

INVESTIGATION OF FACTORS INFLUENCING RICE FARMERS' PARTICIPATION IN FARMER FIELD SCHOOL (FFS) IN EDO STATE, NIGERIA.

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ABSTRACT

This study was carried out to investigate the factors influencing rice farmers' participation in Farmer Field School (FFS) in Edo State, Nigeria. A multi-stage sampling technique was used for the selection of sample with structured questionnaire administered to generate data from the respondents. A total of 135 farmers were randomly selected for the study. The data were analyzed using descriptive statistics and multiple regression model. The study revealed that age, education, household size, farm size and farming experience significantly influenced rice farmers' participation in FFS in Edo State with an R^2 value of 0.68. The major constraint to rice farmers' participation in FFS in Edo State, Nigeria was poor extension visit to the farmers (100%) which was ranked first, followed by bad road network (88.9%) which was ranked second. Other constraints to rice farmers' participation in FFS were weak education of the participants (87.4%), poor awareness of the programme (74.1%), inadequate incentives (65.2%) and inadequate credits facility given to the rice farmers (41.5%) in the area. These were ranked third, fourth, fifth and sixth respectively. It was concluded that, the participation of rice farmers in FFS should be adequately motivated by ameliorating the observed constraints in the study. Therefore, this study recommended that the rice farmers' participants in FFS should be encouraged to form groups in order to access credit and rice enhancing strategies such as value addition easily. It was also recommended that FFSs should be located close to participating farmers' residence for easy accessibility. This was informed by the bad road network experienced in the area.

Keywords: Factors influencing; Rice; Farmers' participation; Farmer Field School; Edo

INTRODUCTION

A number of agricultural extension approaches have been used in Nigeria. The major differences in their characteristics are based on how the extension services and systems are structured and organized. The relationship and linkage mechanisms amongst the extension service actors, particularly farmers, extension agents and researchers, the range of agricultural services contained in the technical package, types of extension methods that were used and the way the extension services were financed are affected due to bureaucratic bottlenecks of the system. In the early seventies, Nigeria operated many agricultural programmes. Despite all the programmes, the performance of agricultural sector has continually fallen below expectation, and the output from the sector especially rice, is not making significant impact on the nation's economy. Rice (*Oryza sativa*) is a major staple food consumed in Nigeria. Nigeria is the second largest importer of rice in the world after China which is recorded as the first (F.A.O, 2016). According to Food and Agriculture Organization (FAO, 2016), the country imported 2.3 tons of rice in 2016, about half of the country's estimated requirements. The main areas of rice cultivation in the country include the middle belt and Northern states of Benue, Borno, Kaduna, Kano, Niger and Taraba,

Kebbi, Nasarawa, Gombe, the South Eastern states of Anambra, Enugu, Ebonyi, Abia and South-South states of Cross River, Bayelsa and Edo as well as the South West states of Lagos, Ogun, Ekiti and Osun. However, little or nothing is known about the influence of farmers' socio-economic characteristics, use of the technology, reaction and the responses of the farmers regarding rice with the use of FFS approach for greater livelihood of rice farmers. This information gap has bedeviled extension programmes and policies, preventing them from capturing and addressing the needs of rice farmers. In the same manner, there have not been concerted efforts by researchers to analyze the adequacy or the effectiveness of the Farmer Field School approach in promoting rice farming practices. This has given rise to gap in knowledge which unfortunately has not affected the agricultural sector positively (Oguntade *et al.* (2016). Farmer Field School Approach FFS) is a participatory training approach that can be considered both as an extension tool and a form of adult education. It focuses on building farmers capacity to make well-informed crop management decision through increased knowledge and understanding of the agro-ecosystem (Adisa and Adeloye, 2012). Farmer Field School Approach in Edo State has not been properly documented in the area of the constraints faced by rice farmers in the programme. In view of the

above stated facts, this paper investigated the factors influencing rice farmers’ participation in Farmer Field School Approach in Edo State Nigeria.

The objectives include to describe the socio-economic characteristics of the rice farmers in the area, to determine the factors influencing rice farmers’ participation in farmer field school in Edo State, Nigeria and to determine the perceived mean constraints to the rice farmers’ participation in Farmer Field School approach in the study area.

MATERIALS AND METHODS

The study was conducted in three (3) Local Government Areas (Etsako, Akoko-Edo and Esan central) of Edo State. The study areas were chosen because they were mostly participating in Farmer Filed School activities in the State. The list of the participants was given by Edo State Agricultural Development Programme (ADP). A reconnaissance survey revealed about 1,348 registered rice farmers

participants in farmer filed school in the study area. Two villages were purposively selected from each of the local government areas chosen, amounting to a total of six (6) villages. The villages are Itogbo and Edegbe in Etsako LGA, Dagbala and Aiyegunle in Ako-Edo and, Afuda and Idumegbo in Esan central respectively. The purposive selection of the villages was based on their higher participation in farmer filed school in the area. Also, using simple random sampling technique, 10% of rice farmers were selected from the three (3) local government areas that amounted to a sample size of 135 respondents. Data were analyzed using descriptive statistics (frequency distribution, percentages and mean) and multiple regression model. The farmers’ constraints to the participation in FFS in promoting rice farming practices was analyzed using mean score and standard deviation. Mean scores were computed by adding 5-point Likert type rating scale of Strongly Agree (SA) = 5, Agree (A) = 4, Undecided (U) = 3, Disagree (D) = 2, Strongly Disagree (SD) = 1 and divided by the number of scales as shown below;

$$\frac{SA + A + U + D + SD}{5} = \frac{5 + 4 + 3 + 2 + 1}{5} = \frac{15}{5} > 3.0$$

The discriminating index >3.0 was used as basis of acceptance or rejection of constraints as Agree or not. The regression equation used for the study is as follows:

- Y = a + b₁X₁ + b₂X₂ + b₃X₃ + b₄ X₄ + b₅X₅ + b₆X₆ + U
- Where: Y = Rice farmers’ participation in Farmer Filed School (Number of times per month)
- X₁ = Age (in years)
- X₂ = Education (in years)
- X₃ = Household Size (number of people)
- X₄ = Farm size (hectares)
- X₅ = Farming experience (in years)
- X₆ = Extension visits (number of visits)
- a = Constant
- b₁– b₆ = Regression coefficients
- U = Error term

RESULTS AND DISCUSSION

Socio-economic characteristics of rice farmers in the study area

Table 1 shows the socio-economic characteristics of rice farmers in the study area. The result shows that the mean ages of rice farmers was 49.50years with a standard deviation of 10.41. Also, the rice farmers had farming experience of 18.50years with a standard deviation of 4.17. Farming experience had been shown to influence farmers’ participation in FFSA, thereby increasing the farmers’ participation (Ani *et al.*, 2004). The Table also shows that the mean farm size of the rice farmers was 4.5hectares with a standard deviation of 0.97. This result confirmed the findings of David and David (2010), who said, the mean farm size maize farmers in Edo State was 4.4hectares. The mean education rice farmers was 12.60years with a standard deviation of 4.10. In addition, the mean household size of rice farmers was 6.0 people with a standard deviation of 3.11. Finally, the study shows that the mean extension visit to rice farmers was 1.0visit with a standard deviation of 0.5.

Table 1: Mean and Standard deviation of socio-economic characteristics of rice farmers in Farmer Filed School in the study area.

Variables	Mean	Standard deviation
Age (years)	49.50	10.14
Education (years of schooling)	12.60	4.10
Household size	6.0	3.11
Farm size	4.5	0.97
Farming experience	18.50	4.17
Extension visit	1.0	0.5

Field survey, 2019

Factors influencing rice farmers' participation in Farmer Filed School

The result of the multiple regression model in Table 2 below shows the factors influencing the rice farmers' participation in FFS in the study area. Ordinary least square multiple regression analysis produced the t-ratio that were used to determine the factors influencing the rice farmers' participation in FFS programmes in the study area. Based on the appropriateness of the signs, number of significant variables and magnitude of R^2 value, the double log was chosen as lead equation for discussion. The result of the ordinary least square multiple regression analysis in Table 2 shows that about 68% of variation in the rice farmers' participation in FFS could be explained by the combined influence of the socio-economic variables in the equation. The result shows that five out of the six independent variables (age, educational level, household size, farm size and farming experience) influenced positively and significantly the rice farmers' participation in FFS in the area. Table 2 reveals that, age influenced positively and significantly with a t-value of 1.786 at 10% level of probability. It also reveals that, level of education influenced positively and significantly with a t-value of 1.928 at 5% level of probability. This implies that, farmers with higher educational qualifications had more likelihood of participating in farmer filed school than those with lower levels of education. Education helps to create a favourable mental attitude for farmers' participation in profitable programmes. This result agrees with Ani *et al.* (2004), who reported that educational level had significant relationship at 5% level of confidence with adoption of farm technologies. This finding also agrees with Amaza and Olayemi (2019), who also reported that education had

a positive and significant impact on farmers' production efficiency. In the same vein, farm size (0.642) at 5% level of probability influenced the rice farmers' participation in FFS positively and significantly. In addition, household size with T-value of 3.636 and farming experience (2.881) also had positive and significant influence on the rice farmers' participation in FFS at 1% level of probability respectively. This result implies that, the more the number of people in a household, the more the likelihood of farmer's participation in FFS due to the increase in farmer's income accrued from the productivity as a result of the high labour force from the number of household size of the farmer. This finding agrees with Akpoko (2014) who reported that large households positively and significantly influenced the adoption of recommended soil management practices in Kaduna state. In addition, Tokula *et al.* (2018) found that household size had positive and significant influence with the technology acceptance of rice varieties, implying that, the more the household size, the higher the probability of accepting improved rice varieties. Finally, extension visit had negative T-value of -.005. This implies that, this variable though, not significant but contributed to the influence of rice farmers' participation in FFS in the study area. It also indicated that the more the rice farmers were involved in FFS, the lower the extension visits to them. This may probably due to the continuous reduction of the number of extension agents as a result of death, withdrawal and retirements. However, all the variables together explained about 68% of R^2 value and F-ratio of 2.532 in the total variability of rice farmers' participation in FFS in the study area.

Table 2: Multiple regression results of factors influencing rice farmers’ participation in Farmer Filed School

Variables	Linear function	T- Value	Semi log	T- Value	Exponential function	T- Value	Double log	T-Value
Constant	-.060	-	-10678	-	.4875	-	.683	-
Standard error of the equations	.449	-	.0867870	-	.1095639	-	816	-
R ²	.050	-	.566	-	.052	-	.068	-
N= number of observations	135	-	135	-	135	-	135	-
F-value	1.906	-	2.547	-	1.987	-	2.532	-
Age (X ₁)	-.007	-41	7.025	-813	-.001	1.573	.848	1.786***
Educational level (X ₂)	-.005	-317	1.508	-223	.000	.940	0.369	1.925**
Household size (X ₃)	.005	2.217	-2.003	2.350	.006	-.256	0.234	3.636*
Farm size (X ₄)	.074	.958	1.493	1.020	-.008	1.302	0.377	0.642**
Farming experience (X ₅)	-.008	-624	-1.118	.560	-.001	-.975	1.972	2.881*
Extension visit (X ₆)	-0.57	-790	-.107	-166	-.009	-.067	-.001	-.005

Field survey, 2019, * = Significant at 1%, ** = Significant at 5%, ***= Significant at 10%, R²=0.68

Constraints to rice farmers’ participation in Farmer Filed School in the study area

Table 3 shows the distribution of farmers by perceived constraints to the participation in FFS. The result indicates that the six (6) understudied factors constituted constraints to the rice farmers’ participation in FFS in the study area. Bad road network was perceived as the most constraining factor having recorded the highest mean score of 4.2 followed by inadequate incentives as the next considered constraint with the mean value of 4.1. Poor/weak education recorded mean score of 3.7. Similarly, poor extension visits to farmers and

inadequate credit facility recorded mean scores of about 3.6 and 3.4 respectively. According to Asiabaka and Anaeto (2016), they stated that, lack of credit has made farmers remain at subsistence level. Poor/Inadequate extension visit leads to poor extension farmer linkage. Asiabaka and Anaeto (2016) blamed this on the collapse of institutional frameworks of extension services. The standard deviation value of 0.2 – 0.5 implies that the farmers did not vary significantly in their opinions regarding how the listed factors that constrained rice farmers’ participation in FFS in the study area.

Table 3: Distribution of farmers by level of agreement with perceived constraints to the participation in FFS in the study area

Constraints	SA	A	U	D	S. D	Mean (X̄)	SD	Remark
Poor extension visit	92	56	32	34	26	3.6	0.5	constraint
Bad road network	132	58	15	26	09	4.2	0.2	Constraint
Poor/week education	52	65	56	56	14	3.7	0.4	constraint
Poor awareness of the programme	82	92	26	26	09	3.9	0.2	Constraint
Inadequate incentives	92	106	24	24	04	4.1	0.4	constraint
inadequate credit facility	52	79	53	53	35	3.4	0.4	Constraint

Field survey, 2019 Mean>3.0 = constraint, <3.0 = Not constraint, SA=Strongly agreed, A= Agreed, D= Disagreed, U= undecided, S.D Strongly disagreed, (X̄) = Mean, SD= Standard deviation

CONCLUSION

Since Farmer Field School Approach (FFSA) is a participatory training approach for rice farmers in the study area which was considered as a medium of disseminating improved agricultural technologies to farmers and a form of adult education, it can be concluded that, the participation of rice farmers in FFS should be adequately motivated. This can be done by ameliorating the observed constraints such as building well accessible roads and Schools, increased in credit facility, awareness and proper investment in the rice farmers' education to enhance their level of participation in FFS in the study area.

RECOMMENDATIONS

- i. Rice farmers should be encouraged to form groups in order to access credit and rice enhancing strategies such as value addition easily.
- ii. Farmer Filed Schools (FFSs) should be located close to the participating farmers' residence for easy accessibility. This was informed by the bad road network experienced in the area.
- iii. Credit intervention strategies for rice farmers should be guided by their participation in Farmer Filed School activities in order to tackle problem of inadequacy.

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