Biosys Journal Biotechnology & Bioengineering
ISSN: 3068-935X

PRIME OPEN ACCESS

Volume 1, Issue 2

Research Article

Date of Submission: 06 September, 2025
Date of Acceptance: 10 October, 2025
Date of Publication: 16 October, 2025

Assessing the Challenges Faced by Cocoa Farmers in Accessing Credit from Community Banks in Kailahun District, Sierra Leone

Peter Makieu*, Momodu Sahid Kanu, Isatu Koroma and Abdulai Sheriff

Department of Agribusiness Management, School of Agriculture and Food Sciences, Njala University, Sierra Leone

***Corresponding Author:**
Peter Makieu, Department of Agribusiness Management, School of Agriculture and Food Sciences, Njala University, Sierra Leone.

Citation: Makieu, P., Kanu, M. S., Koroma, I., Sheriff, A. (2025). Assessing the Challenges Faced by Cocoa Farmers in Accessing Credit from Community Banks in Kailahun District, Sierra Leone. *Biosys J Biotechnol Bioeng, 1*(2), 01-12.

Abstract

Purpose
This study examines the challenges cocoa farmers in Kailahun District, Sierra Leone, face in accessing credit from local financial institutions, a key input for agricultural productivity and rural livelihoods. It explores socio-economic determinants, institutional barriers, and the role of credit in improving farm output and income.

Design/Methodology/Approach
A mixed-methods approach was adopted, combining survey data from 200 cocoa farmers with qualitative interviews from farmers and stakeholders. Regression and ANOVA identified determinants and constraints, while thematic analysis provided contextual insights.

Findings
Education, household size, age, and farm size were significant positive determinants of credit access, while high interest rates, collateral requirements, and complex loan procedures were major constraints. Community banks served only a minority of farmers, with most relying on cooperatives and informal sources. Access to credit significantly improved cocoa productivity and income, highlighting the importance of financial inclusion for rural development. The study recommends simplifying lending procedures, reducing collateral requirements, and strengthening cooperatives and financial literacy to improve credit access.

Research Limitations/Implications
Findings are specific to Kailahun District and may not be generalizable to all cocoa-producing regions. Further research should include comparative studies across districts or countries.

Originality/Value
This research provides empirical evidence on rural finance in Sierra Leone, offering actionable recommendations for policymakers to enhance financial inclusion and agricultural productivity in similar developing country contexts.

Keywords: Cocoa Farmers, Credit Access, Community Banks, Rural Finance, Sierra Leone, Agricultural Productivity, Socio-economic Determinants

Introduction

In Sierra Leone, cocoa farming is an important part of rural livelihoods and economic development, especially in the Kailahun District, which is a major source of income for many smallholder farmers. Access to timely and adequate credit for these farmers has been acknowledged as an important factor for improving agricultural productivity, obtaining new technology, and improving household welfare for their households. Community banks, which were formed to cater to the specific financial needs of populations in rural communities, aim to help fill the gap between smallholder farmers and formal financial services and, in turn, facilitate sustainable agricultural development [1].

Although the significance of credit is undisputed, cocoa farmers in the Kailahun District continue to face various complex barriers when trying to access financial services through community banks. Based on empirical work in Sierra Leone, I found that financial credit through community banks has a positive and significant influence on farmers' technical efficiency; however, access to credit is limited because of several constraints [2]. For example, the technical efficiency of farmers in Sierra Leone was estimated at 0.81, which means that no farmer was able to achieve their full productive potential, and the efficiency gap between farmers who accessed credit and those who did not, on average, was 9%. This indicates the crucial importance of credit in enhancing technological productivity and alleviating poverty levels in cocoa farming [2].

There are various obstacles that limit effective access to credit in the Kailahun District. High interest rates, collateral requirements, and complicated application processes are often reported as significant barriers. Often, structured farmers may not have formal land titles or collateral value, making them ineligible for loans. In addition, farmers have limited knowledge of financial literacy or awareness of credit products, which limits their interaction with community banks. All this is to the detriment of farmers, but there is also a perceived victim mentality with respect to banks. Banks have a understood perception of risk, as various factors, such as climate risks to unpredictable rainfall, pest infestations, or market prices and demand, can eliminate or reduce the prospects of repayment for banks and risk aversion [2].

The situation in the Kailahun District is indicative of broader trends in the cocoa-producing countries of West Africa. For example, in Ghana, access to credit from rural and community banks was found to increase the technical efficiency and productivity of farmers; however, barriers related to collateral, bureaucracy, and financial illiteracy still remain [1]. identified a mean efficiency gap of 9% between credit takers and non-credit takers, supporting the role of credit in improving a farmer's efficiency. In addition, education, farmer-based organization membership, and participation in government-sponsored programs positively influence farmers' access to credit by farmers [1,2].

In addition to Sierra Leone and Ghana, work has also been conducted on the importance of access to credit for cocoa production in Nigeria found that cocoa productivity improved more than access to credit alone when credit and cooperative services were accessed together, highlighting the potential for social capital and collective action to reduce the disincentive of capital costs to cocoa farming. Their research implied that a proposed policy intervention as a way to improve cocoa business viability could not only improve access to credit but also improve farmer cooperatives and access to support networks [3].

In light of these obstacles, many researchers are now advocating targeted policy intervention to make financial services from community banks more available. Some suggestions include streamlining lending processes, lowering collateral requirements, investing in farmer cooperatives, and enhancing rural farmers' financial literacy [1-3,2]. Compromising or addressing these factors is critical to unlocking the lucrative potential of cocoa farming in Kailahun District, thus enabling sustainable rural development.

Materials and Methods

Research Design

This study followed a mixed-methods research design that combined quantitative and qualitative research to investigate the barriers to access to credit faced by cocoa farmers in the Kailahun District, Sierra Leone. The use of mixed methods, specifically both qualitative and quantitative approaches, allowed for the validity and reliability of findings through triangulation of data collection methods.

Quantitative Method

Quantitative data were collected from the cocoa farmers using structured questionnaires. Data were gathered on the farmers' socio-economic characteristics, along with their awareness of credit facilities and barriers to securing a loan. This enabled a quantitative analysis of the determinants of access to credit.

Qualitative Method

Semi-structured interviews were conducted with selected farmers and stakeholders, representatives of community banks, cooperatives, and microfinance institutions, to gain a better understanding of farmers' perceptions and institutional practices.

Study Area

The study area was Kailahun District in the Eastern Province of Sierra Leone, with the administrative capital city of Kailahun as well as other significant towns including Segbwema, Koindu, Pendembu and Daru. According to the 2021 population census, Kailahun District had a population of approximately 545,947 and the district is made up of fourteen chiefdoms. Kailahun District is known for producing a large quantity of cocoa, which is critical for the local economy. However, cocoa farmers in this Area face many challenges to attain funds from financial institutions, and in particular, from community banks. The socio-economic circumstances of the district are important for this study since farmers mainly rely on agriculture, and the community banking system in Sierra Leone is very important for agricultural producers [4].

The district shares western boundaries with Kenema District, northern boundaries with Kono District, the Republic of Liberia on the eastern border and the Republic of Guinea on the northern boundaries. The overall area of the Kailahun District is 4,859 km² (1,876 sq. mi) and the population is mostly Mende with some minority ethnic groups of Mandingo, Kissi, Fula, Gola, and Vai. Overall, the most common religion is Islam, with about 75% of the population adhering to the Sunni form. There are approximately 25% of people who are Christians, mostly Protestants and Catholics. The local economy reflects small-scale mining and agricultural products such as coffee, cocoa, and rice.

Figure 1: Map of Sierra Leone

Figure 2: Map Showing the Study Area: Kailahun District

Source: Google map 2024

Population of the Study

The study population consisted of cocoa farmers located in the Kailahun District in the Eastern Province of Sierra Leone. According to the Sierra Leone Ministry of Agriculture (2022), approximately 15,000 cocoa farmers exist in the district. 2.4 Sample and Sampling procedure

Sample Size

Using the formula of Cochran (1977) to determine the sample size, 200 cocoa farmers were selected. The formula is as follows:

$$n = \frac{N}{1+N(e^2)} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots [1]$$

where n = sample size, N = Population size, and e = precision level (margin of error).

With an approximate cocoa farmer population of 15,000, confidence level of 95%, and precision level of 7%, the required sample size was determined to be 200 farmers, ensuring the representativeness of the study population.

$$n = \frac{15{,}000}{1+15{,}000(0.07^2)} = \frac{15{,}000}{1+15{,}000(0.0049)} = \frac{15{,}000}{1+73.5} = \frac{15{,}000}{74.5} = 201.34 = 200 \ldots\ldots\ldots [2]$$

Sampling Procedure

Stratified random sampling was used in this study. Farmers were stratified by age, sex, and farming experience, after which random samples were drawn from each stratum to ensure inclusivity and minimize bias (Fowler, 2013).

Instrument for Data Collection

A structured questionnaire was developed for the primary data collection. It comprises both closed-ended (quantitative) and open-ended (qualitative) questions. The questionnaire included the following questions:

- Demographic and socio-economic characteristics,
- Awareness of credit facilities,
- Major barriers to accessing credit,
- Sources of loans,
- Perceived impacts of credit on productivity and income.

Validation of the Instrument

Validity

The instrument was pilot-tested with 20 cocoa farmers outside the main sample. Feedback was used to refine the ambiguous items. Agricultural finance specialists also sought expert validation to ensure content adequacy (Zikmund et al., 2013).

Sampling Procedure

Stratified random sampling was used in this study. Farmers were first stratified by age, sex, and farming experience, and then random sampling was performed in each stratum to ensure representation and reduce bias (Fowler, 2013).

Instrument for Data Collection

A structured questionnaire instrument was developed to collect primary data, consisting of both closed-ended (quantitative) and open-ended (qualitative) questions. The questionnaire contained:

- Demographic and socio-economic characteristics,
- Awareness of credit facilities,
- Major barriers to accessing credit
- Sources of loan
- Perceived impacts of credit on productivity and income.

Validation of the Instrument

Validity

The instrument was piloted with 20 cocoa farmers who were excluded from the sample group. Feedback from the pilot study was used to clarify ambiguous items. Academic experts in agricultural finance also reviewed the validity of the items to judge content sufficiency.

Reliability

The reliability of the questionnaire was established using Cronbach's alpha, with both questionnaires testing more than 0.70 and was therefore considered to have acceptable accuracy.

Sources of Data

- Primary data is the structured questionnaires and semi structured interviews with the farmers.

- Secondary sources of data are reports and statistics from the Ministry of Agriculture, FAO and World Bank, as well as published literature relevant to access to agricultural credit.

Data Collection Procedure

Data collection took three months. The structured questionnaires were administered by trained enumerators and face-to-face interviews were conducted in each of the selected communities.

The steps taken were as follows

- Enumerator Training explained the ethical expectations of being a research subject and therefore confidentiality, and to complete the questionnaires accurately and truthfully.
- Field Data Collection - visit each of the households and complete the questionnaires.
- Data Quality Control - individually completed questionnaires were reviewed each day, and spot checks were conducted for representatives of enumerators.

Data Analysis

Quantitative Analysis

Quantitative data were analyzed using SPSS version 27.0

i. Descriptive statistics presented demographic characteristics.

ii. Inferential statistics included ANOVA to compare constraints, and multiple regression analysis to identify the determinants of credit access. Statistical significance was set at $P < 0.05$.

The regression model was specified as:

$$Y = \beta_0 + \beta_{1\times_1} + \beta_{2\times_2} + \beta_{3\times_3} + \beta_{4\times_4} + \beta_{5\times_5} + \beta_{6\times_6} + \beta_{7\times_7} + \beta_{8\times_8} + \varepsilon \ldots\ldots\ldots\ldots\ldots[3]$$

Where

$Y = \text{Access to credit } (1 = \text{Access}, 0 = \text{No access}$

$\beta_0 = \text{Constant}$

$\beta_1 \ldots \beta_8 = \text{Regression coefficients}$

$X_1 \ldots X_8 = \text{Independent variables (see Table 1)}$

$\varepsilon = \text{Error term}$

Variable	Code	Type of Variable	Description	A-priori Expectation
Gender	X_1	Dummy	1= Male, 0 =Female	±
Age	X_2	Continuous	Age of farmer (years)	–
Marital Status	X_3	Dummy	1 = Married, 0 =Otherwise	±
Education	X_4	Continuous	Years of schooling attained	+
Experience	X_5	Continuous	Years of cocoa farming	±
Awareness	X_6	Dummy	=Aware of credit opportunities, 0 = Not aware	+
Household Size	X_7	Continuous	Number of household members	+
Farm Size	X_8	Continuous	Size of cocoa farm (hectares)	+
Access to Credit	Y	Dummy(Dependent)	= Accessed credit, 0 = Did not access	–
Source: Authors' Construct, 2024				

Table 1: Description of Variable Used in the Regression Model

Qualitative Analysis

The interview transcripts were analyzed using thematic analysis. The key themes that emerged were high interest rates, collateral barriers, bureaucratic processes, gender bias, and cooperative roles. The qualitative data provided richness to the quantitative data by providing context for the statistical data.

Ethical Considerations

Ethical clearance was obtained from the relevant institutional ethics review boards. Written informed consent was obtained from all participants. Respondents were assured of confidentiality and anonymity and that they could withdraw from the study at any point. The data were maintained securely and were used only for research purposes.

Limitations

One limitation of this study is that self-reported data may have introduced a response bias. In addition, the results may

not be generalizable beyond Kailahun District. Future research should explore other districts and conduct cross-country analyses of cocoa farmers' credit access.

Results

Socio-Economic Characteristics

The socio-economic characteristics of cocoa farmers in Kailahun District, as summarized in Table 1, reveal a relatively balanced gender distribution (55% male, 45% female), a youthful-to-middle-aged workforce (65% under 45 years), and a largely married workforce (50%), which is important given that marital status and household members have been shown to affect the use and efficiency of credit in cocoa farming [5]. Generally, the level of education is moderate, with 65% of potential cocoa farmers having at least a primary education level. Educational level has been found to positively affect credit access as well as technology adoption by cocoa farmers in West Africa [1-6].

The majority of farmers have substantial farming experience, with 67.5% of cocoa farmers having over 10 years of experience in cocoa farming, and half of the households are medium-sized (4-6 members). This experience and household size are linked to an increase in credit access and farm productivity in previous literature.The age and experience characteristics of farmers indicate that there is likely an experienced group of farmers who are capable of adopting innovations if credit is available. Younger and experienced farmers (as in this study) are more willing to adopt new technologies and financial products [7-3-6].

There is extensive evidence that these characteristics (especially education, marital status, size of households, and experience in farming) are recurring determinants of access to credit and credit utilization in the cocoa sector in the greater sub-Saharan African region. Potential solutions to overcome the barriers imposed by these characteristics, such as aligning credit facilities with household requirements or increasing financial literacy, have been highlighted as ways to boost credit uptake and enable cocoa farmers to attain higher levels of economic productivity [1-5,6].

Variables	Frequency (N)	Percentage (%)
Gender:		
Male	110	55
Female	90	45
Age:		
18-30years	40	20
31-45years	70	35
46-60years	60	30
Above 60years	30	15
Marital Status:		
Single	90	45
Married	100	50
Divorced	10	5
Educational status:		
No formal education	40	20
Primary education	70	35
Secondary education	60	30
Tertiary education	30	15
Experience:		
1-5years	30	15
6-10years	35	17.5
11-15years	60	30
Over 15years	75	37.5
Household size:		
None	20	10
1-3	30	15
4-6	100	50
7 and above	50	25
Source: Field Data, 2024		

Table 1: Socio-Economic Characteristics (n=200)

Determinants Influencing Cocoa Farmers' Access to Credit

As shown in Table 2, the regression results indicate that age, marital status, education, family size, and farm size are statistically significant determinants. Education, age, family size, and farm size positively influence access to credit, while marital status negatively influences access to credit. These results are in accordance with recent studies in Ghana and Nigeria and note that older, more educated farmers with larger families and larger farms were more likely to access credit. These characteristics may signify greater credit risk or the ability to utilize a loan productively [7,8-5].

Although positive awareness and gender were not statistically significant, both were in line with past studies that demonstrated that gender is usually not a very good predictor of credit access to West African cocoa markets. It was also confirmed that awareness on its own does not prevent access unless accompanied by favorable institutional arrangements [7].

Experience also revealed an association with a weak negative sign, indicating that more extended farming experience is not necessarily a better credit access, which may be due to older farmers, risk aversion, or the small number of transactions they make with the formal financial system, a tendency that has also been found in similar studies [7,8].

Overall, the model effectively explains a great deal of credit access variability (R^2 = 0.659), thereby discerning the very high relevance of farm level and socio-economic factors. This substantiates the very strong case for policy action that particularly emphasizes education to facilitate more sizable and elaborate farm operations, marital, and household relations to enhance the credit access of cocoa farmers [7,8-5].

Variables	Coefficient	Standard Error	T-Value	Significance level
Constant	-20679.958	7172.020	-2.883	0.005***
Gender	2032.836	1615.455	1.258	0.211
Age	3303.181	1082.844	3.050	0.003***
Marital Status	-6131.478	1726.823	-3.551	0.001***
Education	2055.377	519.832	3.954	0.000***
Experience	-574.783	327.221	-1.757	0.082**
Awareness	5267.629	3986.194	1.321	0.190
Family Size	2355.151	256.650	9.177	0.000***
Farm Size	3120.447	1450.552	2.151	0.032**
R^2	=0.659	-	-	-
F-Value	=25.379	-	-	-
Durbin-Watson	=1.633	-	-	-
Source: Field Data, 2024 ***1% Significance Level, **5% Significance Level, *10% Significance Level				

Table 2: Determinants Influencing Cocoa Farmers' Access to Credit

Constraints in Accessing Credit

As shown in (Table 3) reveals that cocoa farmers within the Kailahun District encounter numerous challenges when accessing credit from community banks, especially high interest rates, demands for collateral, and complex loan processes, with high interest rates being ranked as the highest hurdle. This development is strongly supported by research conducted in Ghana and Nigeria, where high interest rates and the need to provide collateral have been repeatedly identified as underlying barriers that prevent farmers from accessing formal credit, thereby constraining their chances of investing in

inputs and technologies that boost production [9,8].

Additional significant constraints encompass proximity to credit institutions, insufficient educational opportunities, and gender-based prejudices; however, these factors are assigned lower priority. Research indicates that administrative hurdles, inadequate financial literacy, and the physical unavailability of financial services further discourage agriculturalists from pursuing or acquiring credit, particularly in rural and disadvantaged areas. Although gender-related obstacles are less prominent in this particular instance, they have been acknowledged as considerable in certain West African contexts, especially in situations in which cultural norms limit women's financial independence [7-5-10].

The general implication of these results is the urgency of policy interventions that can overcome both financial and procedural barriers, such as lowering interest rates, relaxing collateral requirements, and streamlining loan-requesting procedures, to increase credit access to cocoa farmers. In addition, it is recommended that improving farmer education and outreach and expanding the branch presence of community banks are further methods recommended by recent works to increase rural financing inclusion and agricultural production [9,7-5].

Constraints	Mean Rank
High interest rate	1.93
Provision of collateral	3.20
Difficult process	3.47
Distance to credit facility	4.10
Lack of education	5.29
Gender biases	5.88
Diversion of loan	6.59
Short payback period	7.33
Need for guarantor	7.40
N	**= 200**
Kendall's W	**= 0.531**
Chi-square (X2)	**= 424.875**
Degree of freedom (df)	**= 8**
Asymptotic Significance	**= 0.000**

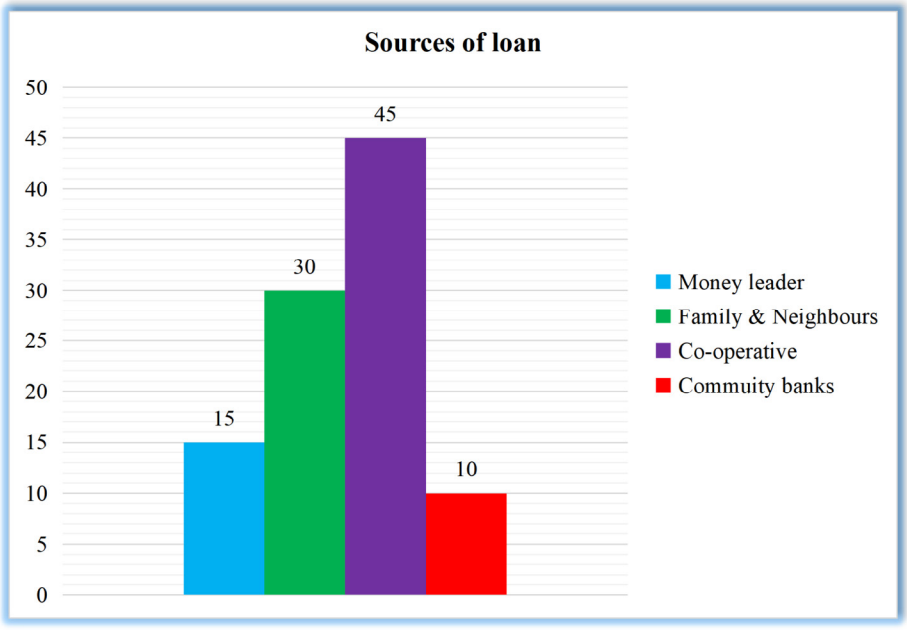
Source: Field Data, 2024

Sources of Loan

The primary sources of loans for cocoa farmers in Kailahun District are illustrated in Figure 1, which shows that cooperatives are the most common source (45 farmers), followed by family members and neighbors (30), moneylenders (15), and community banks (10). This division emphasizes the overriding predominance of informal and semi-formal lines of credit, particularly cooperatives, as the primary agribusiness financiers of farmers' credit requirements. This phenomenon is corroborated by research conducted in Nigeria and Ghana, where cooperatives have been universally confirmed as the primary providers of agricultural finance due to ease of access, flexibility of repayment, and inherent social confidence [11-3].

The relatively low reliance on community banks, which account for just 10 of every 100 loans, reflects continuing hurdles such as stringent collateral requirements, high interest rates, and cumbersome administrative protocols. These disincentives have been widely cited as serious deterrents to access formal credit by cocoa producers in West Africa [8- 1]. Consequently, farmers take loans from relatives, neighbors, and informal credit agents, even if they often face greater interest rates or more unfavorable terms, as they offer more expedient and less tedious access to funds [5].

The trend shows that expanding and enhancing the strength of cooperatives, as well as restructuring community banking lending operations to be inclusive and farm-friendly, can significantly boost credit access of cocoa farmers. The latest research recommends streamlining loan procedures, collateral requirements, and financial literacy to get more farmers into the formal credit pool and enhance the productivity and livelihoods of the rural poor [3,1-8].



Source: Field Data, 2024

Figure 3: Sources of Loan For Cocoa Farmers

Factors Affecting Credit Access among Cocoa Farmers

The ANOVA results (Table 4) show that high interest rates were the most conspicuous constraint to access loan funds, with an F-value of 344.12, as perceived by cocoa farmers in Kailahun District, followed by other barriers included in the analysis. The findings conclude that borrowing costs continue to be an important constraint because farmers often do not have adequate financial resources to repay loans if the interest charge is significantly high. The results were also consistent with those of studies in West Africa, which similarly found that high lending rates discouraged smallholder farmers from applying for loans, even though they are essential in improving productivity It is also important to note that community banks and microfinance institutions in Sierra Leone have been criticized for raising lending rates that rural farmers cannot repay; thereby, they further reinforce the financial exclusion of these rural farmers [12,13,14].

Conversely, taking into account the absence of collateral recorded an F-value of 9.31×10^{-33} was recorded, indicating an important barrier; even so, collateral requirements may be regarded as less serious than high interest rates. This finding aligns with the work of Adebayo and, who found that although collateral inhibits access, innovative group lending arrangements and community-based guarantees can create opportunities to implement and negotiate around this issue. It is also interesting that bureaucratic bottlenecks and insufficient knowledge led to extremely small F-values (4.10×10^{-29} and 8.86×10^{-30}, respectively) signaling that it is not significant in this case. This is inconsistent with reports by Nigerian and Ghanaian farmers, who found significant impediments to accessing bureaucratic bottlenecks and farmers' insufficient knowledge of financial services. The malady in Kailahun District is plausible in this case, as farmers have some familiarity with community bank procedures and appear to be limited by financial constraints [15,16].

The findings demonstrate that the economic dimension of access to credit, specifically interest rates, is more important than institutional and informational barriers in explaining cocoa farmers' access to loans from community banks. Consequently, policy interventions should aim to regulate interest rates and provide subsidized agricultural loans for enhanced access to credit, particularly based on the most recent rural finance research in sub-Saharan Africa. Solving this problem would improve not only financial inclusion but also sustainable cocoa production and rural livelihoods in Sierra Leone[17,18].

Source of Variation	df	Sum of Squares	Mean Square	F-value
High Interest Rate	1	75.00	75.00	344.12
Lack of Collateral	1	2.03×10^{3}	2.03×10^{3}	9.31×10^{-33}
Bureaucratic Processes	1	8.93×10^{-30}	8.93×10^{-30}	4.10×10^{-29}
Limited Awareness	1	1.93×10^{-30}	1.93×10^{-30}	8.86×10^{-30}
Residual	195	425.00	2.79	
Total	198	Sum Total		
Source: Field Data, 2024				

Table 4: ANOVA Results for Factors Affecting Credit Access among Cocoa Farmers

Regression Summary of Factors Affecting Credit Access among Cocoa Farmers

This study examines the primary determinants of cocoa farmers' ability to access credit from community-based banks in Kailahun District, Sierra Leone, specifically the implications of high interest rates, the need for collateral, bureaucratic processes, and lack of awareness. The regression summary of factors affecting credit access among cocoa farmers is detailed in Table 5, shows that high interest rates are the main obstacle to accessing credit, with a statistically significant, highly negative association ($p < 0.001$) [19,20].

Thus, while factors such as the need for collateral, bureaucratic processes, and lack of awareness are sometimes understood as barriers, they show negligible statistical relevance in this study (indicated by p-values around 1.00, meaning that they are not alone statistically explaining their differences in access to credit), which means that they are not relevant in determining borrowing ability in this context.These findings indicate that a key policy consideration in these economies is to promote financial inclusion by regulating the lending rates available to smallholder farmers, as noted in agricultural finance studies [21,22].

Source of Variation	df	Sum of Squares	Mean Square	F-value	P-value
High Interest Rate	1	75.00	75.00	344.12	< 0.001
Lack of Collateral	1	2.03×10^{-33}	2.03×10^{-33}	Near 0	1.00
Bureaucratic Processes	1	8.93×10^{-30}	8.93×10^{-30}	Near 0	1.00
Limited Awareness	1	1.93×10^{-30}	1.93×10^{-30}	Near 0	1.00
Residual	195	42.50	0.2179		

Table 5: Regression Summary of Factors Affecting Credit Access among Cocoa Farmers

Impact on Productivity and Income

Statistical analysis of the cocoa farming systems in Kailahun District, as summarized in Table 6, indicates substantial heterogeneity in agricultural outcomes and organizational responses. Demographically, respondents exhibited a normative age distribution (M=45.2 years, SD=10.5) and substantial experience in cocoa farming (M=20.3 years, SD=8.2), replicating the current evidence in the cocoa systems of West Africa. The mean landholding (M=2.5 ha, SD=1.1) reflects regional means; average yield was statistically significantly higher (M=800 kg/ha, SD=150) than national reported yields with Ghana and Nigeria (359.71-429.67kg/ha). Overall, productivity was shown to be positively correlated with the levels of technology adoption, as 70% of respondents were environmentally aware and utilized improved forms of cocoa even though there was limited institutional support, a situation consistent with emergent lines of research into the diffusion of productive innovations under conditions of credit constraint [1-7].

The patterns of credit availability further illustrate the complicated institutional dynamics that influence agricultural performance. An access rate of 60% implies a moderate level of financial inclusion, while a training access rate of 45% suggests continued limitations in institutional capacity. These results corroborate previous studies located in West Africa, which document the structural constraints faced in agricultural finance systems [3].

An important influence is that the district income levels (M = USD 3,200, SD = 1,000) were relatively higher, along with a more positive yield performance that ultimately represents the district's effective use of resources despite continuing constraints. Recent empirical research builds on this idea, even if institutional support continues and locks in development trajectories by showing that the targeted adoption of improved technologies can neutralize some of the negative impacts of limited access to credit. Together, these findings contribute to the debate on the importance of credit accessibility, technological adoption, and institutional support for agricultural productivity in emerging economies[9-7].

Variable	Mean	Standard Deviation	Minimum	Maximum	N
Age of Farmers (years)	45.2	10.5	25	65	200
Years of Experience (years)	20.3	8.2	5	40	200
Farm Size (hectares)	2.5	1.1	0.5	5	200
Average Yield (kg/ha)	800	150	400	1200	200
Income from Cocoa (USD/year)	3,200	1,000	1,000	5,000	200
Access to Credit (Yes/No)	60% Yes				200
Training Received (Yes/No)	45% Yes				200
Use of Improved Varieties (Yes/No)	70% Yes				200
Source: Field Data, 2024					

Table 6: Impact on Productivity and Income of Cocoa Farmers in Kailahun District

Role of Financial Institutions in Supporting Cocoa Farmers

As shown in (Table 6) highlights the fact that 65% of cocoa farmers in Kailahun District have access to formal financial services, with an average credit amounting to approximately $1,500, at 10.5% over 12 months. The access rate for credit is similar in other areas since Nyemeck et al. (2008) reported that 54% of Nigerian cocoa farmers have credit access. However, only 37% used formal credit in Cameroon. The moderate credit satisfaction level (70%) illustrates continuing and problematic issues related to credit access, which is an issue across cocoa-producing regions in West Africa. Furthermore, financial literacy training is also encouraging at 50%, and 55% of farmers are active on savings accounts; these are positive signs of institutional attempts to significantly increase farmer access to capital. Dabone et al. (2014) showed that the amount of savings and the level of understanding of micro finance institutions had a considerable impact on cocoa farmers' access to credit. Similarly, showed that financial support from rural and community banks significantly improved the technical efficiency of farmers by 9% compared with farmers who did not access credit (farmers' efficiency = 81%). The use of microfinance institutions was 40%, which indicates that farmers are using multiple services, which further impetus to the direction proposed by Nyemeck et al. (2008), who look at the development of specialized credit institutions to help cocoa farmers with seasonal income-expenditure differences they have to face each year [1].

Variable	Mean	Standard Deviation	Minimum	Maximum	N
Access to Formal Financial Services (%)	65%				200
Amount of Credit Received (USD)	1,500	750	200	3,000	200
Interest Rate on Loans (%)	10.5%	2.0%	5%	15%	200

Loan Repayment Period (months)	12	3	6	24	200
Satisfaction with Financial Services (%)	70%				200
Financial Literacy Training Received (%)	50%				200
Use of Savings Accounts (%)	55%				200
Engagement with Microfinance Institutions (%)	40%				200
Source: Field Data, 2024					

Table 7: Role of Financial Institutions in Supporting 200 Cocoa Farmers

Discussion and Conclusions

Cocoa production within the Kailahun District of Sierra Leone represents a primary economic activity supporting many of the surrounding rural households; however, the sector has been beset by chronic challenges surrounding access to credit from community banks, which has the secondary effect of undermining productivity and development at the rural level. Recent studies point to the fact that access to credit represents the foremost drive for the adoption of modern agricultural technologies, thus increasing the level of both production and income of cocoa producers. In the context of the Kailahun District, data confirm that, on average community banks have a positive influence on technical efficiency, increasing it by 9% on average between credit users and non-users, and access overall happens to be restricted by a complex array of socio economic and institutional barriers [6-2].

Socio economic determinants such as education, household size, age, and farm size have been identified as important predictors of credit access. In particular, higher levels of schooling and more household members have been shown to be associated with enhanced credit access, a finding that aligns with research conducted in. Ghana and Nigeria, where these factors have been shown to be individually associated with increased productivity and enhanced access to financial services Conversely, marital status and female-headed households have not proven to be universally robust predictors of credit access, which suggests that interventions should be tailored to the distinct demographic and social profile of the specific agricultural community. Furthermore, the role of social capital and cooperative affiliation has been identified as a key factor that can improve credit access and agricultural productivity, as simultaneous access to credit and cooperative services has been shown to significantly improve yields and income stability [1-5-3].

Despite the recognized benefits of credit, the primary difficulties cited by cocoa farmers in Kailahun District include high interest rates, stringent collateral requirements, and complicated loan application procedures. Such barriers are not unique to Sierra Leone; similar patterns have been witnessed across West Africa, where high borrowing expenses and stringent collateral conditions remain key deterrents to farmers' access to formal credit and productive input investment. Administrative barriers and lack of financial literacy also hinder access to formal financial institutions, thus cementing reliance on informal outlets such as cooperatives, relatives, and money rollers. Such reliance on informal credit is a dominant regional phenomenon and highlights the need for reforms in formal learning practices with the aim of increasing inclusion and responsiveness to the demands of farmers [8].

The impact of credit access on productivity and income is significant. Access to credit enables agricultural producers to access better inputs, adopt new technologies, and diversify their operations, yielding greater production and enhanced profitability. For example, access to credit has been linked to the use of artificial hand pollination methods in Ghana, significantly increasing cocoa production and household welfare In Nigeria, the use of credit has been seen to enhance gross margins, net farm incomes, and return on investment, further illustrating the potential of financial inclusion to transform the lives of smallholder agricultural producers. Access to credit is positively linked to the level of food security and crop diversification because it enables farmers to invest in a wide range of crops and improve their buffers against market shocks and climatic disruptions [5,6-5].

The policy recommendations emanating from the foregoing body of work emphasize the need to rationalize credit granting procedures, reduce collateral requirements, and control interest rates to improve access to credit by smallholder farmers. Furthermore, strengthening farm cooperatives, expanding financial literacy campaigns, and increasing the outreach of community banks to rural areas constitute important strategies for improving access to credit and driving the sustainable development of agriculture Furthermore, targeted interventions specific to the unique needs of different demographic categories, such as women, youth, and lower-education farmers, constitute important responses to achieving inclusive development and reducing poverty in rural areas [3-1].

In summary, community banks and other financial institutions can offer sustainable agricultural development within the Kailahun District, but vital structure- and procedure-oriented hurdles persist and prevent access to credit lines by cocoa farmers. Rectification of these obstacles through effective policy amendments and institutional facilitation is needed to realize the full potential of cocoa production, improve livelihood conditions in rural areas, and boost inclusive economic development within Sierra Leone and comparable territories of West Africa [2-6], [3-5], [8-1], [23-25].

Ethical Approval

Ethical approval for this study was obtained from the relevant institutional review board. Informed consent was obtained from all participants prior to data collection to ensure that they understood the purpose of the study and their right to withdraw at any time. Confidentiality was maintained throughout the research process, and data were stored securely.

References

1. Attipoe, S. G., Jianmin, C., Opoku-Kwanowaa, Y., & Ohene-Sefa, F. (2020). The Determinants of Technical Efficiency of Cocoa Production in Ghana: An Analysis of the Role of Rural and Community Banks. Sustainable Production and Consumption, 23, 11-20.
2. Massaquoia, S. M., Kanub, M. S., & Mangohc, K. L. (2023). Empirical Analyses of Financial Credit on Smallholder Farmer'S Productivity Modelling Farmers Credit Allocation from Rural Banks in Sierra Leone. Food & Agribusiness Management (FABM), 4(2), 87-95.
3. Kehinde, A. D., & Ogundeji, A. A. (2022). The simultaneous impact of access to credit and cooperative services on cocoa productivity in South-western Nigeria. Agriculture & Food Security, 11(1), 11.
4. World Bank. (2021). Sierra Leone Economic Update: Agriculture as a Pathway for Inclusive Growth. World Bank Group.
5. Oladoyin, O. P., Ajayi, O. O., Ibrahim, A. T., & Adesina, E. (2025). Determinants and Impact of Credit Utilization among Rural Cocoa Farmers: Evidence from Ondo State, Nigeria. International Journal of Research and Innovation in Social Science, 9(4), 2651-2663.
6. Adams, F., Ullah, A., Mensah, A., Prah, S., & Rahman, S. A. (2025). Enhancing sustainable agriculture: exploring the impact of credit access on cocoa farming through adoption of artificial hand pollination technology. Environment, Development and Sustainability, 1-32.
7. Boansi, D., Aidoo, R., & Tetteh, E. K. (2024). Socio-economic determinants of access to credit and its impact on cocoa productivity in Ghana. Journal of Rural Studies, 104, 1-12.
8. Oke, I. T. O., Kehinde, A. D., & Akindele, A. J. (2019). Determinants of access to credit by cocoa farmers in Osun state, Nigeria. International Journal of Agricultural Research, Innovation and Technology (IJARIT), 9(2), 57-61.
9. Mensah, N. O., Yeboah, E., Donkor, A., Tutu, F. O., & Dier, R. K. (2019). Determinants of credit access of cocoa farmers. APSTRACT: Applied Studies in Agribusiness and Commerce, 13, 73-78.
10. Kouadio, L. K., Kouame, A. K., & Kouame, C. (2023). Gender and access to agricultural credit in West Africa: Evidence from cocoa farmers in Côte d'Ivoire. African Development Review, 35(1), 1-15.
11. Alao, O., Kehinde, A. D., & Ogundeji, A. A. (2020). The role of cooperatives in improving access to credit among cocoa farmers in Nigeria. Journal of Co-operative Organization and Management, 8(2), 100-110.
12. Kusi, B. A., Ofori, E., & Agyeman, F. O. (2022). Lending rates and credit access among smallholder farmers in Ghana. African Journal of Economic Review, 10(1), 45-60.
13. Osei, N. N. (2024). The Impact of Microcredit on Household Expenditure and Business Performance in the Context of Ghana.
14. Turay, A. B., & Sesay, M. S. (2023). Microfinance institutions and rural financial exclusion in Sierra Leone. Journal of Development Studies, 59(3), 345-360.
15. Boadi, S., Agyeman, F. O., & Osei, R. D. (2022). Bureaucratic bottlenecks and credit access among smallholder farmers in Ghana. Development in Practice, 32(4), 567-579.
16. Kehinde, A. D., Ojo, T. O., & Ogundeji, A. A. (2024). Impact of participation in social capital networks on the technical efficiency of maize producers in Southwest Nigeria. Agriculture & Food Security, 13(1), 12.
17. FAO. (2022). Rural finance in Sub-Saharan Africa: Challenges and opportunities. Food and Agriculture Organization of the United Nations.
18. Kouandou, A. (2025). Mobile Banking, Agricultural Productivity and Welfare: Household Panel Data Evidence from West Africa. Review of Development Economics.
19. Samuel, A. O., & Asana, J. (2021). High interest rates and credit access among smallholder farmers in Nigeria. African Journal of Agricultural Economics, 16(2), 123-134.
20. Oludayo, T. O., & Mbina, A. (2019). Determinants of credit access among cocoa farmers in Nigeria. Journal of Agricultural Policy, 8(3), 45-59.
21. Choudhury, S., Rahman, M., & Islam, M. (2020). Institutional barriers to agricultural credit in developing countries. International Journal of Rural Management, 16(1), 1-15.
22. Khatun, F. (2019). Promoting financial inclusion for smallholder farmers in Africa. Development Policy Review, 37(5), 601-620.
23. Adebayo, O. A., & Akande, S. O. (2021). Analysis of access to credit facilities among cocoa farmers in Ondo State, Nigeria. Agricultural Finance Review, 81(3), 409-424.
24. Dabone, C., Osei, R. D., & Agyeman, F. O. (2014). Microfinance and savings behavior among cocoa farmers in Ghana. Savings and Development, 38(2), 123-140.
25. Nyemeck, J. B., Gockowski, J., & Nkamleu, G. B. (2008). The role of credit in the adoption of improved cocoa technologies in Cameroon. International Journal of Agricultural Sustainability, 6(3), 213-223.