FACTORS INFLUENCING THE UTILIZATION OF ADVISORY SERVICES AND INPUT SUPPORT BY BENEFICIARIES OF FADAMA III ADDITIONAL FINANCING (AF1) IN ADAMAWA STATE, NIGERIA.

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ABSTRACT

This study analyzed the utilization of advisory services and input support among rice farmers of Fadama III Additional Financing in Adamawa state, Nigeria. Specifically, the study described the socio-economic characteristics of the respondents; identified the types of advisory services and input support offered to the respondents; assessed the utilization of advisory services and input support offered to the respondents; determined the factors influencing the utilization of advisory services and input support by the respondents and identified the constraints of the respondents in the study area. Primary data were mainly used, and were collected through the administration of questionnaire to 150 randomly selected rice cluster farmers under Fadama III AF1 in Fufore, Numan and Yola South Local Government Areas. Descriptive statistics, rating scale and regression analysis were used to analyze the data. The result revealed that male rice farmers were the majority (93.2%) with mean age of 49.3 years. Majority (95.2%) of them were married with mean farming experience of 19.7 years and house hold size of 12.1 persons. Majority (68.5%) were literates. Some of the advisory services offered were, market information, improved method of weed control, use of improved varieties, application of appropriate fertilizer, recommended seed rate and mechanical land preparation. Inputs support offered were improved seeds, herbicides, insecticides, fertilizers, power tiller, milling machines and manual rice harvester. The advisory services and input support offered were highly utilized. Age, education, farming experience, off-farm income and farm income were the factors influencing the utilization of advisory services. While age, marital status, education, and farm income were also the factors influencing the utilization of input support, with R^2 *values of 0.79 and 0.59. The study recommends the* development of more efficient distribution network for inputs (supply and delivery system).

Keywords: *Advisory services, Input support and Utilization.*

INTRODUCTION

The Nigerian government, in their effort to reduce the problems inflicted by food insecurity and poverty due to low agricultural production and productivity in the nation established agricultural aid programs. One of such programs is the National Fadama Development Project which was implemented in phases. 'Fadama' is a Hausa name for irrigable land usually low-lying plains underlain by shallow aquifers found along Nigeria's major river system (Project Appraisal Document, PAD 2004). The last phase of the project which is the Fadama III received its Additional Financing (AF) of ₦32, 644, 300, 000 billion in June, 2013 and became effective in October, 2013 (World

Bank, 2016). The Additional Financing was implemented in selected states on the basis of comparative advantage and high potential to increase production and productivity of Cassava, rice, sorghum and horticulture.

Rice is a prominent crop among the wide array of staple crops in the food sub-sector of Nigeria agriculture (Mallam, Agbo and Ebe, 2014). It is one of the most important healthy food and influences livelihoods and economies of several people (Atande, 2003; International Rice Research Institute (IRRI), 2007-2015). According to a report by United Nations Environmental Programme (UNEP, 2002) in the 1960s, rice was only consumed during festivals and largely in upscale homes at Christmas or other religious festivals. However, Akpokodje, Loncon and Erenstein, (2001) reported that from mid 1970s, there has been a huge climb-up of rice consumption in Nigeria (110.3g per annum). A report by Rice Farmers Association of Nigeria (RIFAN, 2017) and NBS, (2018) showed that rice is now the most consumed staple food in Nigeria, with increased consumption rate of 7.9 million tons in 2017.

Although, rice production in Nigeria has increased from 5.5 million tons in 2015 to 5.9 million tons in 2017, Nigerian rice farmers are still unable to meet the local demand, leaving a supply gap which is bridged by importation (RIFAN, 2017). In order to attain self-sufficiency in rice production, federal government of Nigeria has established many institutions, programs and schemes. One of such major institutions among others is the Fadama III Additional Financing 1 (Fadama III AF1) (World Bank, 2009; Oladunjoye, 2015).

The Fadama III AFI which was established by the government in 2013 has an advisory service which empowers the Fadama users through their Local Government Areas to purchase advisory services from public and private sources. These services include provision of advice on the how, when, where and why the use of agro-technology with its associated input market. Inputs support on the other hand, supports, guides and persuade farmers to adopt new technology and more productive practices in their income generating activities to enhance their financial capacity to purchase farm inputs (World Bank, 2016).The Advisory Services and Input Support of Additional Financing provide funds for hiring advisory services to teach techniques on suitable methods of using the factors of production. The bulk of the funds under this component are for the provision of critical inputs (fertilizer, improved seeds and machineries) needed to build up the production of the selected crops (rice, cassava, sorghum and horticulture). The objective of this support is to make sure farmers in the production clusters of the project intervention areas have timely and equal access to these critical inputs in good quality and adequate quantity (Third National Fadama Development Project Additional Financing, 2014).

METHODOLOGY

The study was conducted in Fofure, Numan and Yola South Local Government Areas of Adamawa State (Fig.3.1).Fufore lies between Latitude $9^{o}13'$ N and Longitude 12^{o} 39' E of the Greenwich meridian, Numan lies between Latitude $9^{o}10'$ and $9^{0}39'$ N of the equator and between longitudes $10^{0}24'$ and $12^{0}55'$ E of the Greenwich Meridian and Yola South lies between Latitude $9^{0}14'$ N and Longitude $12^{0}28'$E of the Greenwich Meridian. Fufore Local Government Area is bounded to the North by Song and Maiha, to the west by Mayo Belwa, Jada to the south and Cameroon to the East, Numan Local Government Area is bounded to the North by Shelleng, Lamurde to the west, Demsa and Taraba to the South and Demsa to the East while Yola South is bounded to the east and south by Fufore, and to the west by Demsa and to the north by Yola North and Girei Local Government Areas respectively. Rainfall in Fufore ranges between 700mm - 1000mm, Numan Local Government between 1100mm - 1160mm, whereas Yola South has an average annual rainfall of less than 1000mm (Adebayo, 1999). The vegetation of the study area falls

within northern guinea savannah belt with large swampy (Fadama) areas which support irrigation during dry season. Crops grown in the study area includes rice, maize, sorghum, cowpea, millet, vegetable crops and groundnut (Sajo *et al*., 1992). The major occupations in the area are agriculture (crop production, fishing and livestock production), trading and civil service.

METHOD OF DATA COLLECTION

The primary data were collected through the use of semi structured questionnaire which was administered to the respondents. The questionnaires were in three sections, section A: was for the socio-economic characteristics of the respondents, section B: types of advisory services offered to the rice cluster farmers. Section C: types of input support offered to the rice cluster farmers, and section D: Utilization of advisory services and input support.

SAMPLE SIZE AND SAMPLING TECHNIQUE

A multi-stage simple random sampling procedure was used in selecting respondents for the study. There were seven Local Government Areas that benefitted from the Fadama III Additional Financing 1 (AF1) in Adamawa State, Nigeria. The rice farmers under the Fadama III AF1were in clusters of hundreds except Mayo-Belwa who has 60 cluster farmers and Lamurde who has two clusters of 100 farmers each. Three out of seven Local Government Areas were selected using a random sampling technique, these were Fufore, Numan and Yola South Local Government Areas, which consisted of 300 rice farmers under the Fadama III AF 1 combined, 100 rice farmers in each of the three Local Government Areas. The last stage was the selection of one hundred and fifty respondents using a random sampling technique from the existing sampling frame that the questionnaires were administered to; though only one hundred and forty-six were retrieved and used for the study.

ANALYTICAL TECHNIQUES

Descriptive statistics were used to analyze the socio-economic characteristics of the respondents (objective I), the type of advisory services and input support offered to rice cluster farmers (objective II), this involved the use of frequency counts, means, percentages and standard deviations. Rating scale was used to analyze.

Multiple regression analysis was used to determine the factors influencing the utilization of advisory services and input support offered to rice cluster farmers in the study area to achieve objective III.

To determine the Lead equation, four functional forms were tried for both advisory services and input support and the functional form best fits and selected as the lead equation was the double logarithm function.

Double-log function:

$$= - 1 \quad 1 + 2 \quad 2 + 3 \quad 3 + 4 \quad 4 + 5 \quad 5 + 6 \quad 6 + 7 \quad 7 + 8 \quad 8$$

Where:

Y=utilization of advisory services (% of advisory services utilized by a respondent)

X1=Age of the farmers (in number of years)

X2 =Household size (In number of persons)

X3= Educational level (in number of years spent in school)

X4=Farming experience in years

X5=Off-farm income (₦)

X6= Farm income (₦)

X7= Access to credit (yes=1, No=0)

X8=Membership of other association (1 if member, 0 otherwise)

For input support:

Double-log function:

$$= + 1 \quad 1 + 2 \quad 2 - 3 \quad 3 + 4 \quad 4 + 5 \quad 5 + 6 \quad 6 + 7 \quad 7 + 8 \quad 8 + 9 \quad 9$$

Where:

Y=utilization of input support (% of input support utilized by a respondent)

X1=Age of the farmers (in number of years)
X2 = Sex (1 if male, 0 otherwise)
X3=Marital status (1 if married, 0 otherwise)
X4= household size (in number of persons)
X5=Educational level (in number of years spent in school)
X6= of farm income (₦)
X7= Farm income (₦)
X8=Access to credit (yes=1, No=0)
X9 = Membership of other association (1 if member, 0 otherwise)

RESULTS AND DISCUSSION

Socio economic Characteristics of the Respondents

The socio-economic characteristics of the respondents discussed were sex, age, marital status, household size, farming experience, primary occupation, level of education, off-farm income, farm income, access to credit and membership of other association.

Table 1 shows the distribution of respondents based on gender, it reveals that majority (93.2%) of the beneficiaries of Fadama III AF1 were male while only 6.8% were female. This is in line with the findings of Mustapha et al. (2018) on determinant of yield among rice farmers: of Fadama III AF1 project intervention in Sokoto State, Nigeria; Girei and Dire (2013) in a study on impact of national Fadama II project on the social-economic characteristics of crop farmers in Adamawa State of Nigeria; Abba and Abu (2015) in a study on technical efficiency of small scale rice production in Adamawa State of Nigeria. This result confirms the dominance of men in crop production activities because farming operations are laborious in nature which requires enormous strength from tillage to harvesting (Asogwa et al., 2014). Male farmers generally constitute the household heads with capacity to represent households in decision making situations, unlike their female counterparts who are constrained by socio-cultural barriers.

The Table also shows the age distribution of respondents with 42.5% of the respondents falling within the age range of 40-49years, 37% aged between 50-59 years, those within the age bracket of 60-70 and 30-39 constituted 11% and 7.5%, only 3% were between 20-29years with mean age of 49.3 years. This is in agreement with Yusuf and Mustapha (2019) in a study on socio economic characteristics of rice farmers in Sokoto State, Nigeria, also in consonance with Matanmi et al. (2011) in a study on perceived factors limiting rice production in Patigi Local Government Area of Kwara State, Nigeria. Farming activities require labour, the provision of which is determined by age (Jongur, 2006).This result indicates that more than half (52%) of the respondents in the study area were below 50years of age, therefore they are active and characterized with strength and commitment to farming activities, and are also significantly associated with receiving training on improved agricultural technology and its utilization.

Marital status is a situation with regard to whether one is single, married, separated, divorced, or widowed. Crop production value chain and use of technologies are related to marital status. Hence marriage serves as a means of generating family labour (Antibioke et al., 2012). The findings in Table 1 show that majority (95.2%) of the respondents are married, 1.4% ware single, 1.4% divorced and 2% were widowed. This finding is in agreement with Tiku et al. (2010) who revealed in a study on efficiency of inputs Utilization on rice production in Obubra Local Government Area of Cross River State, Nigeria, that 90% of their respondents were married, and also in line with Adeleye (2010) in a study on Adoption of improved rice production technologies among members and non-members of rice farmers association in Kano and Kaduna State, Nigeria, they reported that 93% and 83% of their respondents were married. This finding is also in line with Bawa and Ani (2015) in a study on technical efficiency of small-scale rice production in Adamawa State, Nigeria.

The distribution of respondents based on their

household size is also presented in Table 1. The result shows that 43.2% of the respondents have household size of between 11 and 15, 35% has between 6-10 while 16.4% has household size of between 16 and 20. The large household size of most of the respondents may be due to polygamy of most farmers. Large household size contributes immensely to family labour supply. This result is in agreement with the study by Igboji et al. (2015) who reported that a high household size is due to the polygamous nature of the farmers. This is also in agreement with Nandi et al. (2012) who noted that household size greater than 6 does well in adoption and utilization of resources for efficient farming.

Table 1 shows the distribution of respondent base on their farming experience. Proper utilization of innovation is favored by enough experience as experience helps farmers to learn from their past mistake Umeh and Ekwengene (2017). The result revealed that majority (55%) of the respondents had farming experience of 11-2; 0 years, 27% had 21-30 years, 8 % had 1-10 and 31-40 years while 2 % had 41-50 years of farming experience. This result is in line with the findings by Kagbu et al. (2016) in a study on adoption of recommended rice production practices in Nasarawa State, Nigeria where they reported that majority (80%) of their respondents were highly experienced, and also in agreement with Umeh and Ekwengene (2017) on determinant of Utilization of agricultural extension packages of selected arable crops in Enugu State, Nigeria, who reported that 57.29 % of their respondents were experienced farmers. This result implies that the respondents are well experienced in farming and that will enhance the adoption and utilization of agricultural technology.

Table 1 shows the distribution of respondent based on their primary occupation. The result shows that majority (77.4%) of the respondents' primary occupation is crop farming (rice). This may not be unrelated to the fact that the additional financing was implemented in selected areas of comparative advantage and high potential for increased production and productivity of rice in Adamawa State. Few (17.1%) were civil servants and 6% traders.

Education play a crucial role in farmers understanding and use of innovation, their need to seek for more information about technologies and desire to utilize them Ibok *et al.* (2015). Table 1 shows the distribution of respondents based on their educational level. The result shows that 31.5% of the respondents had no formal education, 26% attained primary education, and 24% attained secondary education while 18.5% attained tertiary education. This shows that majority of the respondents were literates, as 68.5% had attained one form of education or the other. This result is in agreement with Igboji *et al.* (2015) in a study on socio-economic factors and profitability of rice production among small scale farmers in Ebonyi State, Nigeria who also found that 70.7% of their respondents had one form of education or another. However, this result contradicts the findings by Tsega *et al.* (2005) and Khattak and Hussein (2008) who found a high illiteracy level among rice farmers.

The distribution of respondent base on their off-farm income is presented in Table 1. The result shows that about 24% have off-farm income levels between 210,000 – 300,000 naira, 18% between 110,000 – 200,000 naira, 14% between 510,000 – 600,000 while 5% have no 0ff – farm income. The overall mean of the off-farm income is289 Naira per annum. This result also implies that 95% of the respondent obtained income from other sources aside crop farming. This also means that farmers may use a substantial amount of money generated from off- farm activities to purchase farm inputs, therefore contributing to the adoption and utilization of agricultural technologies (Alabi et al.,2018). Contrary to the findings by Tadesse (2008) who reported that farmers who earn this type of income may spend more time away from the village and their farms, hence, may not be able to access agricultural information and, consequently lack information and knowledge to

utilize. This result is in agreement with Babatunde (2012) and Igboji et al. (2015) who found that off – farm activities have positive and significant effect on demand for purchased inputs and generate extra income to support rice production.

On farm income of the respondents, the result on Table 1 shows that 19% earned between 501,000 – 600,000, 16% earned between 701,000 – 800,000, 15% between 401,000 – 500 000, 12% earned between 201, 000 - 300,000 and only 1.4% earn between 10,000 -100,000 from their farm annually. This is an indication that the farmers have good harvest and high annual farm income. This may not be unconnected with the fact that the Fadama III Additional financing 1 was implemented in selected Local Governments Areas on the basis of comparative advantage and high potential of increase production and productivity of rice in Adamawa State.

The distribution of respondent based on their access to credit is shown in Table 1 and it indicates that majority (67%) of the respondents have access to credit, while 33% had no access to credit. This result is in agreement with Sakiru (2013) who reported from his findings on Access to credit implication for sustainable rice production in Ogun State, Nigeria that 56% of his respondents had access to credit. Access to credit is expected to have positive effect on new technology adoption, use of good and recommended agricultural practices, and therefore on productivity and farmers livelihood.

The distribution of respondents based on membership of other association aside Fadama III is presented in Table1. The result shows that majority (64.4%)of the respondents belong to other associations aside Fadama III, while (35.6%) do not belong to any other association aside Fadama III. This result is in consonance with Ibok et al. (2015) in a study on factors influencing the utilization of agricultural extension technologies by farmers in Cross River State, Nigeria found out that 92% of their respondents belong to one social group or another. Membership of association is expected to assist farmers to have easy access to credit. Farmer's association is expected to increase their security in terms of access to loan and information regarding government subsidies and agricultural knowledge needs which are relevant to their day to day involvement.

Table1.Socio-economic Characteristics of Rice farmers.

Variables	Frequency	Percentage	Mean	Standard
Gender				
Male	136	93.2		
Female	10	6.8		
Age Group (Years)				
20-29	3	2.0		
30-39	11	7.5		
40-49	62	42.5	49.3	49.9
50-59	54	37.0		
60-70	16	11.0		
Marital Status				
Single	2	1.4		
Married	139	95.2		
Widowed	3	2.0		
Divorced	2	1.4		
Household Size				
1-5	4	2.7		
6-10	51	35.0		
11-15	63	43.2	12.1	12.7
16-20	24	16.4		
21-30	4	2.7		

Years of Experience				
1-10	12	8.0		
11-20	80	55.0		
21-30	39	27.0	19.7	21
31-40	12	8.0		
41-50	3	2.0		
Primary Occupation				
Farming	113	77.4		
Trading	6	4.1		
Civil Servant	25	17.1		
Fishing	1	0.7		
Hunting	1	0.7		
Level of Education				
No formal education	46	31.5		
Primary Education	38	26.0		
Secondary Education	35	24.0		
Tertiary	27	18.5		
Off-Farm Income (`000)				
10-100	21	14.0		
101-200	35	18.0		
201-300	19	24.0		
301-400	14	13.0		
401-500	13	9.0	289	353.4
501-600	5	3.0		
601-700	3	2.0		
701-800	2	1.4		
801-900	1	0.6		
901-100	7	5.0		
Farm Income (`000)				
10-100	2	1.4		
101-200	10	7.0		
201-300	18	12.0		
301-400	16	11.0		
401-500	22	15.0		
501-600	28	19.0	504	486.8
601-700	20	14.0		
701-800	24	16.0		
801-900	3	2.0		
901-100	2	2.0		
1001-1100	1	0.6		
Access to Credit				
Yes	98	67.0		
No	48	33.0		
Membership of other Association				
Yes	94	64.4		
No	52	35.6		

Source: Field Survey, 2021

Types of Advisory Services Offered to Rice Cluster Farmers.

The types of advisory services offered to the rice cluster farmers by Fadama III additional financing 1 in Adamawa state is presented in Table 2 below. The advisory services offered were mechanical land preparation, appropriate planting date, recommended seed rate, use of improved varieties, appropriate spacing, improved method of weed control, application of appropriate fertilizer, pest and disease management practices and harvesting technique, use of mechanical winnower, post-harvest handling, storage methods others were improved processing, market information and linkage to market. There was no any matching grant given for advisory services offered. This result implies that the cluster farmers in Adamawa State were actually offered advisory services by the Fadama III Additional Financing 1. This result is in line with the findings by Umar *et al.* (2012) in an investigation on the impact of Fadama II project on adoption and demand for advisory services in Adamawa State, Nigeria who found out that Fadama II farmers were offered more advisory services in the area of post-harvest handling, agricultural marketing and crop management practices. It is also in agreement with the study by Obidike (2011) in a study on rural farmers problems accessing agricultural information in Nsuka Local Government Area, Enugu State, Nigeria who reported that farmers were offered information on new method of crop preservation, introduction of new herbicides and pesticides/uses, crop disease treatment and control, better crop rotation practices and fertilizer application.

Table 2: Types of Advisory Services Offered to Rice Cluster Farmers

Advisory Services	Frequency	Percentage
Appropriate Planting Date	146	100.0
Recommended Seed Rate	146	100.0
Improved Method of Weed Control	146	100.0
Application of Appropriate Fertilizer	146	100.0
Method of Fertilizer Application	146	100.0
Mechanical Land Preparation	145	99.3
Use of Improved Variety	144	98.6
Market Information	136	93.2
Pest and Disease Management Practice	134	91.8
Appropriate Spacing	128	87.7
Post-harvest handling	122	83.6
Linkage to Market	77	52.7
Storage Methods	69	47.3
Harvesting Technique	56	38.4
Improved Processing	24	16.4
Use of Mechanical Winnower	27	18.5

Source: Field Survey, 2021

Types of Input Support Offered to Rice Cluster Farmers.

The types of input support offered to the rice cluster farmers in Adamawa State by Fadama III additional financing 1is presented in table 2. The inputs were improved seeds, herbicides, insecticides, pesticides and fertilizers, tractorization/power tiller, milling machines, generators and manual rice harvester; others were rainboots, hand gloves, hoe, cutlass, knapsack sprayers and trampoline. Some of the inputs such as the power tiller and milling machines were not given across all the study area because they were an additional support for youth and women who were not initial beneficiaries of the input support. Beneficiaries of power tiller, milling machines generators and manual rice harvester were grouped. Farmers paid a 50% matching grant for the inputs. This result indicates that the rice cluster farmers in the study area actually received input support from Fadama III Additional Financing I in Adamawa state. This result agrees with Mahadeva (2014) in his study on agricultural input subsidies in Karantaka, India. He revealed the types of subsidies offered to farmers in Nagarabhavi as improved varieties of seeds, agricultural implements, plant protection, chemicals, equipment, fertilizer, paddy and equipment for sowing.

Table 3: Types of Input Support Offered to the Rice Cluster Farmers

INPUTS	Frequency	Percentage
Fertilizers	146	100
Milling Machine	98	100
Herbicides	144	98.6
Improved Seed	142	97.3
Insecticides	132	90.4
Pesticides	127	86.9
Manual Rice Harvester	24	49
Tractorization/Power Tiller	67	45.9
Generators	37	25.3

Source: Field Survey, 2021

Factors Influencing the Utilization of Advisory Services and Input Support

Factors Influencing the Utilization of Advisory Services

The factors influencing the utilization of advisory services were analyzed using the multiple regressions models, four functional forms were tried and the Double Logarithm function was selected based on economic, econometric and statistical criteria. The diagnostic test results (Table 3) revealed that Ramsey RESET test and Breusch-Pagan / Cook- Weisberg test for Heteroscedasticity were not statistically significant. Also, the variance inflation factor (VIF) with respect to all the variables fall within the threshold values of less than 10. The model is not spurious and therefore fit the data.

Table 4: Diagnostic Test Result for Advisory Services

Type of Test	Value	Probability level
Ramsey RESET test	F(3, 134) = 0.92	Prob> F= 0.4350
Breusch-Pagan/Cook-Weisberg test for Heteroscedasticity	Chi2(1) = 0.07	Prob> chi2 = 0.7894
Variance inflation factor (VIF)		
Variable		
LnX_4 (Farming experience)	2.12	
LnX_1 (Age)	1.95	
LnX_2 (household size)	1.74	
LnX_6 (Farm income)	1.24	

The result of the multiple regressions analysis in Table 4 revealed that the model gave an R^2 of 0.79 which implies that approximately 79% of the advisory services utilized are explained by the explanatory variables used in the model. As revealed by the F-value, the overall model is significant at 1% level. The result of the analysis revealed that five out of the eight explanatory variables significantly influenced the utilization of advisory services. These variables include age (X_1-0.211), education (X_3- 0.014), farming experience (X_4- 0.061), off-farm income (X_5- 0.004) and farm income (X_6- 0.040).

The coefficient of age (X_1–0.211) was negative at 1%significant level, this inverse relationship has a negative influence on the utilization of advisory services which also implies that the more the rice farmers are advanced in age, the lower they utilize advisory services offered to them this result is contrary to apriori expectation. This is because the older the rice farmers the less the vigor for farming activities and hence the lower the utilization of advisory services. This finding is in agreement with Tesfaw (2015) in a study on the dynamics of seed utilization and use intensity in North Western Ethiopia who also found that age has negative coefficient and had significant influence on the use of advisory service (dynamics of seed utilization).

The coefficient of education (X_3 - 0.140) was positive and statistically significant at 1% level. This means that as the educational level of the farmers increases, the percentage utilization of advisory services also increases. Educated farmers have the ability to perceive, interpret and respond to new information faster than their counter part without education and hence the utilization of such information. This finding is in

agreement with Igboji et al. (2015) in their study on the analysis of socio-economic factors and profitability of rice production among small scale farmers in Ebonyi State Nigeria who found out that education had positive and significant influence on rice production, indicating that the higher the level of education of farmers the higher the production and hence the utilization of improved technology.

The coefficient of farming experience (X_4- 0.061) variable was positive and statistically significant at 5% level. This means that as farming experience increases, the utilization of advisory services by the respondents also increases. Proper utilization of advisory services is favored by enough farming experience as experience help farmers to learn from their past mistakes. This result is in agreement with the findings by Umeh and Ekwengene (2017) in their study on the determinants of utilization of agricultural extension packages in Enugu State, Nigeria who also found that farming experience had significant positive relationship with utilization of the extension packages.

The coefficient of off-farm income (X_5- 0.021) is positive and significant at 5% level. This implies that as off farm income increases, the percentage utilization of advisory services increases. The positive effect of off-farm income suggests that off-farm earnings may induce technology adoption and utilization by providing farmers with capital for purchasing the improved technologies thus; the utilization of advisory services which is usually a prerequisite to utilization of inputs. This result is in agreement with Diro (2013) on the impact of off-farm income on agricultural technology adoption intensity and productivity, Uganda who found out that off farm income has a positive and a significant influence on the adoption and utilization of improved technologies.

The coefficient of farm income (X_6 - 0.040) was also positive and statistically significant at 5%. This implies that an increase in farm income will lead to the percentage increase in the utilization of advisory services by the rice farmers. Increase in farm income will lead to expansion of farm land and eventually the utilization of more advisory services and more inputs. This result corroborates the findings by Awotide et al. (2016) in their study on the Agricultural technology adoption, commercialization and small-holder rice farmers' welfare in rural Nigeria. Their finding revealed that farm income variable had a positive and significant influence on the intensity of adoption and use of improved rice technology.

Table 5: Result of Multiple Regression Analysis of Factors influencing the utilization of Advisory Services

Variable	Coefficient	Standard Error	T- value
Age (x_1)	--0.2111	0.0677	-3.12***
Household size(x_2)	0.0303	0.0306	0.98
Education (x_3)	0.1360	0.0418	3.25***
Farming Experience (x_4)	0.0610	0.0280	2.18**
Off-farm income (x_5)	0.0043	0.0021	2.00**
Farm income (x_6)	0.0396	0.0168	2.35**
Access to credit (x_7)	0.0001	0.0032	0.04
Membership of other associations (x_8)	0.0001	0.0003	0.03
R-Square	0.787		
Adj R-Square	0.739		
F. Value	3.95		

Factors Influencing the Utilization of Input Support

The factors influencing the utilization of input support were determined using the regressions model where the three functional forms were tried and the Double-Logarithm function was selected based on economic, econometric and statistical criteria. The diagnostic test results (Table 5 above) revealed Ramsey RESET test and Breusch-Pagan / Cook-Weisberg test for Heteroscedasticity were not statistically significant. Also, the variance inflation factors (VIF) with respect to all the variables fall within the threshold values of less than 10. The model is not spurious and therefore fit the data.

Table 6: Diagnostic Test Result for Input Support

Type of Test	Value	Probability level
Ramsey RESET test	F (3, 134) = 0.50	Prob> F = 0.6861
Breusch-Pagan / Cook-Weisberg test for heteroscedasticity	$Chi^2(1) = 0.81$	Prob> chi2 = 0.3691
Variance inflation factor (VIF)		
Variable		
LnX_4 (Household size)	1.81	
LnX_3 (Marital status)	1.57	
LnX_1 (Age)	1.54	
LnX_5 (Education)	1.50	
LnX_2 (Sex)	1.26	
LnX_8 (Access to credit)	1.26	
LnX_9 (Membership of other association)	1.12	
LnX_7 (Farm income)	1.04	

The result of the multiple regressions analysis in Table 6 below revealed an R^2 of 0.59 which implies that 59% of the input supports utilized are explained by the independent variables used in the model. As revealed by the F- value, the overall model is significant at 1% level. The result of the analysis revealed that four out of the nine independent variables significantly influenced the utilization of input support. These variables include age (X_1 0.44), marital status (X_3–0.10), education ($X_5$0.04) and farm income ($X_7$0.07). The coefficient of age ($X_1$0.44) was positive at 1% significant level. This means that as age increases the utilization of inputs by the respondents also increases. An increase in the age of the farmers means increase in farming experience and this will make them to be more willing to adopt agricultural technology which leads to the utilization of input support and increased productivity. Advancement in age also makes the farmers lose vigor and that makes them utilize any kind of support available to them. This result is in agreement with the findings by Nenna (2014) in a study on factors affecting the application of inorganic farm practices by small holder farmers in Kogi State, Nigeria who reported that age was a positive and significant variable

The coefficient of marital status (X_3-0.10) is negative and significant at 5% level. This implies that being married decreases the utilization of input support. The inverse relationship between marital status and utilization of input support is against the *apriori* expectation. This may be probably because married people have more responsibilities especially those with large household size and therefore instead of utilizing the support on their farms, may end up utilizing them in their homes. This result is in line with the findings by Sadiq *et al.* (2019) in their study on the factors determining fertilizer utilization among rice farmers in Niger State, Nigeria also reported

that marital status was among the factors which had significant influence on fertilizer usage.

The coefficient of education ($X_5$0.04) is positive and statistically significant at 5% level. This means that, increase in the level of education will also lead to percentage increase in the utilization of input support. This is because educated farmers can be calculative in the utilization of any resources available to them. This result is in consonance with the findings by Baruwa (2016) in a study on the determinants of fertilizer use in crop production among small-holder farmers in Osun State, Nigeria who revealed that level of education was among the significant variables influencing farmers' use of fertilizer in crop production.

The coefficient of farm income ($X_7$0.07) was also positive and statistically significant at 1% level. This result implies that as farm income increase, the percentage utilization of input support also increases. This is because increase in farm income may lead to increase in farm size, and eventually, increase in the utilization of input supports. This result corroborates the findings of Tijani *et al.* (2015) in a study on the socio-economic factors influencing the intensity of use of chemical weed control technology by farmers in Marte Local Government Area of Borno State, Nigeria who also reported that annual farm income was among the positive and significant variables.

Table 7: Result of Multiple Regression Analysis of Factors influencing the utilization of Input Support.

Variable	Coefficient	Standard Error	T-value
Age (X_1)	0.4442	0.0643	6.88***
Sex (X_2)	0.0002	0.0310	0.01
Marital Status (X_3)	-0.1020	0.0429	-2.33**
Household Size (X_4)	-0.0392	0.0311	-1.29
Education (X_5)	0.0389	0.0159	2.67**
Off farm income (X_6)	-0.0034	0.0159	-0.25
Farm income (X_7)	0.0660	0.0229	3.19***
Access to credit (X_8)	-0.0122	0.0234	-0.043
Membership of association (X_9)	0.0278	0.0227	1.36
R Square	0.59		
F value	39.09		

Summary and Conclusion

The study analyzed the utilization of advisory services and input support offered to rice cluster farmers under Fadama III AF1 in Adamawa State, Nigeria. Primary data were mainly used and random sampling technique was used in selecting 150 rice farmers from three clusters in three Local Government Areas out of the seven that benefitted from Fadama III AF1 in Adamawa State. The analytical tools used were descriptive statistics, rating scale and multiple regression analysis. The socio-economic characteristics of the rice cluster farmers showed that 93.2% of them were male. The rice cluster farmers had a mean age of 49.3 years. Majority (95.2%) of them were married with mean farming experience of 19.7 years and house hold size of 12.1 persons. On their literacy level, majority (68.5%) attained formal education.

The types of advisory services and input support offered to the rice cluster farmers were, mechanical land preparation, appropriate planting date, recommended seed rate, use of improved varieties, appropriate spacing, improved method of weed control, application of fertilizer, pest and disease management practices and harvesting technique, use of mechanical winnower, post- harvest handling, storage methods others were improved processing, market information and linkage to market. Similarly, Inputs and machineries: improved seeds, herbicides, insecticides, pesticides and fertilizers, tractorization/power tiller, milling machines, generators and manual rice harvester were made available. The assessments of the utilization of advisory services and input support offered to the rice cluster farmers showed that, the advisory services and input support were utilized as only few of them had their means below the grand mean.

The result of the multiple regression analysis to determine the factors influencing the utilization of advisory services shows that, age (-0.21), education (0.14), farming experience (0.06), off-farm income (0.00) and farm income (0.04) were found to be significant determinants of the utilization of advisory services. The result for input support shows that, age (0.44), marital status (-0.10), education (0.04), and farm income (0.07) were also found to be significant determinants of the utilization of input support. The major constraints experienced by the rice cluster farmers were flooding, drought, lack of threshing machine, delayed access to tractor, low price of paddy, poor transportation network, delayed access to markets, fluctuation in climate, and untimely supply of inputs and, pest and diseases infestation.

The evidence from the study showed that the beneficiaries of Fadama III AF1 were dominated by married male farmers who are mostly literates and are well experienced in farming with large household size. Their high annual farm income despite the constraints faced by the rice farmers in the study area confirms that AF1 was actually implemented in Local Government Areas with comparative advantage and high potential to increase production and productivity of rice, where the advisory services and input support offered to the rice cluster farmers were highly utilized under the supervision of advisory services and input support consultants of Fadama III.

Recommendations

Base on the findings of this study, the following recommendations were made:

I. Government should construct new feeder roads and or rehabilitate the existing damaged roads to open up the rural areas; this will ease the transportation problems of the farmers by facilitating their access to market and also reduce the cost of transporting farm inputs, and their farm produce to markets.

ii. The Government should develop an efficient distribution network for inputs (supply and delivery system). These inputs should be made readily available at the appropriate time for both rainy and dry season farming.

iii. Farmers should be trained on easy identification, prevention and control of pests and disease. Insecticides and other chemicals used in the control of pests and diseases should be supplied at subsidized rates.

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