

## PERFORMANCE OF THE AGRICULTURAL EXTENSION SUB-UNIT OF AGRICULTURAL DEVELOPMENT PROGRAMME IN DELTA SOUTH AGRICULTURAL ZONE, DELTA STATE, NIGERIA

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### ABSTRACT

The study focused on farmers assessment of the performance of extension sub-unit of agricultural development programmes in the state. The objectives of the study were to determine the socio-economic characteristics of the farmers served by the extension agents of the agency (ADP) in the Delta State, obtain farmers assessment of the performance of extension sub-unit of agricultural development programme in the state, determine the impact of adoption of improved farm technologies on farmers farm income, and ascertain the constraints faced by farmers in the adoption of improved farm technologies. Multi-stage sampling technique was used to sample 162 respondents from four LGAs of the state. Descriptive and inferential statistics were respectively used to analyze the study's objectives and hypotheses. Results revealed that most (58.64%) of the respondents were females with majority (54.94%) being married with secondary education (50.62%). The average age, household size, farm experience and farm size was 39.53 years, 7 persons, 14.13 years and 1.96 ha. respectively. About 45.68% of the respondents scored the extension agents to be performing at average level. Also, the level of adoption of improved farm technology was encouraging amongst most of the farmers. The result of Binary Logistics regression revealed age ( $B = -0.83$ ;  $S.E = -0.10$ ), educational level ( $B = 0.61$ ;  $S.E = 0.21$ ), household size ( $B = 0.81$ ;  $S.E = 0.31$ ), farm size ( $B = 0.89$ ;  $S.E = 0.18$ ), farming experience ( $B = -0.51$ ;  $S.E = -0.11$ ), farmers assessment ( $B = 0.74$ ;  $S.E = 0.24$ ) and role of extension agents ( $B = 0.92$ ;  $S.E = 0.32$ ) to be respectively significant to the adoption of improved farm technologies. Based on the results obtained the study thus recommends that farm inputs need to be timely made available and ensure wide spread distribution across the state.

**Keywords:** farmers, extension agents, improved farm technologies, adoption

### INTRODUCTION

The Agricultural Development Programme (ADP) was first launched in Nigeria in 1972 with the foremost aim of increasing food production in the country and to raise the income and standard of living of small-scale farmers (Agricultural Development Programme Report, 2018). Agricultural Development Programme (ADP) through the Training and Visit (T and V) system and grew from the first three enclave projects at Funtua, Gasau and Gombe which started in 1975/76 as enclaved ADPs. The report also advanced that ADP aims to reduce rural poverty by improving and increasing agricultural production through a community based approach

that employs extension services. Erie (2009) stated that the extension services use the contact-farmers to reach the farmers being served by the state's ADP.

Adereti and Ajayi (2005) defined agricultural extension as an informal out-of-school system of education designed to help rural people to satisfy their needs, interests, and desires. The authors stated that agricultural extension is a system of education which involves adult learners and it is particularly directed to bring about changes in the people it serves. Stressing further, Adereti and Ajayi (2005) acknowledged that the process is dynamic and it brings about changes in what

people know, changes in how they react to situations and changes in what they can do with their hands. It was however summed by the authors that the concern of agricultural extension education is to help farmers to make a decent living to master the best way to handle their farms in order to achieve improved standard of living. Agreeing with the aforementioned, Erie (2009) posited that the agricultural extension is an educational process designed to help farmers and enable them adopt improved farm practices and by so doing raise their standard of living through their own efforts and using their own resources. To this end, agricultural extension is still considered a valuable instrument in the pursuit of ensuring and achieving the goal of food security and supporting rural development. There is therefore the need to seek for strategies and policies that would help to introduce reforms in the agricultural extension services in order to provide sufficient services to farmers through which the goal of food security and sufficiency can be achieved.

Despite the lofty roles of the extension system, it is sad to note that the system is currently failing and has not been able to meet up with the responsibilities it has been saddled with due to numerous problems plaguing it (Malawi Government, 2000). Some of these problems have been highlighted by Okwuokenye and Ovharhe (2017) to include lack of funds, insufficient funds, lack of facilities to work with, poor motivation of workers and low extension – farmers ratio. Other problems that equally plagued the system according to the author were top-down rather than responsive recommendations to farmers, continued technical emphasis without attention to socio- economics of the workers, inadequate attention to demonstration plots and deficiencies in staff transportation.

Most evaluation studies carried out much earlier to determine achievements of the agricultural extension services tend to conclude that the extension services did not make any significant impact to the farmers (Omotayo *et al.*, 2001). This study therefore seeks to find out if the failure is linked to the extension service system or the farmers the system was meant to serve. It is against this background that the study seeks to: determine the socio-economic characteristics of the farmers served by the

extension agents of the agency (ADP) in Delta State; obtain farmers assessment of the performance of extension sub-unit of agricultural development programme in the state; determine the impact of level of adoption of improved farm technologies on farmers farm income, and ascertain the constraints faced by farmers in the adoption of improved farm technologies in Delta South agricultural zone of Delta State

### **Hypotheses of the Study**

- 1) Farmers socio-economic characteristics have no significant relationship with adoption of improved farm technologies.
- 2) Farmers level of adoption of improved farm technologies is not significantly related to their assessment of the extension agents performance.

### **METHODOLOGY**

This study was carried out in Delta South senatorial zone of Delta State. Nigeria Atlas Electoral Constituencies (NAEC) (2008) reported that the zone consist of eight (8) Local Government Areas (LGAs) (they are Bomadi, Burutu, Isoko North, Isoko South, Patani, Warri North, Warri South and Warri South West) and the population size is 1,796,800 (2016 projected population size) NAEC (2008) report also stated that the Delta South zone is the highest petroleum product producing region of the state and the languages of the people are IzoIsoko and Urhobo. In terms of occupation, the people are into fishing, animal rearing (poultry and goat production), crop production (majorly grown crops include; cassava, plantain, yam, maize) and oil prospecting (NAEC, 2008).

The population of the study were farmers that are serviced by the extension agents of the agricultural development programme domiciled in the respective local government areas. Primary and secondary sources of data were used for the study and they were generated through the use of constructed and structured questionnaires and interview schedules. The questionnaires were administered to the farmers and retrieved with the help of trained enumerators.

The questionnaires were validated using the face content validity test. The method involves the use of experts in the field of agricultural extension to assess, criticize and suggest where necessary all that was needed in

the question instrument vis-à-vis the stated objectives of the study.

### Sampling Technique

The multi-stage sampling technique was adopted in selecting the respondents of the study. The stages are: Stage 1: This stage involved the random selection of four (4) out of eight (8) Local Government Areas (LGAs) (namely; Bomadi, Isoko North, Isoko South and Patani LGAs) in the Delta South Senatorial zone. Stage two involved the random selection of three (3) towns from each LGA thus making a total of twelve (12) towns used for the study. Stage three involved the identification (through the ADP) of the extension agents serving the selected towns already randomly selected in stage two. In stage four, there was the random selection of fifteen farmers (served by the agency (ADP) per selected town). This brought the total number of farmers administered with the question instrument to one hundred and eighty (180). In stage five had to do with the screening of the instruments and subsequent selection of only those ones suitable for analysis. Based on this consideration, one hundred and sixty-two (162), that is 90% of the instrument were selected and used for the study. The consent of the respondents was sought and the researcher got approval from them.

### Analytical Technique

Data of the study were analyzed through the use of descriptive and inferential statistics. Descriptive statistics involved the use of frequency count, percentage and mean. It was used to analyze respondents' socio-economic characteristics, respondents assessment of the extension sub-unit and determine level of adoption of improved technologies. Role of extension agent and constraints faced by farmers in the adoption of improved farm technologies were analyzed using Likert scale. The scale ranged from "Strongly Agree" (coded 4), "Agree" (coded 3), Disagree (coded 2) and Strongly Disagree (coded 1). A weighted mean score of 2.50 was obtained ( $\{4 + 3 + 2 + 1 = 10\} / 4 = 2.50$ ). The value of  $\geq 2.50$  was considered as important in agreeing to the roles carried out by the extension agents. While values less than 2.50 were considered as not important. In where

constraints faced by farmers in the adoption of improved technologies is concerned, mean scores of  $\geq 2.50$  were considered as limiting factors and otherwise if values are less than 2.50.

Inferential statistics involved the use of Binary Logistics regression and simple regression analysis. Binary Logistic regression was used to analyze hypothesis one. The implicit form of the equation is:  $\ln P/(1 - P) = B_0 + B_i X_i + e$ ; -----...1  
Where:

$P$  = Probability of occurrence;  $1 - P$  = Probability of non-occurrence

$B_0$  = The coefficient of the constant term

$B_i$  = The coefficient of the independent variable

$X_i$  = The independent variables

The explicit form of the equation is:

$P$  = Adoption of improved farm technologies (dependent variable)

$X_1$  = Gender (dummy: male = 1; female = 2)

$X_2$  = Age (years)

$X_3$  = Educational level

$X_4$  = Marital status (single = 1, Married = 2, Divorced = 3, Widow(er) = 4)

$X_5$  = Household size (number of people living and feeding together)

$X_6$  = Farm experience (years)

$X_7$  = Farm size (ha.)

$X_8$  = Farmers assessment level of extension agents (Poor = 1, Low = 2, Average = 3, High = 4,

Very high = 5

$X_9$  = Role of extension agents to farmers

Hypothesis 2 was analyzed using Product Moment Correlation Coefficient ( $r$ ). Ajayi (2005) established that the correlation coefficient measures linear association between interval variables. The Product Moment Correlation Coefficient ( $r$ ) can take a value between -1 to +1. When " $r$ " = +1, it implies a perfect linear relationship between  $X$  and  $Y$  such that with a unit increase in  $X$ , there is always a constant increase in  $Y$ . On the other hand, when " $r$ " = -1, it implies there is a perfect functional relationship but when there is a unit increase in  $X$ , it leads to a constant decrease in  $Y$ . Again, when " $r$ " = 0, it

means there is no relationship at all between X and Y. The computation of Product Moment Correlation Coefficient is shown below;

$$r = \frac{n\sum XY - (\sum X)(\sum Y)}{\sqrt{[n\sum X^2 - (\sum X)^2][n\sum Y^2 - (\sum Y)^2]}} \text{-----} 2$$

**Decision rule:** If the standard error of the independent variable (X) is smaller than half of the value of the parameter estimate of the variable, we conclude that the estimate of the variable is statistically significant. That is we reject the null hypothesis and accept the alternative hypothesis.

## RESULTS AND DISCUSSION

The socio-economic characteristics of the respondents is shown in Table 1. Results revealed that farming activities was dominated

by females (58.64%). The dominance may not be unconnected to first, the traditional belief of the people that farming is mostly the responsibilities of the women and secondly, the willingness of the women to take up the economic responsibilities of their households. This finding disagrees with results of similar study by Fertilizer Producers and Suppliers Association of Nigeria (2013) which showed the dominance of male farmers in 12 states (including Delta State) of the federation. The average age of the respondents was 39.53 years and most (34.57%) of them belonged to the age bracket of 35– 44 years. This indicates that they are young and active. By implication, they will be willing to welcome and adopt agricultural innovations. The result is in agreement with the findings of Kaine *et al.*, (2015) which reported similar age bracket of farmers.

**Table 1: Socio-economic characteristics of respondents of the study. n= 162**

| Socio-economics variables | Categories             | Freq. | %     | Mean  |
|---------------------------|------------------------|-------|-------|-------|
| Gender                    | Male                   | 67    | 41.36 |       |
|                           | Female                 | 95    | 58.64 |       |
| Age                       | <25                    | 14    | 8.64  | 39.53 |
|                           | 25 – 34                | 42    | 25.93 |       |
|                           | 35 – 44                | 56    | 34.57 |       |
|                           | 45 – 54                | 31    | 19.14 |       |
|                           | ≥ 55                   | 19    | 11.73 |       |
|                           |                        |       |       |       |
| Education level           | No formal educ.        | 11    | 6.79  |       |
|                           | Attended Pri. Sch.     | 49    | 30.25 |       |
|                           | Attended Sec. Sch.     | 82    | 50.62 |       |
|                           | Attended Tertiary Sch. | 20    | 12.35 |       |
| Marital status            | Single                 | 22    | 13.58 |       |
|                           | Married                | 89    | 54.94 |       |
|                           | Divorced               | 32    | 19.75 |       |
|                           | Widow(er)              | 19    | 11.73 |       |
| Household size            | < 3                    | 14    | 8.64  | 7.24  |
|                           | 3 – 5                  | 32    | 19.75 |       |
|                           | 6 – 8                  | 59    | 36.42 |       |
|                           | 9 – 11                 | 41    | 25.31 |       |
|                           | ≥ 12                   | 16    | 9.88  |       |
|                           |                        |       |       |       |
| Farm experience           | < 5                    | 17    | 10.49 | 14.13 |
|                           | 5 – 9                  | 19    | 11.73 |       |
|                           | 10 – 14                | 31    | 19.14 |       |
|                           | 15 – 19                | 68    | 41.98 |       |
|                           | ≥ 20                   | 27    | 16.67 |       |
|                           |                        |       |       |       |
| Farm size                 | ≤ 1                    | 34    | 20.99 | 1.96  |
|                           | 1.1 – 2.0              | 71    | 43.83 |       |
|                           | 2.1 – 3.0              | 26    | 16.05 |       |
|                           | 3.1 – 4.0              | 18    | 11.11 |       |
|                           | ≥ 4.1                  | 13    | 8.02  |       |

Source: Field Survey, 2018

Educational level of the farmers revealed that most (50.62%) of them had secondary school

education. With such level of education, they can be described as being literates and so can be able

to apply farm instructions with little assistance. The result is in consonance with that of Taiye *et al.*, (2006) The authors reported that farmers formal education level influences adoption of improved farm technologies. Most (54.94%) of the respondents were married and this simply implies that they are responsible in where social status is concerned. The study agrees with findings of Ajayi and Okunlola (2006). They found farming activities to be dominated by married people. The average household size of the respondents was 7 persons and majority (36.42%) had between 6 – 8 persons in their households. This indicates that they have large households. Large household size may help to provide a source of labour to the farmer thereby reducing farm cost of production. Report of Nagujja (2003) is in line with this result. The author found farmers to have large household size which was asserted could be used as a source of farm labour.

Most (41.98%) of the respondents had between 15 – 19 years of farm experience. The average farm experience was 14.13 years. The period they have spent in farming shows that they are experienced in farming activities and so are capable of knowing the needs of their farms. This finding is supported by results of Okwukenye and Okoh (2018) which expressed that having good farming experience will make it possible for the farmers to be better positioned to know the needs and problems associated with their farming operations. Results on farm size revealed that most (43.83%) of the farmers had farm size of between 1.1 – 2.0 ha. and the average farm size was 1.96 ha. This is an indication that most of the farmers in the study area had small farm holdings. This result is in line with the finding of Ovharhe (2014) which stressed similar farm size of farmers in Delta State.

### **Respondents' assessment of the extension agents performance of their roles**

Results in Table 2 shows the respondents assessment of the extension agents' performance of the different roles ascribed to them in the study area. Table 3 highlights the roles of the extension agents to the farmers in the study area. The result revealed that most (45.68%) of the farmers rated the extension agents to be performing at average level. It also revealed that about 17.90% performed below average, while 36.42% performed above average level. The result implies that the extension agents are doing well and meeting up with their expectations. This result is supported by reports of Okwukenye and Okoedo-Okojie (2014) which stated that extension agents serving farmers in the State's Agricultural Development Programme have performed creditably well in helping to boost the farmers output and income.

The roles with means  $\geq 2.50$  are those ones that are regularly carried out by the extension agents on the farmer. The result shows that extension agents advisory role (mean = 2.87) was the most regular role of the extension agents to the farmers. This role was closely followed by demonstration on input use (mean = 2.64). Other regular roles include frequent visits by the extension agents (mean = 2.61) and training farmers on input use (mean = 2.58). The result revealed that the extension agents play significant roles in the dissemination of improved farm technologies. The result of the identified regular roles of extension agents to the farmers corroborates with the findings of Okwukenye and Okoedo-Okojie (2014). They explained that the regular roles carried out by extension agents in a similar programme include advisory role, farmers training on input use and demonstrating input use.

**Table 2: Respondents' assessment of the extension agents**

| Assessment category | Freq. | Percentage |
|---------------------|-------|------------|
| Very High           | 18    | 11.11      |
| High                | 41    | 25.31      |
| Average             | 74    | 45.68      |
| Low                 | 25    | 15.43      |
| Poor                | 4     | 2.47       |

Source: Field survey, 2018

**Table 3: Extension agents' role to the farmers**

| Extension agents' role                | Mean  | Standard Dev. | Ranking |
|---------------------------------------|-------|---------------|---------|
| - Extension agents advisory role      | 2.87* | 0.59          | 1       |
| - Input supply / distribution         | 2.33  | 0.63          | 5       |
| - Frequent visits by extension agents | 2.61* | 0.74          | 3       |
| - Training of farmers on input use    | 2.58* | 0.51          | 4       |
| - Demonstration on input use          | 2.64* | 0.68          | 2       |

\*Regular (Mean  $\geq 2.50$ )

Source: Field survey, 2018

### Respondents level of adoption of improved farm technologies

The respondents level of adoption of improved farm technologies on crop, livestock and management practices is shown in Table 4. From the table, most (48.77%) of the respondents indicated that their level of adoption of the improved farm technologies was on the average side. About 17% and 34% were respectively of above and below average level of adoption. By

implication, it could be inferred that the farmers level of adoption of improved farm technologies was good enough to make a remarkable impact in their farm production level. This assertion is in consonance with that of Ajayi and Okunlola (2006) who remarked a good level of farmers adoption of improved farm technologies and equally stated that farmers use of improved varieties of crops and modern technologies significantly influence their output

**Table 4: Respondents level of adoption of improved farm technologies on crop, livestock and management practices**

| Adoption Level | Freq. | Percentage |
|----------------|-------|------------|
| Very High      | -     | -          |
| High           | 28    | 17.28      |
| Average        | 79    | 48.77      |
| Low            | 42    | 25.93      |
| Poor           | 13    | 8.02       |

Source: Field survey, 2018

### Constraints facing farmers in the adoption of improved technologies

The constraints facing the farmers and therefore limiting them from adopting improved farm technologies are shown in Table 5. The factors with means of 2.50 and above were considered as limiting factors to farmers adoption of improved farm technologies in the context of the study. Suggested to say that the

factors were also ranked in the order of their mean magnitude. The factors however include unavailability of improved input (mean = 3.41), lack of funds to procure farm inputs (mean = 3.22), and late delivery of farm inputs (mean = 2.99). Other constraints advanced were corrupt and dishonest extension agents (mean = 2.81), poor demonstration of practical skills (mean = 2.56) and fear of uncertainties (mean = 2.51).

**Table 5: Constraints limiting farmers adoption of improved farm technologies**

| Constraints                                           | Mean  | Standard Dev. | Ranking |
|-------------------------------------------------------|-------|---------------|---------|
| - Lack / unavailability of improved farm inputs       | 3.41* | 0.56          | 1       |
| - Unavailability of extension agents to train farmers | 1.95  | 0.88          | 9       |
| - Corrupt and dishonest extension agents              | 2.81* | 0.73          | 4       |
| - Lack of funds to procure farm inputs                | 3.22* | 0.61          | 2       |
| - Fear of uncertainties                               | 2.51* | 0.70          | 6       |
| - Poor human relationship of the extension agents     | 2.48  | 0.64          | 7       |
| - Offering of poor services                           | 2.32  | 0.59          | 8       |
| - Late delivery of inputs                             | 2.99* | 0.52          | 3       |
| - Poor demonstration of practical skills              | 2.56* | 0.55          | 5       |

Source: Field survey, 2018; Asterisk (\*) implies agreed (mean  $\geq 2.50$ )

Lack of funds which stem from high cost of procuring improved farm inputs and lack of appropriate inputs together with late delivery of inputs were reported by Ajayi and Okunlola (2006) as some of the factors plaguing the adoption of improved farm technologies, thus supports this finding. The result was further supported by findings of Williams (2015). It identified constraints like lack of funds, fear of risks arising from uncertainties, lack of necessary practical skills and the attitude of the experts (extension agents) as limiting factors to the adoption of agricultural innovation

### **Relationship between respondents' socio-economic characteristics and adoption of improved farm technologies**

The study tested hypothesis one using Binary logistics regression (see Table 6). The Table shows the regression result which revealed variables like gender, age, educational level, marital status, household size, farm size, farming experience, farmers assessment of extension agents, and role of extension agents to farmers to have jointly accounted for 61.5% of the variation in adoption of improved farm technologies (adjusted  $R^2 = 61.5\%$ ). The result also revealed that six variables (namely; age, educational level, household size, farming experience, farmers assessment of extension agents and role of extension agents to the farmers) out of variables tested were significant to the adoption of improved farm technologies.

Age of the respondents ( $B = -0.83$ ;  $S.E = -0.10$ ) was negatively signed and significant at 1% level to adoption of improved farm technologies. By implication, the younger farmers tend to adopt

improved farm technologies more than their older counterparts. This finding is in line with that of Ovharhe (2014) who expressed that farmers who participate in similar agricultural programmes were mainly young in age and that young farmers are quick to adopt agricultural innovations. Educational level ( $B = 0.61$ ;  $S.E = 0.21$ ) was positively signed and significant at 5% level to adoption level of improved farm technologies. Education enhances farmers capacity to understand and adopt the latest farm technologies. The result agrees with that of Ewuola and Ajibefun (2000) who noted that level of education of farmers positively correlates with their level of adoption of innovation.

Household size of the respondents had a positive correlation with adoption of improved farm technologies. The variable had a Beta coefficient of 0.81 and a standard error of 0.31. The implication of the result is that farmers with larger household size would be more willing to adopt improved farm innovations. Larger households' perhaps have a strong influence on farmers' adoption level of farm innovations. The reason may not be unconnected to the fact that farm innovations brings about increase in output which would be needed to take care of large households. This finding is at variance with the result of Eze *et al.*, (2006). The authors recorded that household size negatively correlates with adoption of farm innovations. The respondents farm size was found to be positively related to adoption of improved farm technologies. It was also significant at 5% level. The Beta coefficient was 0.89 while the standard error was 0.18. The result thus implies that larger farm owners are more likely to adopt improved farm technologies. This result is in agreement with earlier study's of

Yomi (2005) that stressed the positive significant relationship between farm size and adoption of agricultural innovations. Farming experience had a Beta coefficient and standard error of -0.51 and -0.11 respectively. The result was negatively signed and significant at 1% level. What this implies is that the more experienced farmers are, the less ready they are to adopt improved farm technologies. With more years of farming experience the farmers believe that they have acquired all it takes to do good farming hence their reluctance to adopt agricultural innovations.

Farmers assessment of extension agents (B = 0.74; S.E = 0.24) was positively signed and significant at 5% level to adoption of improved farm technologies. The result implies that higher assessment level of the farmers would result to more adoption of improved farm technologies. The result on farmers assessment of extension agents on level of adoption of improved farm technologies is in line with findings of Eze *et al.*,

(2006). It revealed that farmers can achieve higher farm yields if they adopt recommended scientific farming techniques brought to them by the extension agents. They asserted that higher extension agents performance results to higher level of adoption of agricultural innovations. The authors further stated that more visits bring about more assistance to the farmers. The role of extension agents to the farmers was found to have a Beta coefficient of 0.92 and standard error value of 0.32. The extension agents role was significant at 5% level. The result simply implies that the more roles carried out by the extension agents on the farmers, the more their level of adoption of improved farm technologies. The result is in line with reports of Erie (2009) that found a positive relationship between performance in roles carried out by extension agents and farmers adoption of improved farm technologies.

**Table 6: Relationship of farmers' socio-economic characteristics and adoption of improved farm technologies**

| Variables                              | B        | S.E  | Sig.  |
|----------------------------------------|----------|------|-------|
| Gender                                 | 0.09     | 0.05 | 0.007 |
| Age                                    | - 0.83** | -    | 0.001 |
|                                        |          | 0.10 |       |
| Educational level                      | 0.61*    | 0.21 | 0.021 |
| Marital status                         | 0.23     | 1.47 | 0.962 |
| Household size                         | 0.81*    | 0.31 | 0.006 |
| Farm size                              | 0.89*    | 0.18 | 0.014 |
| Farming experience                     | - 0.51** | -    | 0.001 |
|                                        |          | 0.11 |       |
| Farmers assessment of extension agents | 0.74*    | 0.24 | 0.012 |
| Role of extension agents to farmers    | 0.92*    | 0.32 | 0.030 |
| Constant                               | 0.22     | 1.46 | 0.860 |

Source: Computed from field survey, 2018; \*Significant at 0.05 level ; \*\*Significant at 0.01 level

-2 Log likelihood = 143.282 ; Nagelkerke;  $R^2 = 0.615$

#### **Relationship between respondents adoption of improved farm technology and assessment of extension agents.**

The relationship between respondents' adoption of improved farm technologies and assessment of the extension agents was analyzed using the Product Moment Correlation

Coefficient. This was expressed in hypothesis two in the null form as: farmers level of adoption of improved farm technologies is not significantly related to their assessment of the extension agents.

Product Moment Correlation Coefficient (r) was used to determine the statistical significance of

farmers' assessment (X) on the level of adoption (Y).

Results:           Parameter estimate = 0.4523  
                       Standard error       = 0.0445  
                       R<sup>2</sup>                       = 0.5702

Conclusion: The value 0.2262 is half of the parameter estimate of farmers assessment (obtained as  $0.4523 / 2 = 0.2262$ ) and it is greater than the standard error (0.0445) of farmers assessment. This implies that the variable (farmers assessment) is statistically significant to farmers adoption of improved farm technologies. Based on the result, the alternative hypothesis was accepted while the null was rejected. It states that farmers' adoption of improved farm technologies is significantly related to their assessment of the extension agents. The result is in agreement with the submission of Erie (2009) that found a positive relationship between performance in roles carried out by extension agents and farmers adoption of improved farm technologies. The author submitted that the role of agricultural extension services is vital to the diffusion of agricultural innovations. Stating further, the author identified the role of extension agents to have bearing with how they are assessed.

## CONCLUSION AND RECOMENDATIONS

Based on the findings of the study it was thus concluded that the extension agents performed many roles such as advisory, input supply / distribution, farmers training and demonstration on input use to the farmers. Based on farmers assessment, these roles have been well done by the extension agents and (despite the constraints plaguing the famers interest) this has resulted to a high proportion of farmers adoption of improved farm technologies.

The result of the study also revealed that variables such as age, farmers education level, household size, farming experience, farmers assessment of the extension agents and role of the extension agents to the farmers to be significant to adoption of improved farm technologie. In addition, farmers assessment on extension agents was also found to be statistically significant to their adoption of improved farm technologies.

The study therefore recommends that;

- i. Since unavailability of improved farm inputs was identified as the most serious constraint, efforts should be made to ensure that the improved farm inputs are made available at affordable prices and distributed to the farmers across the state. The efforts should be extended to ensuring the inputs are provided in adequate quantity to the farmers to use for their farming activities.
- ii. To avoid the issue of late delivery of farm inputs, the inputs need to be timely made available and ensure wide spread distribution across the state.
- iii. The extension agents should be re-oriented to shy away from all acts of corrupt practices and do the work expected of them in line with best practices. This will help guide against corrupt leadership, dishonesty and ensure that the available inputs get to almost if not all the farmers; and
- iv. There is a need for the extension agents to display or demonstrate competence and knowledge of subject matter to the farmers. It is hoped that this will help instill in the farmers much confidence on the extension agents and also help to assure them of improved farm output.

## REFERENCES

- Adereti, F.O. and Ajayi, A.O. (2005). "Concepts and basic principles of agricultural extension" In: S.F. Adedoyin (ed.) *Agricultural Extension in Nigeria*. PP. 13 - 20
- Agricultural Development Programme Report (2018). Agricultural Development Programme Projects in Nigeria: Status. Retrieved at: [www.aensiweb.net/rjabs](http://www.aensiweb.net/rjabs). On the 24<sup>th</sup> October, 2018
- Ajayi, A.R. (2005). The role expectation of agricultural extension in poverty alleviation in a democratic and deregulated economy. *Proceedings of the 9<sup>th</sup> Annual Conference of AESON*, Obasemi Awolowo University, Ile – Ife, Osun State, Nigeria. Pp 111 - 117
- Ajayi, M.T. and Okunlola, J.O. (2006). Farmers perceived agricultural inputs factors influencing adoption and production of food crops in Akure Area of Ondo State,

- Nigeria. *Global Approaches to Extension Practice*. 2(1): 1 - 8
- Erie, A. P. (2009). *A conceptual framework for the privatization and commercialization of Agricultural extension services (A case study of Edo state, Nigeria)*. Rudel Printer and Publishers, Benin City, Nigeria. PP. 52 & 53.
- Ewuola, S. O. and Ajibefun, I. A. (2000). Selected media and socio-economic factors influencing innovation adoption by small-scale farmers. Empirical evidence from Ondo and Ekiti States, Nigeria. *Applied Tropical Agriculture*. 24 –26.
- Eze, C. C., Ibekwe, U. C., Peter, O. and Nwajiuba, C. U. (2006). Determinants of adoption of improved production technologies among farmers in Enugu State of Nigeria. *Global Approaches to Extension Practice*, 2(1): 37-43
- FEPSAN (2013). GESS Fertilizer Producers and Suppliers Association of Nigeria. *Monitoring Report*. Abuja
- Kaine, A.I.N., Iku, J.E. and Ebigwai, S.J. (2015). Analysis of determinants of demand and supply of maize in Aniocha North Local Government Area, Delta State, Nigeria. *International Journal of Sustainable Agricultural Research*. 2(1): 12 - 21
- Malawi, Government (2000) 'Agricultural extension in the new millennium: Towards pluralistic and demand-driven services in Malawi.' *Policy Document*. Lilongwe: Ministry of Agriculture and Irrigation, Department of Agricultural Extension Services.
- Nagujja, S. (2003). The relationship between socio-economic characteristics of maize farmers and household food security in Eastern Uganda. *Journal of Rural Development*. 19(1): 2 - 12
- National Population Commission of Nigeria (web) National Bureau of Statistics, 2016. Retrieved at: <http://www.citypopulation.de>php.ni.....> On 25<sup>th</sup> April, 2017
- Nigeria Atlas of Electoral Constituencies (2008). *Nigeria Atlas of Electoral Constituencies* (NAEC). Publication of Independent National Electoral Commission, Abuja, Nigeria. pp. 52, 89 – 107.
- Okwuokenye, G. F. and Okoedo-Okojie, D. U. (2014). Evaluation of extension agents' commitment to the agricultural loans and input supply programme on special rice production in Delta State, Nigeria, *Journal of Applied Sciences and Environmental Management*. 18(2):327 - 335
- Okwuokenye, G.F. and Okoh, S.O. (2018). Effects of growth enhancement support scheme on income and productivity of farmers in Delta State, Nigeria. *Journal of Agriculture and Food Environment* 5(2): 29 - 41
- Okwuokenye, G.F. and Ovharhe, O.J. (2017). Evaluation of the Agricultural Development Programme in delta South Agricultural Zone: A case study of the Extension Sub-unit of the programme. *Taraba Journal of Agricultural Research* 5(2):41 - 48
- Omotayo, A., Chikwendu, O.D. and Adebayo, K. (2001). Two decades of World Bank assisted extension services in Nigeria: Lessons and challenges for the future. *Journal of Agricultural Education and Extension*. 7(3): 143 - 152
- Ovharhe, O. J. (2014). Factors affecting technologies adoption among Fadama III Farmers in Delta State, Nigeria. *The Nigerian Journal of Agriculture and Forestry* 4 (1) : 52-57
- Taiye, O. F., Adebola, O. A. and Adebayo, E. K. (2006). Social activities and socio – economic state of rural farmers cultivating improved maize in kaduna State, Nigeria. *Global Approaches to Extension Practice*. 2(1): 29 - 36.
- Williams, E.E. (2015). "Factors affecting farmers adoption of agricultural innovations in Delta State". Retrieved at <https://pdfs.semanticscholar.org>. On the 17<sup>th</sup> November, 2018
- Yomi – Alfred, S. D. (2005). Measurement of farm households' socio-economic and socio- psychological variables: A paradigm for evolving a more appropriate method. *Journal of Agriculture and Social Research (JASR)*. 5 (1): 90 - 95

