



(RESEARCH ARTICLE)



Effect of agricultural credits on production among smallholder crop farmers in delta state

Shadrack AKPORAWO ¹, Peter Otunaruke Emaziye ^{1,*} and Onyeidu Samuel Osemedua ²

¹ Department of Agricultural Economics, Faculty of Agriculture, Delta State University Abraka, Delta State, Nigeria.

² Department of Information Technology ICT Agriculture, Yaounde Cameroon.

World Journal of Advanced Research and Reviews, 2022, 16(02), 437–448

Publication history: Received on 03 October 2022; revised on 06 November 2022; accepted on 09 November 2022

Article DOI: <https://doi.org/10.30574/wjarr.2022.16.2.1196>

Abstract

The study analysed the effect of agricultural credits on production among smallholder crop farmers in Delta State. Multistage random sampling procedure was adopted for the selection of 210 respondents. Data were collected from primary sources through the use of structured questionnaires and analysed through the use of descriptive and inferential statistical tools. The result showed that most of the respondents were in the age range of 41 years to 50 years who were married with secondary school education. Majority were engaged in farming as their primary occupation having mean family size of 8 persons and an average annual income of ₦250,000. Majority obtained their credit from personal savings and cooperative societies. The major determinants of access to credit in the area were interest rate, type of enterprise, and farm size. The major constraints to obtaining credit were lending policies of credit institutions, lack of knowledge of rules and regulations and provision of collateral security. It is recommended that farmers should be encouraged to form farmers' cooperative societies to improve access to credits.

Keywords: Agriculture; Credits; Farmers; Smallholder

1. Introduction

Credit is a necessary and important factor in agricultural production systems in a developing country like Nigeria where there is high level of poverty. Over time, studies have always shown that there is inadequacy of credit in Nigeria. [14] had observed that poor rural household in developing countries including Nigeria lack adequate access to credit for production to improve their living standard. According to [11], credit access can significantly increase the ability of households to meet their financial needs for agricultural inputs and productive investments. This is especially so, for households with little to no savings. Agricultural credit according to [1] is considered as an important productive factor since it contributes to the agriculture productivity and hence economic growth while [1] observed that through credit, efficiency in farm production is improved because it creates and maintains adequate flow of agriculture inputs. It also contributes to farmers' capital accumulation, use of modern technologies and advanced practices which credit constrained farmer cannot acquire.

According to [19], farmers' access to credit has the potential to ensure food security, household welfare improvement and reduction in poverty. Yet, adequate access to credit is still a challenge, especially in many developing countries where many farmers are credit constrained through rejection or reduction of loan application. The high rate of credit constraint in most developing countries such as Nigeria can be attributed to poor rural credit market influenced by adverse selection, information asymmetry and lenders perception that farming is risky. Rural farmers cannot purchase inputs as needed when there is limited credit and consequently they must limit their production and consumption

* Corresponding author: Peter Otunaruke Emaziye
Department of Agricultural Economics, Faculty of Agriculture, Delta State University Abraka, Delta State, Nigeria.

choices. The inability to acquire formal credit has often been argued to be a crucial constraint in expanding farmers' production and largely restrains farmers from improving their living conditions and welfare.

In Nigeria as well as in other developing countries, many financial institutions provide financial services such as saving and credit to aid several smallholder enterprises including farmers. According to [22] provision of financial services to smallholder enterprises is an effort in line with the United Nations' Sustainable Development Goal (SDG) I, which seeks to end poverty by the year 2030. However, the sustainability and continuity of the financial institutions to increase the volume of credit to stimulate the poverty reduction goal depends on the repayment rates.

Objectives of the Study

The broad objective of the study is to analyse the effect of agricultural credits on production among smallholder crop farmers in Delta State.

The specific objectives are to

- Determine the socioeconomic characteristics of rural households in the study area
- Ascertain the various sources of agricultural credit in the study area;
- Determine the amount of credit demanded and amount accessed by farmers;
- Evaluate the level of production for farmers who accessed credit;
- Estimate the determinants of access to credit;
- Ascertain the constraints to credit access in the study area

Provision of credit services to rural households has been considered as a powerful instrument to lift the poor rural households out of poverty. Increased access to financial services holds promise to help alleviate poverty and improve development outcomes by providing the poor the opportunity to smooth consumption, start or expand a business as well as cope with risk and diversify household income. Access to credit can help rural economy in many ways like increasing the ability of households to meet their financial needs such as the purchase and use of improved agricultural inputs. Also rural household access to credit has the potential to accelerate the adoption of modern agricultural technologies which will ultimately increase the income of the small holder farmers and help break the poverty cycle they often find themselves [3]. Access to credit by rural households is a key ingredient in the promotion of agricultural production and transformation.

Findings of this study will be of immense benefit to rural households as it will expose them to more institutions that are involved in credit services. All the encumbrances to credit access as well as appropriate recommendations for their amelioration will be exposed to the relevant authorities, thus serving as advocacy for policy makers in the industry. The study will also add to the bulk of knowledge on savings, credit demand and access, particularly in developing countries. Hence, it will be of value to students and the general public.

1.1. Research Hypothesis

The study was guided by the following hypothesis.

Ho1: Socioeconomic characteristics of smallholder farmers have no statistically significant effect on amount of credit accessed.

2. Material and methods

This study was carried out in Delta State which is an oil producing State in Nigeria, situated in the region known as Niger Delta in South-South geopolitical zone. The State has a population of 4,098,291 (male 2,674,306 and female 2,024,085) with a total land area of 16,842km² [12] and lies between longitude 5°00 and 6°45'E and latitude 5°00 and 6°30'N with boundaries to Edo, Bayelsa, River and Anambra States respectively. The State is divided into three agricultural zones (Delta North, Delta Central and Delta South) and is richly endowed with fertile agricultural land that is suitable for agricultural production and their main occupation is farming. The study adopted a multistage random sampling procedure for selection of 210 respondents. The first stage was the selection of three local government areas (LGAs) from each of the three agricultural zones of the State. The second stage involved the selection of two communities from each of the sampled LGAs to give a total of eighteen (18) communities. Twelve (12) households from each of the 18 communities were selected in Stage III to give 216 respondents but only 210 were found useful for study. Data for this

study were collected from primary sources through the use of structured questionnaires. Data generated for this study were analysed through the use of descriptive and inferential statistical tools.

2.1. Model Specification

2.1.1. Determinants of Access to Credit

The Ordinary Least Square Regression Model as applied by [17] was adopted to determine the major factors that affects credit access among respondents.

The variables for Regression Model for this study was implicitly specified as:

$$Y = F(X_1, X_2, X_3, X_4, X_5, X_6 + \mu)$$

The model was explicitly specified as:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \mu$$

Where;

Y = farmers access to credit measured by the proportion of credit obtained in relation to credit applied for,

X₁ = age of farmers (years),

X₂ = level of education,

X₃ = interest rate (%),

X₄ = type of enterprise involved

X₅ = size of farm (ha),

X₆ = years of farming (yrs)

μ = stochastic error term

Four functional forms, the linear, double log, semi log, and exponential forms were fitted in each multiple regression model in order to select the best regression fit.

The following production functions were fitted to the model:

Linear function:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6$$

Semi-Log function:

$$Y = \beta_0 + \beta_1\log X_1 + \beta_2\log X_2 + \beta_3\log X_3 + \beta_4\log X_4 + \beta_5\log X_5 + \beta_6\log X_6$$

Double-Log function:

$$\log Y = \beta_0 + \beta_1\log X_1 + \beta_2\log X_2 + \beta_3\log X_3 + \beta_4\log X_4 + \beta_5\log X_5 + \beta_6\log X_6$$

Exponential function:

$$\log Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6$$

The lead equation was chosen based on the following criteria:

- Magnitude of the coefficient of multiple determinations (R²)
- Significance of the overall function as judged by F-value
- Number of significant variables
- Conformity to the *a priori* expectation.

Student's t-test

The Student's t-test was applied to test the significant difference between the mean volume of loan demanded and the mean amount accessed. The formula is given as:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\frac{SD_1}{\sqrt{n_1}} + \frac{SD_2}{\sqrt{n_2}}}$$

At $n_1 + n_2 - 2$ degree of freedom

Where;

\bar{X}_1 = Mean amount of loan applied

\bar{X}_2

= Mean Volume of loan accessed

SD_1

= Standard deviation of loan applied

SD_2 = Standard deviation of loan accessed

n_1 = Number of smallholder farmers that applied for loan

n_2 = Number of smallholder farmers that accessed loan

2.1.2. Measurement of variables and a priori expectations

Age

Age of the farmer is measured in years. It is argued that older borrowers are wiser and more responsible than younger borrowers. On the other hand younger borrowers are argued to be more knowledgeable and more independent. Hence age might have a positive or negative effect on loan repayment rates.

Education

Level of education (measured in years of schooling). Higher educational levels enable borrowers to comprehend more complex information, keep business records, conduct basic cash flow analysis and generally speaking, make the right business decisions. Hence borrowers with higher levels of education may have higher repayment rates.

Marital status (measured as a dummy, 1 for married and 0 for single)

Borrowers who are married may use their loans in meeting the needs of their families; hence borrowers who are single may have higher repayment rates.

Sex

This is the gender of the respondent which is measured as a dummy. Females are normally hypothesized to be highly disciplined when it concerns management of loans. Therefore females may have higher repayment rates.

Household size (measured in number of members of farm family)

There is a possibility of loans diverted to unintended purposes because of many responsibilities resulting from meeting the needs of many members of the family. Hence borrowers with large family sizes may have lower repayment rates.

Farming experience

Borrowers who have been in business for a long time are expected to be more successful with their farming activities because they have more stablesales than those who just started. Thus experience farmers may have higher repayment rates.

Farm size (measured in hectares)

Some borrowers may use a higher percentage of the loan in clearing an unreasonably large land area and at the end they suffer getting money to meet the other cultural practices. This results in low yield and hence farmers with large farm sizes may have lower repayment rates.

Profit gained from loan

Since profits are additions to principals, borrowers who are able to make substantial profits are expected to have higher repayment rates.

Timeliness of release of loan (measured as a dummy, 1 for loans released at the right time and 0 for loans not released at the right time)

Farming activities in the study area is mostly seasonal and rain fed, hence if the loan is not released at the right time yield will be affected and repayment rate may be low.

Interest rate charged by lending institution

This is expected to negatively affect repayment. The higher the rate, the more the burden of repayment, hence the tendency to default.

Access to off farm income (measured as a dummy, 1 for access to off-farm income and 0 for no access to off-farm income)

Borrowers with other sources of income may make loan repayment from the proceeds of those jobs. Thus farmers with other sources of income may have higher repayment rates.

u_i = Error term (which is assumed to have zero mean and constant variance).

3. Results and discussion

3.1. Socioeconomic Characteristics of Rural households

The head of rural households' socioeconomic characteristics in terms of gender, age, marital status, education, household size and income level were examined and the results as generated are as presented in Table 1. The result of the data collected from sampling of 210 farmers indicated a gender composition of 133 (63.3 %) male and 77 (36.7%) female. This implied that majority of the rural farmers were males, and this may be attributed to the intensive labour requirement in farming activities among rural settings in Nigeria. This result agrees with the earlier findings of [18] which studied the determinants of access to credit among rural farmers in Oyo state, Nigeria and found reported male dominance among the composition of rural farm households. The average age of sampled head of rural household was 48 years which indicates an ageing farming population. Meanwhile, it is only 21.9 of the youth population in the area that was involved in savings and credit activities. Most of the respondents were in the age range of 41 years to 50 years which represents 66.2% which in turn suggests that decision making at the household level is in the hands of matured men and women that are always ready to take responsibilities in different facets of life. A variety of household studies such as [10] among others reported the involvement of different age strata in rural household activities in Nigeria. The marital status of the respondents showed that majority (91.4%) were married, while only 1.4% were single and 5.2% were either widows or widowers. The high number of married people engaged in livelihood activities is attributed to the responsibility of meeting the basic needs of their household. Many studies such as those of [6] and [21] have variously reported an over 80% married respondents among rural households. Married household tends to be more responsible which brings about cohesion in the society. Most of the rural farming household head have formal education (97.6%) and 2.4% have no formal education which may impede their acceptance of improved storage technologies since education facilitates farmers' adoption of innovations. A high literacy level of over 97% affords the respondents the opportunity to understand and adopt modern farm practices in their daily livelihood activities thereby enhancing productivity and profitability in their live endeavours. According to [9] and [20], the level of education attained by a farmer increases his farm productivity and enhances his capacity to understand and evaluate new production technologies. Findings showed that the sampled respondents were engaged in many activities as primary occupation or means of livelihood. Majority (46.2%) were engaged in farming followed by 22.9% in trading, 18.6% in civil service while 12.4% were engaged as artisans and other activities. This finding shows that even though majority of the rural household heads are engaged in agriculture, many other livelihood activities abound. This finding supports the view of [4] and [16] that the traditional vision of rural economies as purely agricultural is clearly becoming obsolete

as this observation would probably be the case for underdeveloped and stagnant rural economies. The household size of the family indicates that there was an average of 8 persons per sampled respondent household. According to [16], a large family has the tendency of utilizing family members for labour but it also has more mouths to feed and provide for thus having high level of strain on the household income and this has the probability of increasing core poverty status of household. The average annual income range of the respondents as presented in Table 1 indicated that average annual income of rural households sampled ranged from ₦ 200,000.00 to ₦900,000.00. This translates to a monthly income of between ₦16,666.67 and ₦75,000.00. This further translates to a daily income of between ₦555.57 to ₦2,500.00 only. Furthermore, over 36% of the respondents realized annual income of between ₦200,000 and ₦300,000.00. This shows that predominantly, the rural households in the area judging by the household annual income are economically poor. Again, it can be deduced from the table that 177 of the respondents representing over 84% of the total has an annual income of between ₦200,000 and ₦600,000 while only two of the respondents or 1.0% had an annual income of between ₦800,000 and ₦900,000. The average farm size of the sampled rural farm households is 0.5 hectares of land while only 11.9% of the respondents had farm size ranging from 1 – 1.2 hectares of land. Also, over 42% of the respondents had farming experience of between 7 and 12 years with an average of 10 years of farming experience. This collaborated with the work of [8]

Table 1 Socioeconomic Characteristics of Respondents

Characteristics	Frequency	Percentage (%)	Mean/Mode
Gender			
Male	133	63.3	Male
Female	77	36.7	
Age			
30 and below	5	2.4	48 years
31 - 40	41	19.5	
41 - 50	81	38.6	
51 - 60	58	27.6	
61 and above	25	11.9	
Marital Status			
Single	3	1.4	Married
Divorced	4	1.9	
Married	192	91.4	
Widower/Widow	11	5.2	
Educational Level			
No Formal Education	5	2.4	Secondary Education
Adult Education	14	6.7	
Primary Education	66	31.4	
Secondary Education	79	37.6	
Tertiary Education	46	21.9	
Primary Occupation			
Civil Servant	39	18.6	Farming
Trading	48	22.9	
Farming	97	46.2	
Artisans/Others	26	12.4	

Household Size			
1-5	54	25.7	8 persons
6-10	111	52.9	
11-15	45	21.4	
Annual Income			
200,000 – 300,000	76	36.2	₦270,000.00
301,000 – 400,000	41	19.5	
401,000 – 500,000	35	16.7	
501,000 – 600,000	25	11.9	
601,000 – 700,000	20	9.5	
701,000 – 800,000	11	5.2	
801,000 - 900,000	2	1.0	
Farm Size (Ha)			
- 0.3	41	19.5	0.5 hectares
0.4 – 0.6	99	47.1	
0,7 – 0.9	45	21.5	
1.0 – 1.2	25	11.9	
Farming Experience (Yrs.)			
- 6	46	21.9	10 years
7 – 12	89	42.4	
13 – 18	41	19.5	
19 – 26	26	12.4	
27 and above	8	3.8	

Source: 2021 Data

3.2. Sources of Credit for Rural Households

Table 2 Distribution of Respondents According to Source of Obtaining Credit

Sources of Credit	Freq.	Perc. (%)	Mode
Personal Savings	199	94.8	Personal Savings
Friends/Relatives & Money lenders	191	91.0	
Rotatory savings and savings scheme	166	71.9	
Osusu	121	57.6	
Co-operative societies	95	45.2	
Microfinance/Commercial Banks	63	30.0	
Total multiple response	210	100.0	

*Multiple Responses Recorded

Source: Field Data, 2021

Findings from the study revealed various sources of credit for rural households in the study area. Among these sources are Personal savings, Friends/Relatives and Money lenders, Rotatory Savings and loan scheme, cooperative societies

and microfinance banks as well as commercial banks (Table 2). As shown in the Table, 199 of the respondents representing 94.8% obtained their credit from personal savings. This huge self-provision of credit is an indication of paucity of fund for investment purposes in the rural areas. Also, the second major source of credit which is also from the informal sector is from Friends/Relatives and Money lenders. This source indicates that 191 respondents (91.0%) got their credit for their household activities either from friends, relatives or from the shylock money lenders. 45.2% of the respondents also got their credit for support of livelihood activities from Cooperative societies. This tends to show that cooperative societies were very accessible means of credit among the rural household heads. This finding supports the earlier works done by [7] which reported that a large percentage of farmers obtain credit from cooperatives. [17] had noted that the objectives of cooperative associations were to pool capital resources, labour for farm work, and provision of financial assistance to members in need and community development. Equally, [2] had identified cooperatives to be a better channel of credit delivery to rural households than the NGO's in term of its ability to sustain the loan delivery function.

3.3. Amount of Credit demanded and Amount accessed by Farmers

The result of amount of loan demanded from formal financial institutions and amount also given (accessed) by the respondents is presented in Table 3. From the data as contained in the Table 4.3, it showed that 70 (33.3%) of the respondents applied for loan of ₦100,000.00 of which only ₦60,000.00 each was granted to 66(31.4%) of the total applicants. This indicated a shortfall by ₦40,000.00 to each applicant while four applicants were out rightly denied. Similarly, 120 respondents applied for ₦200,000.00 while only 72 of that category received ₦120,000.00 each, indicating a shortfall of ₦80,000.00 for each of the applicant. In the category of ₦300,000.00, 150(74.1%) applied but only 91(43.3%) were given average loans of ₦165,000.00 for each of the applicants. Again, 92(43.8%) of the respondents applied for loan in the category of ₦400,000.00. Of this number, only 69(32.9%) of the respondents were given a loan of ₦200,000.00, indicating a shortfall of 50% of the sum applied for. Finally, the number of smallholder farmers in the study area that applied for a loan of ₦500,000.00 were 106(50.5%) but only 75(35.7%) of them were given ₦250,000.00 each which indicated a similar shortfall of 50% in the total amount of loan size applied for. Again, it was only 70.8% of the applicants that were attended to and this indicates that in spite of the shortfall in loan size accessed, there was a similar shortfall in the number of respondents attended to by the credit institutions. These findings are similar the work of [15].

who studied the effect of types of agricultural credit programmes on productivity of small scale farming businesses in Kenya and found out that amount of credit accessed was much less than that which they applied for.

Table 3 Amount of loan demanded and amount Accessed by Respondents

Loan Applied for	Freq.	Mean	Loan Received	Freq.	Mean
₦100,000	70(13.0%)		₦60,000	66(17.7%)	
₦200,000	120(22.3%)		₦120,000	72(19.3%)	
₦300,000	150(27.9%)	₦300000	₦165,000	91(24.4%)	₦165000
₦400,000	92(17.1%)		₦200,000	69(18.5%)	
₦500,000	106(19.7%)		₦250,000	75(20.1%)	
Total	538(100%)		Total	373(100%)	

* Multiple responses recorded; Source: 2021 data

3.4. Level of Production of Farmers who Accessed Credit

This study focused on three main arable crops which are maize, yam and cassava. These are the three major crops grown in the study area. These crops are major staple food and source of income for the farmers. The findings of this study indicate that, farmers who had accessed credit were able to raise the level of production of maize from 10 bags (500kg) per annum to between 15-20 bags 750kg – 1000kg per annum (Table 4). This was attributed to the ability of the loan to purchase the right quality seed and optimum use of fertilizer facilitated by the loan facility. More lands were also put into cultivation with the new loans. This translated into higher net farm profits and improved standards of living. This result corroborates the finding of [13] that access to credit by small scale maize farmers in Kenya led to an increase in the output maize from 10 bags of maize per acre to about 15 – 20 bags. The production of yam according to the smallholder farmers engaged in the enterprise also increased with the acquisition of loan by farmers. The mean output of yam per annum among the farmers increased from 250kg to about 400kg. Again, this increase in output was

attributed to the judicious use of the credit accessed when all other factors were held constant. Finally, a similar thing occurred to farmers who planted cassava as their output increased from an average 360 kg annually to about 400 kg.

Table 4 Annual Level of Production of Selected Arable Crops before and after Access to Credit

Crop Type	Before Access to Credit	After Access to Credit
Maize	10 bags	15 -20 bags (750 – 1000 kg)
Yam	250 kg	400 kg
Cassava	360 kg	600 kg

3.5. Determinants of Access to Credit

In the rural settings it was established that households have different level of access to credit. This study sought to establish the determinants of such access using the multiple regression analysis approach as earlier applied by [17]. The result is as presented in Table 5 of all the models, the linear function was chosen as the lead equation as it has the highest adjusted R^2 value. It was also chosen based on the significance of the overall function as judged by F-value and the number of significant variables. An R^2 of 0.725 indicates that over 70% of the factors determining access to credit among rural households were determined by the variable included in the model. From the lead regression equation, three variables were statistically significant in explaining the variation in household's access to credit. The statistically significant variables at 5% level of significance were interest rate (X_3), type of enterprise (X_4), and size of farm (X_5).

Table 5 Regression estimates for the determinants of access to credit

Variable	Coefficients	t values
Constant	0.536***	3.546
Age (Years)	-0.349	-0.981
Level of education	-0.097	-1.684
Interest rate	-0.062***	-5.372
Occupation/Enterprise	0.310**	2.402
Size of farm (ha)	0.042**	2.506
Years of farming (yrs)	-0.426	-1.821
R square value 0.725		
Adjusted R square value 0.684		
F Statistics 5.281***		

Note: *** significant at 1 %, ** Significant at 5 %

3.6. Constraints to Access to Credit in the study area

The different challenges faced by individual households in obtaining credit for their livelihood activities are as presented in Table 6 the number of major challenges to credit access in the study area are Lending policies of credit institutions (98.1%), Lack of knowledge of rules and regulations (78.6%), Provision of collateral security (61.4%), Discriminatory attitude of lending institutions (46.7% among others. The earlier work of [10], observed the lack of bank accounts, collateral, and information regarding the procedure for accessing credits from banks limit rural farmer's access to credit from formal institutions.

Table 6 Distribution of respondents according to the constraints faced in obtaining credit

Constraints	Frequency	Percentage
Provision of loan security	128	61.0
Registration of land	96	45.7
High loan interest rate	207	98.6
Provision of collateral security	129	61.4
Long Distance	97	46.2
Lack of knowledge of rules and regulations	165	78.6
Lending policies of credit institutions	206	98.1
Discriminatory attitude of lending institutions	98	46.7
Non co-operation of staff of credit institution	79	37.6
Total multiple Response	210	100.0

* Multiple responses recorded

3.7. Test of Hypothesis

3.7.1. Hypothesis

H₀₁: There is no statistically significant difference in the amount of loan demanded and amount Accessed. The result as shown in Table 7 indicates that the calculated t-value of 6.7214 is significant at the 0.01 level. This indicates that there is a statistically significant difference between the amount of loan applied for and amount accessed by the smallholder farmers in the area. Thus, the null hypothesis which states that there is no statistically significant difference in the amount of loan demanded and amount accessed is rejected and the alternate that there is a statistically significant difference in the amount of loan demanded and amount accessed by smallholder farmers is accepted.

Table 7 Statistical Difference between Amount of Loan Applied for and Amount Accessed

Variables	Mean (X)	SD	Df	t-value	Remark
Amount applied for	N520,000.00	346.308	208	6.7214	Significant
Amount accessed	N210,000.00	248.412			

4. Conclusion

A major component of development strategy in developing countries has been the provision of affordable credit to the rural population. Analysis of access to agricultural credit among rural households has been achieved through the description of socioeconomic characteristics of smallholder farmers that holds sway for their ability to access credit. It has thus been established that non institutional sources predominate as major avenues for credit access while a good number of farmers own factors affected their ability to access

Recommendations

Based on the findings of this study, the following recommendations are the derived policy implications: Membership to farmers' cooperatives was found to improve savings from where members can have access to credit. Farmers should therefore be encouraged to form cooperative societies. When farmers are better organized it becomes easier even for microfinance to offer extension saving mobilization services to the rural households. Government should continue to reduce interest on loan to farmers in the rural areas or at best scrap payment of interest on agricultural loans. More farmers will be spurred to take credit.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest.

References

- [1] Afande, F.O. (2015), "The factors that affect accessibility to credit services by small scale sugarcane farmers in Kenya: a case of Bungoma County, Kenya", *Developing Country Studies*, Vol. 5 No. 5, pp. 99-114.
- [2] Alufohai, G.O., 2006. Sustainability of Farm Credit delivery by Cooperatives and NGO's in Edo and Delta State, Nigeria. *Educational Research and Reviews* 1(8), pp. 262-266.
- [3] Anyiro, C.O., Oriaku, B.N. (2011), Access to and investment of formal micro credit by smallholder farmers in Abia State, Nigeria. A case study of ABSU Micro Finance Bank, Uturu. *Agricultural Economics*, 6(2), 70-76.
- [4] Ebewore, S. O. Ovharhe and P. O. Emaziye (2015). Acceptability of bush meat as a source of animal protein in Delta State, Nigeria: Implication for extension services.
- [5] Ebewore, S.O and P.O Emaziye (2016). Level of use of organic manure by farmers in Isoko North Local Government Area of Delta State, Nigeria. *International Journal of Agricultural Extension, Rural Development studies* 3(1):1-11.
- [6] Emaziye, P.O (2013). Food security index and socio-economic effects of climate change on rural farming households in Delta State, Nigeria. *Asian Journal of Agriculture and Rural Development* 3 (393):193-198.
- [7] Emaziye, P. O. (2020). Economic Analysis of Cooperative Societies and Agricultural Productivity in Rural Households in Delta State, Nigeria. *International Journal of Agricultural Science, Research and Technology in Extension and Education System*. 10(4): 145 – 148.
- [8] Emaziye, P.O (2021). Perspective analysis of small scale flock production as a tool for poverty reduction in Delta South Agricultural zone of Delta State, Nigeria. *Transylvanian Review* 29(1): 15600-15603.
- [9] Emaziye, P.O, R.N. Okoh and P.C. Ike (2012). A critical analysis of climate change factors and its projected future values in Delta State, Nigeria. *Asian Journal of Agriculture and Rural Development* 2 (393):206-212.
- [10] Ike, P. C. and P. O. Emaziye (2015). Comparative analysis of net returns of small and medium agro-based enterprises in Enugu State, Nigeria. *Journal of Poverty, Investment and Development*. 11: 94 – 99.
- [11] Lin, L.; Wang, W., Gan, C., Quang T. and Nguyen, T. (2019). Credit Constraints on Farm Household Welfare in Rural China: Evidence from Fujian Province; *Sustainability*; 11(3221): 2 - 19
- [12] National Population Commission (2006) NPC, Abuja
- [13] Nzomo, M. and Muturi, W. (2014). The Effect of Types of Agricultural Credit Programmes on Productivity of Small Scale Farming Businesses in Kenya: A Survey of Kimilili Bungoma Sub County; *Journal of Economics and Sustainable Development*; 5 (23): 150 – 161
- [14] Ogisi, O. D. and Emaziye, P. O. (2015). Analysis of Alternative Banking Methods among Rural Farming Households in Delta State, Nigeria; *Journal of Agriculture, Biology and Healthcare* 5(1): 214 – 217
- [15] Okeke D. C, and P.O. Emaziye (2017). Technical efficiency of small holder cassava production in Anambra State, Nigeria. A Cobb Douglas stochastic frontier production approach. *Journal of Poverty, Investment and Development* 11: 94-99.
- [16] Ovharhe, O.J, P.O. Emaziye and G.F Okwuokenye (2020). Farmers' satisfaction with agricultural extension services in Delta State, Nigeria. *International Journal of Agricultural Technology* Vol 16:1463-74.
- [17] Olatinwo, K. B., Muhammad-Lawal, A. and Buremoh, S.A. (2012). Analysis of Rural Farming Households' Access to Credit in Kwara State, Nigeria; *Journal of Agriculture and FoodSciences*, 10 (2): 50 – 56
- [18] Ololade R.A. & Olagunju F.I. (2013). Determinants of Access to Credit among Rural Farmers in OyoState, Nigeria; *Global Journal of Science Frontier Research Agriculture and Veterinary Sciences*; 13 (2): 17 – 22

- [19] Twumasi, M. A.; Jiang, Y.; Danquah, F. O.; Chandio, A. A. and Agbenyo, W. (2019). The role of savings mobilization on access to credit: a case study of smallholder farmers in Ghana; *Agricultural Finance Review*, 21(2): 215 -237
- [20] Ureigho, U. N. (2018). Non timber forest products as a source of poverty alleviation for women. *Production Agriculture and Technology*. 14(2): 20 – 24.
- [21] Ureigho, U. N. and W. Akpobome (2018). Models for volume estimation of *Tectona grandis* stands atoke-eri plantation in Ijebu ode, Ogun State, Nigeria. *Nigerian Journal of Agriculture, Food and Environment*. 14(1): 13 – 19.
- [22] Wongnaa, C. A. and Awunyo-Vitor, D. (2013). Factors Affecting Loan Repayment Performance among Yam Farmers in the Sene District, Ghana; *Agris on-line Papers in Economics and Informatics*; 5(2): 1- 20.