity (GIS) analysis tool in Arc view (3.2a) was used to develop multiple buffers around extension units/block and to determine their proximity (distance) to farmers and to determine the number of farmers within a 10km buffered location.

3. RESULTS AND DISCUSSION

3.1. Production Characteristics of Respondents

Table 1 shows the production characteristics of the respondents. The results indicated that 73.1% of the farmers cultivate less than five hectares of farm land. This implies that the majority of farmers in the study area are small scale farmers with the size of farm being disincentive to the use of mechanised implements and improved technologies. Also, the majority (87.5%, 90% and 61.9%) of the respondents cultivate maize, cassava and yam respectively, together with other crops like cowpea, okra, pepper and leafy vegetables.

The results in Table 1 also indicate that about half (54.4%) of the respondents had an annual income above of ₦200, 000. This may be due to the fact that the majority of respondents practiced mixed farming and gathered income from different farm enterprises, which will definitely increase household income as well as their standard of living. Furthermore, 86.9% of farmers do not have access to credit. Lack of access to credit may result in lack of access to basic farm input and this will virtually make it impossible for small scale farmers to increase their yield and income thereby reinforcing widespread poverty. Very few (13.1%) of the respondents that do have access to credit got it through other sources like: friends and neighbours and from cooperative groups, this is according to respondents' submissions. However, access to credit will remain a challenge to small scale farming.

Prominent sources of technical information to farmers were; extension agents (79.1%), other sources of information included television (37.5%), friends and neighbours (32.2%) and internet (13.1%). This implies that farmer's get agricultural information from different sources. If these sources were adopted and used in the right way, they will increase their knowledge about new technologies, improve their farming practices and also increase their production. More than three quarters (83.4%) of the respondents submitted that extension agents visit them once or twice in a month. This indicates that there is timely delivery of information about new findings to respondents since the extension agents are the closest to the farmers and are expected to inform and educate farmers about new technologies.

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Table 1: Distribution of respondents based on production characteristics n=320.

Parameter	Frequency	Percentage	Mean
Farm size			
<5	234	73.1	
5.1-10	62	19.7	4.35
>10	24	7.5	
***Types of crops cultivated**			
Maize	280	87.5	
Cassava	288	90.0	
Yam	198	61.9	
Okra	57	17.8	
Pepper	73	22.8	
Vegetable	36	11.3	
Cowpea	144	45.0	
Others	77	24.1	
Ave. annual income (N)			
< 50,000	11	2.8	
50,001-100,000	34	10.9	
100,001-150,000	65	20.3	
150,001-200,000	36	11.3	N214,000
200,001-250,000	106	33.1	
>250,000	68	21.3	
Access to credit			
Accessible	42	13.1	
Not accessible	278	86.9	
***Source of information**			
Agric. extension agents	253	79.1	
Television	120	37.5	
Radio	251	78.4	
Television and radio	209	65.3	
Friends and neighbours	103	32.2	
Internet	42	13.1	
No of extension visit/month			
1-2 times	267	82.8	
3-4 times	50	15.6	
Above 4 times	5	1.6.	

*Multiple responses

3.2. Services rendered by Agricultural Extension Agents to Farmers

The majority (96.3%) of the respondents interviewed agreed that extension/advisory services are the core service provided by extension agents (figure 1). This is expected because extension is the major and often the only agency responsible for transferring new technologies, training and educating the rural people. The mission of extension, according to Gregg, van Gastel, Asiedu, Donkoh & White, (1999) is to help people, especially farmers improve their lives through an informal educational process, which puts scientific knowledge in a form which

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people can understand, use and help focus on improving their lives, satisfying their needs and moving towards improvement.

More than half (57.5%) of the respondents interviewed ascertained that extension agents act as a guide to farmers as to how and where to procure inputs to avoid purchase of adulterated inputs like herbicides, pesticide and fertilizers. Input procurement and distribution is one of the services provided by extension, though the majority of the respondents submitted that most of the inputs used on their farms were usually procured from nearby markets and from previous storage (especially with seeds). Idachaba, (2006) submitted that Agricultural Development Programmes (ADPs) are directly involved in the procurement and distribution of inputs (improved seeds, fertilizer, herbicides, pesticides etc) which are supplied to them by private agro-chemical companies. The ADPs are also established to help farmers in the areas of crop production and protection.

Figure 1 show that the majority (96.9%) of the respondents interviewed submitted that training in the areas of agriculture is one of the services provided by extension agents in the study area. This is expected since training helps farmers acquire knowledge, skill and required attitude or behavioural change, which if applied to a specific farm situation results in better performance in terms of efficiency, effectiveness and quality output (Ajayi, 2008).

The focus of Women in Agriculture (WIA) programme in all the ADPs was to encourage and stimulate rural women towards improving the standard of living of their families. Almost half (86.5%) of the population sampled agreed that agricultural extension agents provides services that relate to women in Agriculture. Banji & Okunade, (2005) reported that the WIA component extension activities of the ADPs primarily focus on women's production activities within the confines of the wide diversity of economic, cultural, ethnic and religious differences within the country.

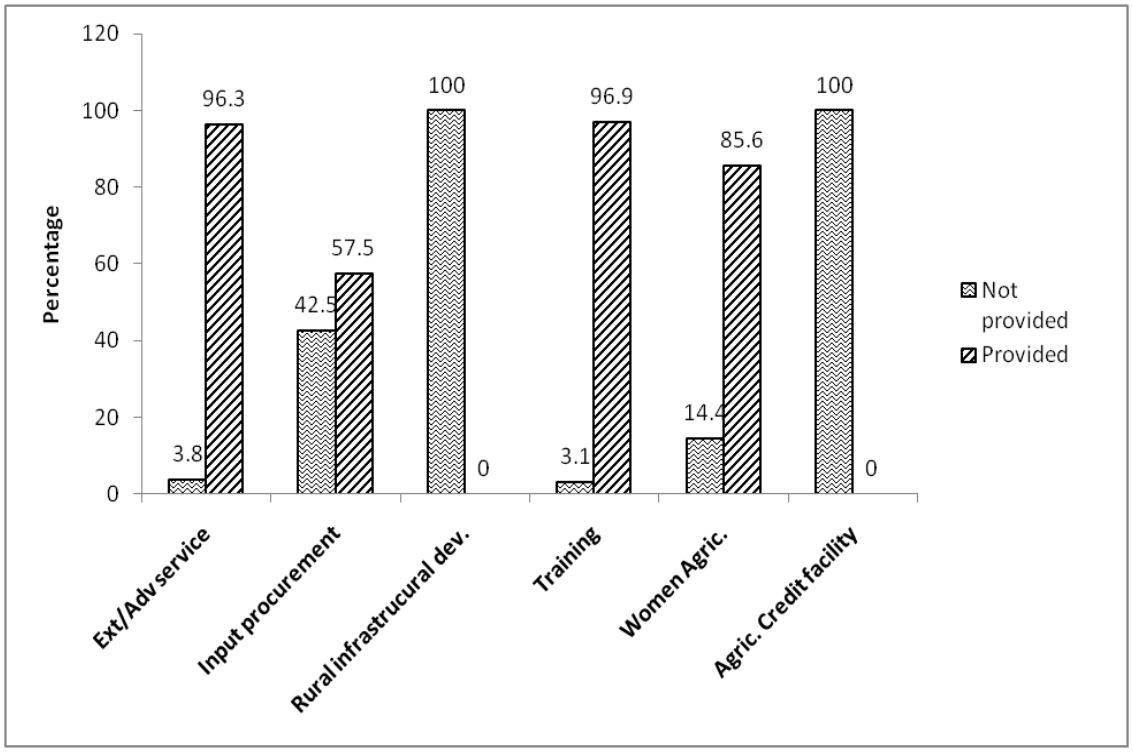

Figure 1: Services rendered by Agricultural Development Programme (ADP) to farmers.

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3.3. Location/distribution of Agricultural Development Programmes (ADP) and farmers.

Figure 2 is a map showing the location of Agricultural Development Programme and that of the farmers in the study area. Buffering was done to calculate the distance covered by farmers in getting to these ADP locations.

Table 3 show the GPS calculated distance. Almost half (46.3%) of the respondents (farmers) cover between 1 - 10 km distance to get to ADPs, while only 10% had to cover more than 40km to get to the ADP office. This shows that the ADPs are within reach of their clientele (the farmer). This is expected because the field level extension agents (FLEA) in the Nigeria Agricultural Development Programme (ADP) are directly responsible for dissemination of extension messages to farmers within the catchments areas. Furthermore, they are the most important elements in the Training and Visit (T&V) management system of extension as reported by Fabusoro *et al.*, (2008). The village extension agents (VEAs) are the frontline workers responsible for the day-to-day extension delivery activities to the farmers. Farmers that cover less than 10km (46.3%) are likely to get information faster regarding new technologies, thereby increasing their yield and income, compared to those that cover more than 40km to get extension services, although this may not always be the case.

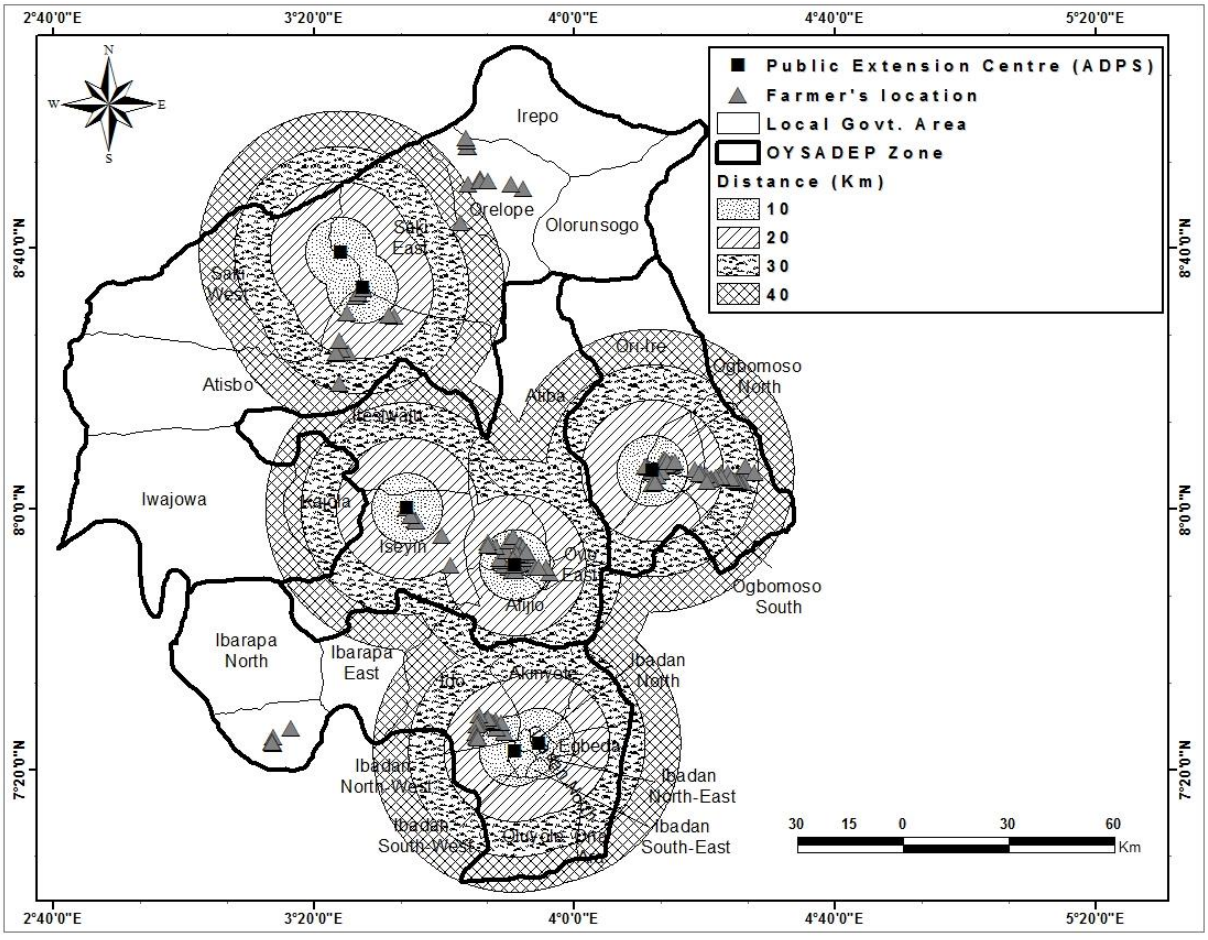

Figure 2: Farmers location to agricultural development programme (ADP)

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Table 2: Distance from farmers location to extension service/unit

Distance (km)	Frequency	Percentage	Mean
≤10	148	46.25	
11 -20	74	23.13	
21 – 30	38	11.88	17.82
31 – 40	28	8.75	
> 40	32	10.00	

3.4. Farmers perceived constraints to services of agricultural extension.

Table 3 show farmers perceived constraints to services of agricultural extension agents. About three quarters (77.5%) of the farmers interviewed submitted that bad road network is a major constraint to agricultural extension services delivery. This may negatively affect the movement of agricultural extension agents, and even that of the farmers. Bad road network has a lot of negative impact, among which are; high transportation cost (for both the farmers and agricultural extension agents), increase market price of farm produce, reduce adoption rate (for agricultural technologies) under development and the likes.

Low extension-farmers-ratio is also one of the major constraints to agricultural extension delivery as retreated by the 64.1% of the respondents. According to Agbamu (2006), and Omotayo (2011) disproportionate extension agent to farm family ration in the developing countries has led to a situation in which many farmers do not benefit from the service of agricultural extension. As agricultural extension agents strive to meet as many farm families as possible, the resultant effect will be poor extension of agricultural technologies, low popularisation of innovation and consequent low productivity which may have a negative effect on the farmer and his family and the nation's economy in the long run.

Communication was not a constraint to agricultural extension service delivery as submitted by the respondents. Time of visits of extension agents (EA's) to respondents (82.5%), distance of respondents to EA's (89.4%), inadequate training materials (80.6%) and inappropriate technology dissemination (88.4%) were not constraints as posited by the respondents

Table 3: Constraints to services of agricultural extension.

	Constraints	**Major constraints**	**Minor constraints**	**Not a constraint**
1	Low knowledge of EAs	-	28(8.75)	292(91.3)
2	Bad road network	248(77.5)	72(22.5)	5(1.6)
3	Communication Gap	-	-	320(100)
4	Low extension farmer ratio	205(64.1)	95(30.0)	19(5.1)
5	Time of visit	-	56(17.5)	264(82.5)
6	Distance to extension	13 (4.1)	21 (6.6)	286 (89.4)
7	Lack of training materials	21 (6.6)	41 (12.8)	258 (80.6)
8	Inappropriate technology	14 (4.4)	23 (7.2)	283 (88.4)

EA – Extension Agents, *Multiple response given, Percentages are in parentheses.

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3.5. Distance to agricultural extension and other production incentives have no influence on the yield of selected crops.

The result of regression analysis show that 47% and 48% of the variation in the yield of maize and cassava was determined by the explanatory variables, while the f-value of 47.88 which is significant at P<0.01 shows that all the explanatory variables have joint significant influence on maize yield of farmers. Specifically, the result show that income has significant positive influence on yield of the farmers, while distance to extension service centres, and market have non-significant negative influence on maize yield although these were not significant.

The significant influence of farmers' income on farmers' yield implies that when farmers have higher income, they are likely to have enhanced capacity to purchase yield enhancing inputs like fertilizer and pesticide and consequently achieve greater yield. This result implies that regardless of distance to service centres, farmer's capability to purchase needed input through enhanced income is likely to have a more pronounced influence on yield. A similar pattern of influence was obtained for yam as income of the farmer was the only variable that has significant influence on the yield of yam. These results have shown the significant influence of farmers' income on the potentials for enhanced yield across the three crops. This invariably points to the fact that enhanced incomes of the farmers provide increased pool of funds that farmers utilise for increased and timely investment in quality yield. The attendant effect of such opportunity is increased in yield which in addition to favourable market dynamics, could lead to greater increase in income which can also lead to increase in the adoption of technologies and attendant increase in the standard of living of the farmers.

Table 4: Regression analysis of the relationship between distance of farmers to agricultural extension and other production incentives on the yield of maize, cassava and yam.

variable	**B-coeff**	**t-value**	**Sig at P<0.05**	**R2 adjusted**	**f-value**
Maize					
constant	1.27	3.92	0.00	0.47	47.88
To extension	-0.03	-0.78	0.44		
Income	0.68	16.70	0.00		
To market	-0.06	-1.47	0.14		
To processing units	0.00	-0.18	0.86		
Cassava					
Constant	3.10	1.90	0.00	0.48	46.98
To extension	-0.04	-0.96	0.34		
Income	0.70	16.72	0.00		
To market	0.00	0.04	0.97		
To processing units	0.02	-0.49	0.63		
Yam					
Constant	-1.81	-1.94	0.05	0.64	67.76
To extension	0.06	1.49	0.14		
Income	0.80	19.80	0.00		
To market	0.08	1.87	0.06		
To processing unit	0.02	0.38	0.71		

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4. CONCLUSION AND RECOMMENDATIONS

Findings from the study confirm that agricultural extension agents are the major source of agricultural information to farmers because they are majorly concerned with transferring new technologies to farmers through training and education. Furthermore, about half of the respondents cover less than 10km to get extension services. This proves that farmers are still within reach of extension services. However, bad road network and low extension-farmer ratio were the major constraints identified by farmers as affecting extension service delivery. Therefore, it is recommended that government improve physical and social infrastructure like roads, electricity and water supply to boast agricultural production. In addition, the government should invest funds into supporting the ADP system, especially by employing graduates into the extension outfit of the ADPs. This will go a long way to address and achieve the dream for food sufficiency and food security in the near future.

REFERENCES

ALIYU, A. & ADEDIPE, N. O. 1997. Directory of Commercialisable Funding of Nigeria Agriculture Research Institutes. National Agricultural Research Project. Abuja, Nigeria. *Monograph*., 6(2).

AGBAMU, J. U. 2006. Essentials of Agricultural Communication in Nigeria. Malthouse Press Limited, Lagos.

AJAYI, A. O. 2008. Training in Agricultural Extension. In: Agricultural Extension. A Comprehensive Treatise with Model Questions and Glossary. Akinyemiju, A.O and D.O Torimiro (ed) pages 200-213, ABC Agricultural Systems limited, Lagos.

BANJI, O. A. & OKUNADE, E. O. 2005. Women in Agricultural and Rural Development. In: (ed) Adedoyin, S.F. Agriculture Extension in Nigeria. Agricultural Extension Society of Nigeria. 69-77.

FABUSORO, E., AWOTUNDE, J. A. & ALARIMA, C. I. 2008. Status of Job Motivation and Job Performance of Field Level Extension Agents in Ogun State: Implication for Agriculture Development. *J. Agric. Ext.*, (2): l-13.

GREGG, B. R., GASTEL VAN, A. J. G., ASIEDU, E., DONKOH, F. K. & WHITE, R. W. 1999. Good Seed, Extension and Farmers. West African Seed Development Unit (WASDU) publication No.2.

IDACHABA, F. S. 2006. Good Intensions are not Enough: Collected Essays on Government and Nigeria Agriculture, Commodity Taxes and Farm Input Subsidies. University press PLC Ibadan 128pp.

KWARTENG, J. A. & TOWLER, M. J. 1994. West African Agriculture. A text book for Schools and Colleges 321pp.

OYEBANJI, O. O. 2000. The Concept of On-Farm Trials in Research Extension-Farmer-Input-Linkage-System. In: 9th Annual Southwest Zonal OFAR and Extension Workshop. Institute of Agricultural Research and Training, Moor Plantation, Ibadan.

OMIDIJI, M. O. 1994. Research and Extension linkage: the Nigerian experience. On-Farm Adaptive Research Workshop. Institute of Agricultural Research and training, Moor Plantation, Ibadan.

OMOTAYO, A. M. 2011. Sustainable Extension Delivery System in a Changing Economic and Political Environment: A keynote address delivered at the 24thAnnual Southwest REFIL's Workshop, Institute of Agricultural Research and Training, Moor Plantation, Ibadan.

Vol. 46, No. 2, 2018: 14 – 23
DOI: http://dx.doi.org/10.17159/2413-3221/2018/v46n2a455
OYEGBAMI, B. A. 2014. Spatial Distribution of Agriculture Extension Units, Input Centres and Their Accessibility to Farmers in Oyo State. Unpublished PhD Thesis in the Department of Agricultural Extension and Rural Development. Federal University of Agriculture, Abeokuta, Ogun State, Nigeria. 187pp.