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AN ANALYSIS OF ACCESS TO CREDIT AND FACTORS INFLUENCING CREDIT UTILIZATION AMONG CASSAVA FARMERS IN SOUTHWEST, NIGERIA

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Abstract

This study analyses access to credit and factors influencing credit utilization among cassava farmers in Southwest, Nigeria. Multi-stage sampling procedure was used to select 210 small holder cassava farmers for the study. A structured questionnaire was used to collect data on respondents' access to credit, sources and volume of credit granted, and factors influencing amount of credit utilized by cassava farmers. Results show that 49.5% of the cassava farmers had access to credit, 23.3% obtained credit from cooperatives, 33.3% requested for less than ₦100,000.00 credit while the mean amount of credit requested and granted were ₦125,923.08 and ₦105,346.15 respectively. Ordinary least squares regression results show that farm experience ($\alpha = 2.8609$, $p<0.05$), educational level ($\alpha = 4.7334$, $p<0.01$), farm size ($\alpha = 9.6706$, $p<0.05$) and membership of cooperative society ($\alpha = 47.9905$, $p<0.05$) significantly influenced the amount of credit utilized by the smallholders cassava farmers. The study determined that the credit use of cassava farmers in southwest Nigeria is influenced by several characteristics, including their level of farm experience, educational attainment, farm size, and participation in a cooperative organization. Therefore, it is imperative for farmers to actively seek out opportunities to get further expertise, expand their land holdings, pursue adult education, and establish cooperative societies. These actions will enable them to secure financial support from stakeholders and enhance their ability to obtain and effectively utilize loans in the study area.

Key words**:** *credit, credit utilization, cassava, smallholder farmers, Ogun State, Nigeria*

INTRODUCTION

Nigeria, located in Africa, has the highest population among all countries, estimated at 170 million. It is followed by Ethiopia and Egypt. This indicates that Nigeria possesses a significant quantity of human resources [30]. Based on the reference [30], the agricultural sector accounted for 37% of the Gross Domestic Product (GDP) from 1960 to 2008. It then increased to 40.87% in 2010, highlighting the significant importance of agriculture in the Nigerian economy.

Cassava is a highly significant food crop in Tropical Africa due to its efficient production of food energy and compatibility with current farming and food systems in Africa [24]. As stated in reference [10], cassava is a prominent provider of sustenance and financial resources in the damp forest regions of West and Central Africa. Nigeria was identified as the world's leading producer of cassava in 2000, with an output of 32,010,000 metric tonnes, as demonstrated by [11].

The production of metric tonnes increased from 32,068,000 in 2001 to 34,120,000 in 2002. It further increased to 36,304,000 in 2003 and 38,845,000 in 2004. In 2005, there was a further increase to 41,565,000. The production continued to rise to 45,721,000 in 2006, but declined to 43,410,000 in 2007. There was a significant increase of 44,582,000 in 2008, followed by a decline to 36,822,250 in 2009. However, it increased again to 42,533,180 in 2010 and further to 46,190,250 in 2011. The production continued to rise to 50,950,291 in 2012 and reached 53,000,000 in 2013 [11].

By year 2017, Nigeria production was 59,000,000 metric tonnes [10] (Figure 1).

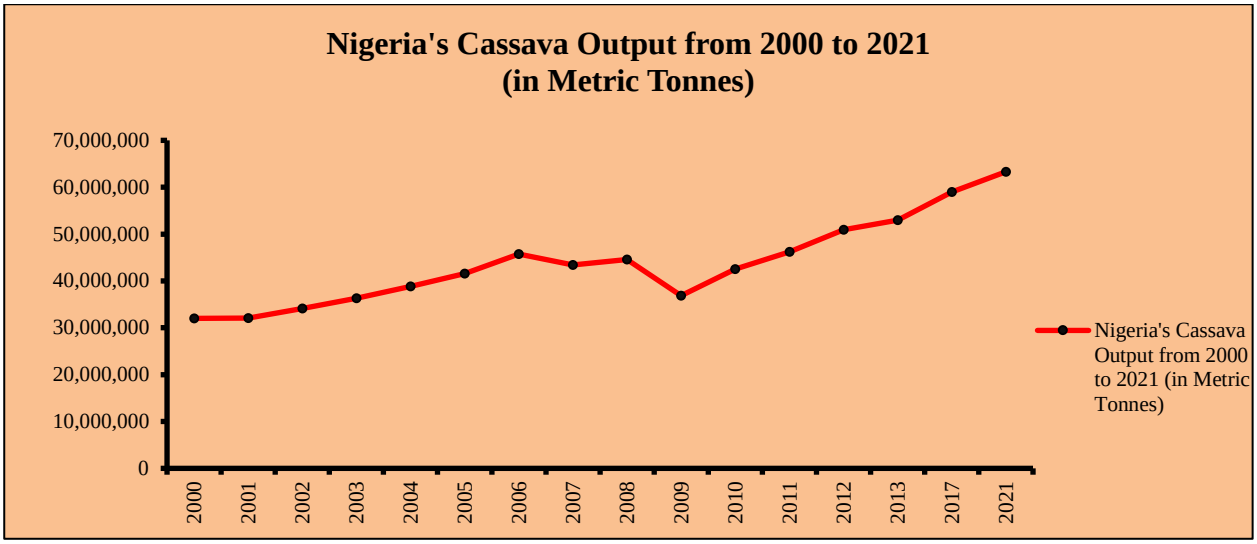


Fig. 1. Line Chart showing Nigeria's cassava output from 2000 to2021
Source: FAO, 2023 [10].

In year 2021, Nigeria production had increased to 63,300,000 metric tonnes, leading the world [31]. Within the last 3 years (2021-2023), Nigeria have averagely produced approximately 61 million metric tonnes of cassava making it to still be recognized has the highest producer of cassava in the world [10][31].

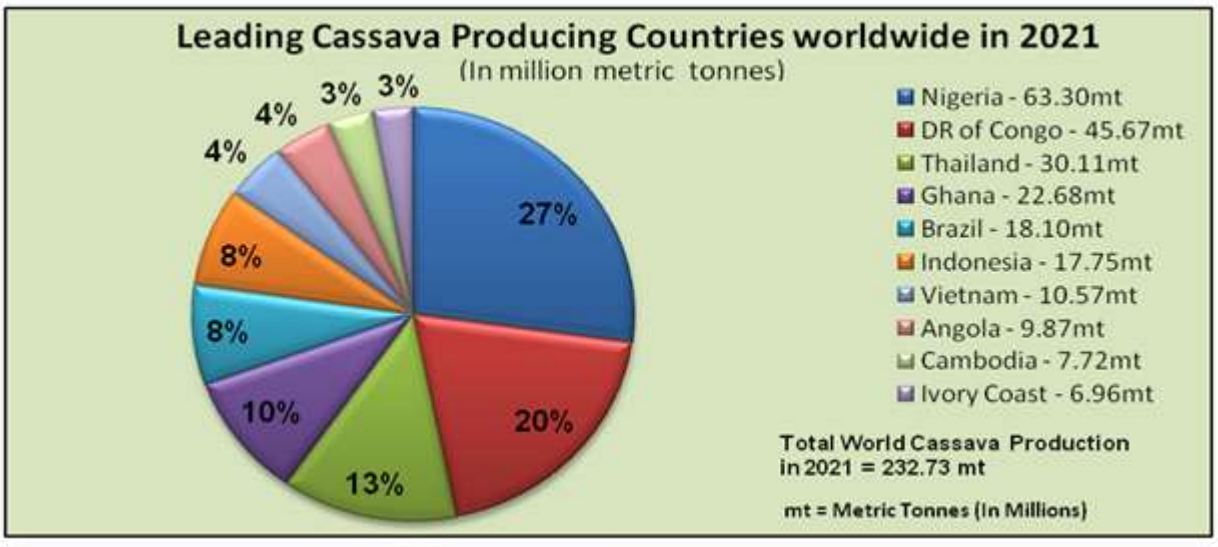


Fig. 2. Pie Chart showing leading cassava producing countries in 2021
Source: Statista 2024 [31].

Figure 2 illustrates Nigeria's position among the primary cassava producing nations.

Cassava is crucial for ensuring food security in rural economies because to its ability to produce crops in poor soil conditions and its resilience to drought, as shown by [18]. It is commonly acknowledged that this crop is the most extensively planted in Nigeria, primarily by smallholder farmers. According to a study conducted by [20], cassava possesses specific natural qualities that make it particularly appealing to small-scale farmers in Nigeria.

[27] stated that the primary factors influencing the productivity of cassava farmers are farming experience, farm size, farmer's age, availability to loans, and growing method.

Based on [28], there was a widespread agreement that agricultural credit was crucial for the development of the agricultural sector. However, the lack of resources among most farmers, caused by a cycle of low income, low

savings, inadequate infrastructure, insufficient collateral security, and limited access to sufficient credit, has impeded productivity. This is despite the significant potential of farmers in the country. [16] observed that the majority of smallholder farmers, particularly those cultivating cassava, are consistently excluded from financial participation in agricultural output.

[2] confirmed that approximately 86% of farmers utilize their own capital, whereas only 14% of farmers rely on credit from diverse sources due to limited credit accessibility, exorbitant interest rates, and the division of farm holdings.

The study conducted by [23] identified several key factors that influence farmers' demand for and participation in the loan market. These factors include age, gender, family size, level of training, and membership in a cooperative.

Despite the government's initiatives to raise awareness among farmers about engaging in small-scale cassava growing through various cassava multiplication programs, it seems that Nigeria's current agricultural sector is unable to fulfill the anticipated demand for cassava. Several interventions appear to be inadequate and are negatively impacting cassava agricultural production [16]. Prior research has demonstrated that the production cost of one metric ton of cassava in Nigeria was higher in comparison to costs in other nations [7].

The study by [26] found that the high cost of cassava production can be attributed to the lack of essential inputs such as investment capital and loans for acquiring current technologies for increased production. It is crucial for cassava farmers in Nigeria to secure investment capital that is adequate to address the issues they face by utilizing agricultural loans. [9] observed that credit functions as a catalyst that stimulates production. This highlights the importance of small-scale farmers' access to finance and their use of credit in relation to their farming activities. [9] believed that financing is necessary for the functioning of small-scale farmers, regardless of the practicality and necessity of land reform. A farmer who is highly driven but lacks financing cannot acquire essential resources such as high-quality seeds, fertilizers, animal feeds, and pesticides. Therefore, small-scale farmers typically allocate less than 20 percent of the necessary funds towards these things due to their lack of access to credit and credit facilities [9].

According to [25], the current supply of agricultural loans from institutions is insufficient, which hinders the transfer of technology and investment into agriculture. [9] argued that if production financing is not made accessible under favorable conditions, the bulk of small farmers will face significant obstacles in adopting contemporary and lucrative technologies. [4] observed that the availability of financing hinders agricultural production and agricultural progress. Only a small minority of farmers have access to financing, while the majority are consistently impeded [4]. According to [8], a mere 47% of adults in Nigeria have access to credit, leaving the majority without this privilege. [4] contended that the absence of a solution will persistently exert a significant impact on agricultural production and development. This demonstrates the significance of finance access and its substantial impact on agricultural production, particularly for staple food crops such as cassava.

Studies by [3], [16], and [29] have identified multiple instances of inadequate credit availability among smallholder farmers in Nigeria. Additionally, research conducted in [12] and [32] has highlighted various limitations and challenges associated with accessing credit, which subsequently have negative impacts on farm production, profitability, and overall benefits, particularly in Nigeria.

Therefore, the aim of this study was to address the following research inquiries:

(i) What is the credit access rate among cassava farmers in the research area?

(ii) What were the credit sources accessible to cassava farmers in the study area?

(iii) What is the magnitude of the credit granted to the cassava farmers in the study region?

(iv) What were the determinants impacting the amount of credit utilized by cassava farmers in the study area?

In Nigeria, smallholder farmers predominantly oversee cassava production, but they face a shortage of essential resources needed to upgrade their farms and increase their productivity [17]. Cassava, as a lucrative crop, has consistently been a priority in government initiatives aimed at enhancing production due to its economic worth and significant importance [30]. Nevertheless, in order to enhance its production, it is crucial for farmers to obtain loans and the necessary input in a timely manner. While credit may not be often recognized as an input, it is essential because of its impact on increasing the output of cassava farmers [9].

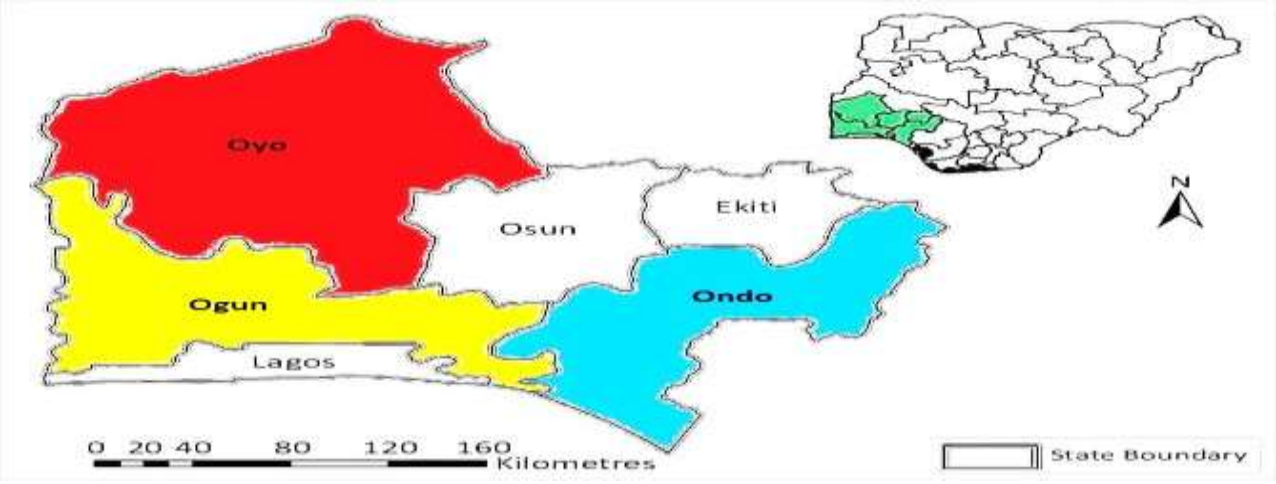
Moreover, this study aims to thoroughly investigate the credit utilization of cassava farming and determine whether farmers who have access to credit are able to effectively combine their resources to achieve optimal output. Previous research has shown that an increase in output is directly linked to improving farmers' income and earning potential from their production [5]. The aim of this study was to investigate: (i) the rate at which cassava farmers in the study area can obtain credit; (ii) the sources of credit that are available to cassava farmers in the study area; (iii) the amount of credit that is given to cassava farmers in the study area; and (iv) the factors that affect the amount of credit utilized by cassava farmers in the study area.

The findings of this study will greatly benefit farmers and other stakeholders in the agricultural industry. It will enhance our understanding of how credit contributes to ensuring that farmers have access to sufficient resources, including credit. Additionally, it will identify specific variables that can be effectively managed to improve the utilization of credit among cassava farmers in the study area.

MATERIALS AND METHODS

The study area

The research was carried out in the southwestern region of Nigeria. Primarily, the area is predominantly inhabited by Yoruba speakers, however there are other dialects present, even within the same state. The selection of this area for the study was based on the significant concentration of cassava farmers in the region [22]. The regions are situated within the latitudes of 60 and 80 degrees North and the longitudes of 20 and 60 degrees East of the Greenwich meridian. The region is delimited by the Atlantic Ocean to the south, Kwara and Kogi States to the north, Edo State to the south, and the Republic of Benin to the west. The land area measures around 77,818 square kilometers [33] (Map 1).



Map 1. MAP of the Study Area
Source: Ogunleke and Baiyegunhi, 2019 [21].

Data collection and sampling technique

This study utilized primary data. The questionnaire provided to the cassava farmers in the research areas collected data on the rate of access, source of credit, volume of credit requested and amount granted, as well as the factors that influenced credit utilization. This study employed a multi-stage sampling technique. In the first stage, three states in the southwest region were purposefully selected based on their involvement in cassava production, processing, and marketing activities [13].

In the second stage, a purposive selection was made of a significant zone known for its cassava production in each state. In the third stage, the highest cassava producing block was purposefully selected from each of the chosen zones. During the fourth step, the cell that produced the highest amount of cassava was intentionally chosen among the selected blocks. In the fifth stage, a total of 96 farmers were picked at random from each of the chosen cells using the sample selection formulas described in reference [14].

$$n_o = \frac{Z^2pq}{e^2} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

where:

n_o = sample size,

Z^2 = abscissa of the normal curve,

e = precision level,

p = estimated proportion of character present in the population (i.e. smallholder cassava farming),

q = 1 – p.

$$\therefore n_o = \frac{(1.96)^2(0.5)(0.5)}{(0.1)^2}$$

$$\Rightarrow n_o = 96.04 \approx 96$$

Table 1. Sampling procedure

Stages	Selection	Procedure	Size	Selection Method	Criteria
1	Southwest State	Ondo, Ogun and Oyo	3 states	Purposive Sampling	Highest producer
2	ADP Zone	1 zone × selected state	3 zones	Purposive Sampling	Highest producer
3	ADP blocks	1 block × selected zone	3 blocks	Purposive Sampling	Highest producer
4	ADP cells	1 cell × selected block	3 cells	Purposive Sampling	Highest producer
5	96 farmers	96 farmers × selected cell	288 farmers	Random Sampling (without replacement)	Small holders
TOTAL				288 farmers	

Source: Field Survey, 2019.

However, 59 farmers turn down their participation while the remaining 229 consented. Although, 210 out of 229 responses were acceptably useful for data analysis given a response rate of 91.7%.

Analytical techniques

The tools of analysis used to achieve the objectives of this study were descriptive statistics and ordinary least squares (OLS).

Descriptive Statistics

Descriptive statistics was used to describe the rate of access, source of credit, volume of credit requested and amount granted to cassava farmers.

Ordinary Least Squares (OLS)

Following [12], [19] and [1] Ordinary Least Squares (OLS) method of analysis was used to analyze objective iv, which is to determine the factors influencing amount of credit utilized by cassava farmers in the study area.

The regression model is specified as follows:

Implicit form:

$$Y_i = f(\alpha_i x_i e_i) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (5)$$

Explicit form:

$$Y = \alpha_o + \alpha_1x_1 + \alpha_2x_2 + \alpha_3x_3 + \alpha_4x_4 + \alpha_5x_5 + \ldots\ldots + \alpha_9x_9 + e \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (6)$$

where:

Y = amount of credit utilized (₦)

X_1 = Age (years)

X_2 = Sex (1 if male, 0 otherwise)

X_3 = Marital Status (1 if married, 0 otherwise)

X_4 = Farming Experience (years)

X_5 = Education Level (years of formal schooling)

X_6 = Farm size (hectares)

X_7 = Cooperatives society (Yes = 1, No = 0)

X_8 = Had saving (Yes = 1, No = 0)

X_9 = Extension contact (number of extension visit)

e = Stochastic error term
$\alpha_0, \alpha_i, \ldots\ldots\ldots, \alpha_9$ = Parameter estimates

Table 2. The a priori expectation of parameter estimates of the variables

Variable	Expected Sign	Literature
Volume of credit granted (₦)		
Age	-	Shadrack, 2017.
Sex	+	Awotide *et al.*, 2015.
Marital Status	-	Shadrack, 2017.
Farming Experience	-	Samson and Obademi, 2018.
Education Level	+	Samson and Obademi, 2018.
Farm Size	+	Shadrack, 2017.
Cooperatives Society	-	Samson and Obademi, 2018.
Saving	+	Samson and Obademi, 2018.
Extension Contact	+	Shadrack, 2017.

Source: Made by authors based on [29, 6, 28].

RESULTS AND DISCUSSIONS

Access to credit and sources of credit

The findings indicated that 49.5% of the cassava farmers had access to financing, but the remaining 50.5% did not. The implication of this result is that certain farmers may have higher productivity compared to others due to their access to finance facilities, which might potentially raise their scale of output [15]; [6]; [29]. The findings revealed that 50.5% of the cassava farmers did not utilize credit, while 0.5% obtained credit from commercial banks. Additionally, 6.7% and 23.3% of the cassava farmers obtained credit from microfinance banks and cooperatives, respectively. Furthermore, 16.2%, 1.4%, and 1.4% of the cassava farmers obtained credit from money lenders, family/relatives, and friends, respectively. The findings closely align with those reported in [15], which indicated that 13.3% of the result came from cooperative societies, 3.3% from money lenders, 2.5% from commercial banks, and 1.7% from friends and relatives. Moreover, the findings indicated that cooperative groups provide a greater amount of credit compared to financial institutions [24].

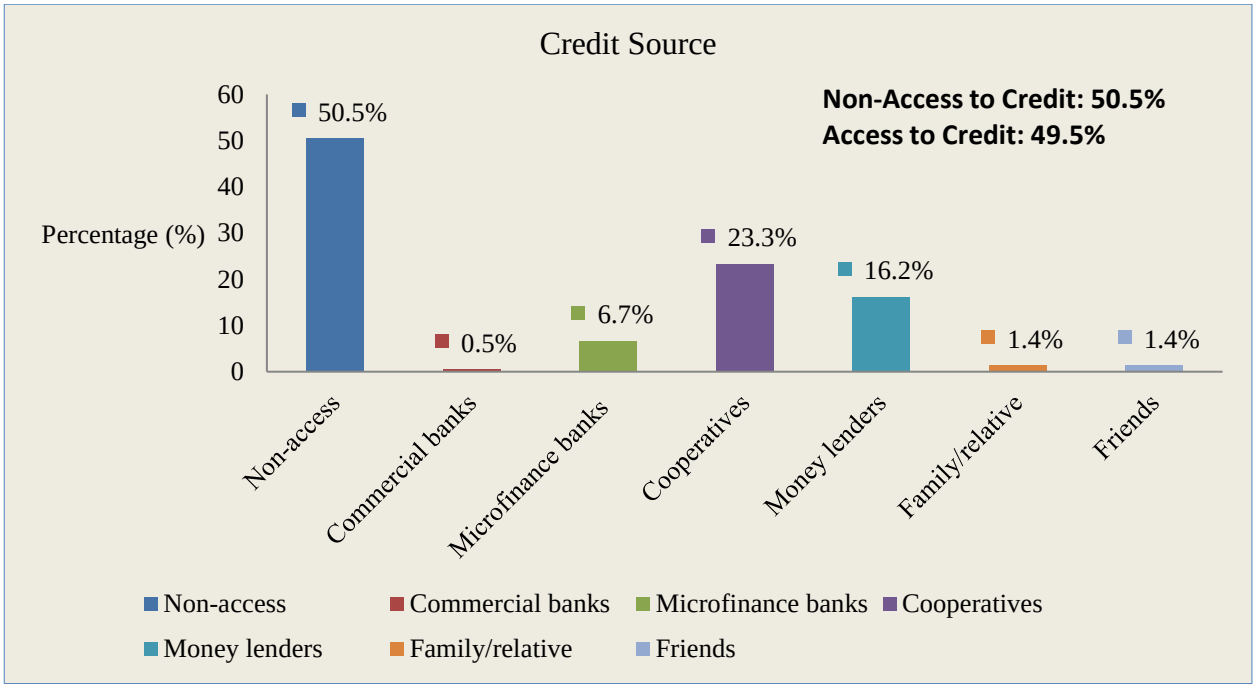


Fig. 3. A Column showing the Percentage of those that have access to credit with their Credit source.
Source: Field Survey Data Analysis, 2019.

Volume of credit granted to cassava farmers

The findings showed that most (33.3%) of cassava farmers who had access to credit sought amounts below ₦100,000. Additionally, 10%, 2.4%, 1%, and 2.9% of farmers requested credit within the ranges of ₦100,001 to ₦200,000, ₦200,001 to

₦300,000, ₦300,001 to ₦400,000, and above ₦400,000, respectively. The average amount of credit requested was ₦125,923.08 [6]. The findings indicated that the largest proportion (37.6%) of cassava farmers who had the opportunity to obtain credit were given amounts less than ₦100,000. Additionally, smaller percentages (6.2%, 2.4%, 2.4%, 1%) were granted credit within the ranges of ₦100,001 to ₦200,000, ₦200,001 to ₦300,000, ₦300,001 to ₦400,000, and above ₦400,000, respectively. The average credit provided had a volume of ₦105,346.15 [6].

Table 3. Volume of credit requested and amount granted to cassava farmers

Variable	Frequency	Percentage
Amount requested		
Non-access	106	50.5
≤₦100,000	70	33.3
₦100,001- ₦200,000	21	10.0
₦200,001- ₦300,000	5	2.4
₦300,001- ₦400,000	2	1.0
>₦400,000	6	2.9
Total	**210**	**100.0**
Mean	**125,923.08**	
Amount granted		
Non-access	106	50.5
≤₦100,000	79	37.6
₦100,001- ₦200,000	13	6.2
₦200,001- ₦300,000	5	2.4
₦300,001- ₦400,000	5	2.4
>₦400,000	2	1.0
Total	**210**	**100.0**
Mean	**105,346.15**	

Source: Field Survey Data Analysis, 2019.

Factors influencing amount of credit utilized by the cassava farmers

Multiple regression analysis was used to determine factors influencing the amount of credit utilized by the cassava farmers, the diagnostic statistics revealed that the model is fit, the R squared revealed that 29.8% variation in amount of credit utilized by the cassava farmers was jointly explained by the explanatory variables, the F-statistics showed that the model is fit at 1% ($p<0.01$). The result revealed that farm experience ($\alpha = 2.8609$, $p<0.015$), educational level ($\alpha = 4.7334$, $p<0.01$), farm size ($\alpha = 9.6706$, $p<0.05$) and membership of cooperative society ($\alpha = 47.9905$, $p<0.05$) significantly influence the amount of credit utilized by cassava farmers. The coefficient of farm experience revealed that if the experience of the farmer increases by 1 year, the amount of credit utilized by the farmer will increase by ₦2.86k as shown in Table 4.

This implies that the more the years of experience, the higher the amount of credit utilized. The coefficient of educational level revealed that the amount of credit utilized by cassava farmers that are more educated increase by ₦4.73k compared to their counterparts that are not educated, this implies that education exposes the farmers to new innovative practices in cassava production [20].

Table 4. Multiple regression estimates of factors influencing amount of credit utilized by cassava farmers

Variable	Coefficient	Standard Error	P-value
Constant	-26.97654	32.86583	0.414
Age	-0.6518532	0.5348642	0.226
Sex	-13.60089	19.74646	0.493
Marital status	-10.34743	10.54892	0.329
Farming experience	2.860995**	1.153413	0.015
Educational level	4.733351*	1.633767	0.005
Farm size	9.670624**	4.525927	0.035
Cooperative society	47.99045**	20.13068	0.019
Savings	36.30968	23.04969	0.119
Extension contact	-16.74176	19.44659	0.391
Diagnostic Statistics			
R squared	0.2981		
F (9, 94)	3.15		
Prob of F	0.0023		

*Source: Field Survey Data Analysis, 2019..
*** Significant at 1% ** Significant at 5% *Significant at 10%

The coefficient of farm size revealed that if the size of the farm increases by 1 hectare, the amount of credit utilized by the farmer will increase by ₦9.67k as shown in Table 4.
This implies that the larger the size of farmland, the higher the amount of credit utilized, this is so because the larger the size of the farm the more the area of farmland cultivated thereby prompting the use of credit. This is found to be the same with the result of [26].
The coefficient of cooperative society revealed that the amount of credit utilized by the cassava farmers that are members of cooperative society increases by ₦47.99k compared to their counterparts that did not belong to cooperative society, this implies that cassava farmers that belong to cooperative society utilized more credit than their counterparts that did not belong to cooperative society, this is so because cooperative society hold the potential to improve access to production resource such as credit [15].

CONCLUSIONS

The study aimed to evaluate the determinants of credit utilization among cassava farmers in Southwest, Nigeria. The study determined that the credit use of cassava farmers in southwest Nigeria is influenced by several characteristics, including their level of farm experience, educational attainment, farm size, and membership in a cooperative group. The study's findings led to the following recommendations for enhancing the credit use of cassava farmers in the study area:
(a) Cassava farmers should establish a cooperative society in order to facilitate the mobilization of funds from stakeholders and enhance their access to credit and efficient utilization of credit.
(b) Increasing the availability of land for cassava producers will enhance their credit accessibility.
(c) Cassava farmers should prioritize gaining further expertise and explicitly communicate their knowledge when seeking finance, as this will enhance their chances of obtaining credit.
(d) Encouraging cassava farmers to pursue adult education can enhance their credit use by increasing their level of education.

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