

Agricultural Credit and Output Performance of Rural Women Soybean Farmers in Sabon Gari Local Government Area, Kaduna State, Nigeria

*Ahmed Nafisat Salawu, Saheed Zakaree, Anfofum Abraham Alexander, Alfa Yakubu, & Moses Gosele Danpome

Department of Economics, Nigerian Defence Academy, Kaduna State – Nigeria.

*Corresponding Author: nafisatahmed42@gmail.com

Abstract

This study examined how access to agricultural credit affects the output performance of rural women soya bean farmers in Sabon Gari Local Government Area of Kaduna State, Nigeria. The study is anchored in the Credit Rationing Theory developed by Stiglitz and Weiss (1981), which explains how information asymmetry and collateral requirements limit access to credit for smallholder farmers, particularly rural women. The study employed a descriptive and analytical survey design, using data collected from 256 respondents selected through simple random sampling. Data were analyzed using descriptive statistics and multiple regression analysis in SPSS version 25, with soybean output measured as yield per hectare. The findings revealed disparities in access to credit among the farmers, while the regression results showed that credit accessibility and farming experience had positive and statistically significant effects on soya bean output, indicating that improved financial access and farming knowledge enhance productivity. However, age had no significant effect on output. Based on these findings, the study recommends expanding affordable, gender-sensitive credit schemes, strengthening agricultural extension services, promoting financial literacy, and investing in rural infrastructure and climate-smart farming technologies to improve sustainable soya bean production among rural women farmers.

Keywords: Credit Accessibility, Rural women, Soyabean

1. Introduction

Despite the strategic importance of agriculture to Nigeria's economy and the increasing demand for soya bean as a food, feed, and industrial crop, productivity among rural women farmers remains considerably below potential levels. According to the Food and Agriculture Organization (FAO, 2024), average soybean yields achieved by smallholder farmers in Sub-Saharan Africa remain significantly lower than attainable yields under improved production conditions. In Nigeria, yield gaps persist largely because many farmers are unable to access improved seeds, fertilizers, mechanization services, and modern production

technologies necessary for higher productivity (FAO, 2024; World Bank, 2023). Among these constraints, limited access to agricultural credit has been consistently identified as one of the most important barriers to increased agricultural output (Binswanger-Mkhize & McCalla, 2010).

Rural women constitute a substantial proportion of the agricultural labour force in developing countries and contribute between 60 and 80 percent of food production in many African countries (FAO, 2023). In Nigeria, women play significant roles in agricultural production, processing, and marketing activities, yet

they continue to experience disproportionate exclusion from formal financial systems (IFAD, 2021). The Food and Agriculture Organization (FAO, 2011) observed that women farmers generally have less access to productive resources, including land, extension services, agricultural inputs, and credit facilities, compared with their male counterparts. Similarly, the International Fund for Agricultural Development (IFAD, 2021) reported that women in rural areas are less likely to obtain loans from formal financial institutions due to limited collateral ownership, lower financial literacy levels, and institutional barriers within lending systems.

The financing gap facing smallholder agriculture in Sub-Saharan Africa remains substantial. The African Development Bank (AfDB, 2022) estimated that the agricultural financing gap in Africa exceeds USD 65 billion annually, with smallholder farmers and women-owned agricultural enterprises accounting for a large proportion of the unmet demand for finance. In Nigeria, formal agricultural lending continues to cover only a small proportion of farmers' credit needs, forcing many producers to rely on informal lenders, personal savings, and social networks to finance production activities (CBN, 2022). This inadequate access to finance restricts farmers' ability to purchase inputs on time, adopt improved technologies, and expand production capacity (Adjognon, Liverpool-Tasie, & Reardon, 2017).

Although the Nigerian government and financial institutions have introduced several agricultural financing initiatives such as the Agricultural Credit Guarantee Scheme Fund (ACGSF), the Anchor Borrowers' Programme (ABP), and various intervention funds administered by the Central Bank of Nigeria, evidence suggests that the benefits of these programmes have not adequately reached many rural women

farmers (CBN, 2022). Studies by Olagunju and Adeyemo (2021) and IFAD (2021) identified persistent obstacles including stringent collateral requirements, high transaction costs, inadequate awareness of available schemes, cumbersome application procedures, and weak rural banking infrastructure as major factors limiting effective participation of women farmers in formal credit programmes.

Kaduna State is one of Nigeria's leading soya bean producing states and contributes significantly to national production due to favourable agroecological conditions and increasing market demand (FAO, 2024). Nevertheless, rural women soya bean farmers in the state continue to face financial constraints that undermine productivity and farm expansion. While several studies have examined agricultural credit and farm performance in Nigeria (Awotide et al., 2015; Obisesan, 2013), empirical evidence focusing specifically on rural women soya bean farmers remains limited, particularly at the local government level. More specifically, there is limited empirical evidence on how access to agricultural credit affects the output performance of rural women soya bean farmers in Sabon Gari Local Government Area of Kaduna State.

This gap in knowledge is important because understanding the relationship between agricultural credit accessibility and output performance among rural women farmers can provide evidence for designing more effective and gender-responsive agricultural finance policies. Therefore, an empirical investigation into the effect of agricultural credit accessibility on the output performance of rural women soya bean farmers in Sabon Gari Local Government Area of Kaduna State is both necessary and policy-relevant for improving financial inclusion, enhancing agricultural productivity, and strengthening rural livelihoods.

2. Literature Review

2.1 Conceptual review

Access to Credit

According to Bakker et al. (2025), access to credit refers to the ability of individuals or economic agents to obtain loans or other credit facilities under conditions that match their financial needs and repayment capacity. It is often reflected in how easily they can borrow, the terms attached to the loan, such as interest rates and repayment periods, as well as their overall credit history, including borrowing costs, credit balances, and loan inquiries.

Chibueze et al. (2025). Access to credit refers to the extent to which individuals or farmers can obtain financial resources from formal lenders under conditions influenced by institutional rules, collateral demands, and policy environments that shape borrowing opportunities. Beck (2007). also reflects the broader ability of people and businesses to secure financial services, which influences investment decisions, consumption patterns, and economic growth in rural farming contexts, particularly among women soya bean producers. Access to credit is essential as it enables the purchase of improved inputs, supports farm expansion, helps manage production risks, and stabilizes household consumption during low-income periods, thereby improving productivity and livelihoods. Therefore, access to credit in the context of this study refers to the ability of soya bean farmers in Sabon Gari LGA to obtain adequate and timely financial resources under suitable and affordable borrowing conditions, including loan accessibility, collateral requirements, and repayment terms (Bakker et al., 2025; Chibueze et al., 2025; Beck, 2007), which enables investment in farm inputs and technology, thereby enhancing productivity, income, and livelihoods.

Rural Women Farmers

Nyirongo (2019) emphasizes that rural women play a vital role in promoting

sustainable development, yet they continue to face significant constraints such as limited access to productive resources and restricted participation in decision-making processes. In a similar view, UN Women (2025) recognizes rural women as important drivers of economic, social, and environmental transformation needed for sustainable development. However, their contributions are often limited by persistent challenges, including inadequate access to credit, healthcare, and education, challenges that have been further intensified by global food and economic crises as well as the impacts of climate change.

In the context of this study, rural women refer to women living in rural areas who tend to adopt traditional gender roles, have larger families, and often face challenges. Such as limited social support and lower labour force participation.

Soya beans Production

Soya bean production has been conceptualized in diverse ways within the agricultural literature. Shurtleff and Aoyagi (2009) describe soybean production as a structured farming system that involves several key activities, including selecting suitable varieties, maintaining soil fertility, controlling pests and diseases, and applying proper harvesting methods to achieve high yield and good-quality output. In a similar view, Graham and Vance (2000) explain soybean production as the cultivation of *Glycine max*, a legume originating from East Asia, and stress important farm operations such as land preparation, planting, pest control, and harvesting as essential steps for improving productivity. Earlier, Sinclair and de Wit (1975) viewed soybean production as a continuous process of planting, growing, and harvesting, noting that environmental conditions and genetic characteristics of the crop strongly influence overall yield and production efficiency.

For this study, the definition by Toomer et al. (2023) is adopted. They describe soybean production as an integrated system that covers agronomic, environmental, and post-harvest activities involved in cultivating *Glycine max*. This includes soil management, planting operations, pest control, and harvesting practices aimed at achieving sustainable improvements in both yield and crop quality.

2.2 Theoretical Review

This study is anchored in the Credit Rationing Theory developed by Stiglitz and Weiss (1981), which explains the operation of credit markets under conditions of imperfect and asymmetric information between lenders and borrowers. The theory posits that lenders are often unable to perfectly distinguish between high-risk and low-risk borrowers because borrowers possess more information about their repayment ability and investment projects than lenders. To minimize the risk of default, financial institutions impose non-price lending conditions such as collateral requirements, credit history, guarantors, and borrower screening mechanisms rather than allocating credit solely through interest rates (Stiglitz & Weiss, 1981).

The theory further argues that increasing interest rates is not always an effective mechanism for balancing the demand and supply of credit because higher interest rates may attract riskier borrowers and increase the probability of loan default. Consequently, lenders often ration credit by limiting the amount of loans granted or excluding certain categories of borrowers entirely, even when such borrowers are willing and able to pay prevailing interest rates (Stiglitz & Weiss, 1981).

In agricultural production systems, credit rationing disproportionately affects smallholder farmers and rural women because they frequently lack formal land titles, acceptable collateral, established

credit histories, and strong relationships with formal financial institutions (IFAD, 2021). In Nigeria, customary land tenure arrangements and limited ownership of productive assets among women further restrict their eligibility for formal agricultural loans (FAO, 2011). As a result, rural women farmers often receive inadequate credit or are excluded entirely from formal lending opportunities.

This exclusion implies that farmers are unable to acquire essential production inputs in adequate quantities and at the appropriate time. Access to agricultural credit facilitates the purchase of improved soya bean seeds, fertilizers, agrochemicals, mechanization services, irrigation facilities, and hired labour, all of which contribute positively to farm productivity (World Bank, 2023; CBN, 2022). Where credit is rationed or unavailable, farmers rely primarily on personal savings or informal borrowing sources that are often insufficient to finance optimal production activities. This leads to underutilization of productive inputs, lower technical efficiency, and reduced output performance.

The Credit Rationing Theory therefore establishes a clear theoretical linkage between collateral constraints, credit accessibility, input acquisition, and agricultural output. Within the framework of this study, inadequate collateral and lender-imposed restrictions lead to credit rationing, which limits rural women farmers' access to agricultural credit. Reduced access to credit constrains their ability to acquire yield-enhancing inputs and technologies, thereby lowering soya bean output performance. Conversely, improved access to credit enables farmers to obtain productive inputs, adopt improved farming practices, increase production efficiency, and enhance output levels.

The theory directly supports the model specification adopted in this study, where

access to agricultural credit serves as the major explanatory variable influencing the output performance of rural women soya bean farmers in Sabon Gari Local Government Area of Kaduna State. The positive and significant relationship expected between credit accessibility and soya bean output is therefore consistent with the predictions of Credit Rationing Theory.

2.3 Empirical Review

Empirical evidence from Nigeria and other parts of Sub-Saharan Africa consistently supports the propositions of Credit Rationing Theory by demonstrating that access to agricultural finance plays a critical role in improving productivity, technology adoption, farm income, and household welfare. Across studies, access to credit has been shown to facilitate timely acquisition of improved seeds, fertilizers, agrochemicals, mechanization services, and hired labour, thereby enhancing agricultural output and efficiency.

Studies focusing on soybean production specifically show that financial access remains an important determinant of productivity. For example, Kabiru et al. (2024) found that the adoption of yield-enhancing technologies such as phosphorus fertilizer application and rhizobium inoculation significantly increased soybean yields in Northern Nigeria, although farmers' financial capacity largely determined their ability to adopt these technologies. Similarly, Mairabo et al. (2023) reported that soybean farmers in Kaduna State operated below optimal technical efficiency due largely to inadequate access to credit and modern inputs. Likewise, Bebeley et al. (2025) demonstrated that although climatic variability negatively affected soybean productivity in the Nigerian savanna, improved access to productive resources significantly enhanced output performance.

The broader literature on agricultural finance in Nigeria also demonstrates a positive relationship between credit accessibility and agricultural performance. Studies by Osabohien et al. (2020), Olowe et al. (2023), and Ayobami et al. (2025) consistently found that farmers with access to agricultural credit recorded higher productivity, improved food security outcomes, and better welfare indicators than farmers without such access. Similarly, Alexis et al. (2025) reported that improved financial access increased market participation and farm income among soybean farmers across West Africa.

Evidence relating specifically to women farmers further confirms the importance of financial inclusion in agricultural development. Sunday et al. (2025), Vandi et al. (2022), and Nnamani and Iwezor-Magnus (2024) found that access to agricultural credit significantly improved productivity, technology adoption, and farm performance among female farmers. Likewise, Nsikan et al. (2025) and Kamara et al. (2025) showed that women farmers face greater financial constraints than men due to limited collateral ownership, weaker market participation, and institutional barriers within formal lending systems.

Despite the broad agreement regarding the positive contribution of agricultural credit to productivity, findings differ regarding the magnitude and channels through which credit influences agricultural performance. While some studies emphasize direct productivity effects through increased input use and improved technical efficiency (Mairabo et al., 2023; Olowe et al., 2023), others highlight indirect pathways through technology adoption, market participation, and household welfare improvements (Ayobami et al., 2025; Alexis et al., 2025). Similarly, although several studies identify collateral limitations and financial exclusion as major barriers facing women farmers

(Nsikan et al., 2025; Nnamani & Iwezor-Magnus, 2024), there remains limited consensus regarding the relative importance of socio-economic characteristics such as age, farming experience, and household structure in determining productivity outcomes.

Furthermore, while many Nigerian studies have examined agricultural credit among women farmers, most focused on general agricultural activities, mixed farming systems, or broad categories of smallholder farmers rather than rural women specifically engaged in soybean production. Studies focusing on soybean production have largely concentrated on agronomic practices, technology adoption, technical efficiency, or climate-related constraints with less attention to the role of credit accessibility among female producers.

A geographical gap is also evident in the literature. Existing studies have been conducted predominantly in the South-West, South-South, North-East, and selected areas of Northern Nigeria, while empirical evidence focusing specifically on rural women soybean farmers in Sabon Gari Local Government Area of Kaduna State remains scarce. Given differences in institutional arrangements, access to financial services, production environments, and socio-economic characteristics across locations, findings from other regions may not adequately explain the realities facing women soybean farmers in the study area.

Methodologically, previous studies employed diverse analytical approaches including logistic regression, stochastic frontier analysis, Cobb-Douglas production functions, and propensity score matching. However, relatively few studies have directly examined the effect of agricultural credit accessibility on the output performance of rural women soybean farmers using a framework that simultaneously considers both financial

and socio-economic determinants of production.

It is against these conceptual, geographical, and methodological gaps that this study investigates the effect of agricultural credit accessibility on the output performance of rural women soybean farmers in Sabon Gari Local Government Area of Kaduna State, Nigeria.

3. Methodology

3.1 Research Design

The study adopted a descriptive and analytical survey research design. The descriptive component was used to examine the socioeconomic characteristics of rural women soya bean farmers using frequencies, percentages, and mean values. The analytical component employed multiple regression analysis to examine the relationship between agricultural credit accessibility and soya bean output performance. This design was considered appropriate because it enables the collection and analysis of cross-sectional data from respondents, provides a clear description of key study variables, and allows for the estimation of the nature and magnitude of the relationship between credit access and output while controlling for other relevant factors (Gujarati & Porter, 2009; Creswell, 2014).

3.2 Study Area

The study was carried out in Sabon Gari Local Government Area of Kaduna State in North-West Nigeria. The area is located between latitudes 11°06'N and 11°15'N and longitudes 7°36'E and 7°45'E, and falls within the Northern Guinea Savannah ecological zone, which is generally suitable for soya bean cultivation because of its moderate rainfall pattern and relatively fertile soils.

Agriculture is the main economic activity in the area, with soya bean serving as both a food and cash crop that contributes to household income and soil fertility

improvement through nitrogen fixation. Despite this potential, soya bean production in the area is mostly carried out on a small scale and is constrained by poor access to improved inputs, modern farming technologies, and agricultural credit. These challenges are more pronounced among rural women farmers, who often face additional barriers such as lack of collateral and limited access to formal financial services.

Sabon Gari Local Government Area was therefore selected for this study because it provides a suitable rural setting where agricultural potential exists alongside persistent credit constraints. This makes the area appropriate for examining how access to agricultural credit influences soya bean output performance among rural women farmers.

3.3 Population of the Study

The population of the study comprises 709 registered female soya bean farmers in Sabon Gari Local Government Area of Kaduna State. According to the Kaduna State Ministry of Agriculture and Forestry (2024), the total number of registered soya bean farmers in the area is 2,625, of which 709 are female. The study specifically focused on these female farmers because they constitute the target population for the study.

3.4 Sample Size and Sampling Technique

3.4.1 Sample Size Determination

A total sample size of 256 respondents was selected from the study population. This sample size is considered appropriate and sufficient, as it was determined using the Taro Yamane Formula (1967) at a 5% level of significance.

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

(1)

Where:

n = sample size

N = population size (709)

e = margin of error (0.05)

Therefore, the sample size for the study is calculated as:

$$n = \frac{709}{1 + 709(0.05)^2}$$
$$= \frac{709}{1 + 709(0.005)}$$

$$n = 1 + 709(0.005)709 = 255.7 = 256$$

Hence, a sample size of 256 soya bean farmers was used in this study.

3.4.2 Sampling Technique

The study adopted a simple random sampling technique, which gives every female soya bean farmer an equal opportunity of being selected. This approach helps to reduce selection bias and ensures that the sample fairly represents the population under study.

3.5 Sources and Methods of Data Collection

The study utilized primary data collected through a structured questionnaire administered to rural women soya bean farmers in the study area. The questionnaire was divided into four sections covering respondents' socioeconomic characteristics, access to agricultural credit, farm production details, and income and welfare indicators. Both closed-ended and open-ended questions were used, while issues relating to credit accessibility and constraints were measured using a five-point Likert scale ranging from 1 = Strongly Disagree to 5 = Strongly Agree. To ensure content validity, the instrument was reviewed by experts and pre-tested among farmers outside the study sample before final administration.

3.6 Model Specification

The functional relationship is expressed as:
 $SYO = f(CA, EXP, AGE)$

The econometric model is specified as:

$$SYO_t = \beta_0 + \beta_1 CA_t + \beta_2 EXP_t + \beta_3 AGE_t + \mu$$

Where:

SYO = Soya bean output (Measured by average yield per hectare)

CA = Credit Accessibility

EXP = Years of farming experience

AGE = Age of farmer

μ = Error term

T = Time Period

4. Results and Discussion of Findings

The findings revealed that access to agricultural credit has a positive and significant effect on soya bean output among rural women farmers. This is because credit enables farmers to purchase improved seeds, fertilizers, agrochemicals, and other essential inputs in adequate quantities and at the appropriate time,

4.1 Descriptive Statistics

Table 1

Descriptive Statistics Result

Variable	N	Min	Max	Mean	Std. Deviation
Average Soyabeans yield per hectare (SYO)	256	1	4	2.15	.775
Amount of credit received in the last farming season (CA)	256	1	4	2.28	.937
Years of farming experience (EXP)	256	1	4	2.30	.899
Age Group (AGE)	256	1	4	1.89	.752
Valid N (listwise)	256				

Source: Researcher's SPSS Linear Regression (LS) Analysis Output, 2026

Table 1 shows the descriptive statistics summary of the key variables used in the study, including their mean values, standard deviations, minimum, maximum, and number of observations. The table shows that the measure of average Soyabeans yield per hectare (SOY) has a minimum value of 1 and 4 as maximum value, indicating that 1 is the lowest value in the data set while 4 is the highest value in the data set, which signifies that there are no serious outlier issues in the data set. The average soya bean yield per hectare (SOY) has a mean value of 2.15 and a standard deviation of 0.775, indicating that the data deviates from both sides of the mean value by 0.775. This also implies that most farmers operate around a similar productivity level, and mostly, there is moderate inequality in output, likely due to

thereby increasing productivity and output. The result supports the Credit Rationing Theory of Stiglitz and Weiss (1981), which posits that limited access to finance constrains productive investment and output. The finding is also consistent with previous studies that reported a positive relationship between agricultural credit accessibility and farm productivity among smallholder farmers and rural women producers.

differences in access to inputs, credit, and farming experience.

The results from the table also indicate that the minimum and maximum values of the amount of credit received in the last farming season (CA) are 1 and 4, respectively; this indicates the non-existence of outlier issues from the data set. The mean value of 2.28 and a standard deviation of 0.937 in the data indicate considerable variation in access to credit among respondents, suggesting that some farmers have better access to credit, while others face likely constraints; thus, credit distribution is uneven across the sample. The implication is that farmers with higher credit access are more likely to purchase inputs and achieve higher yields than those with less or no access to credit.

Furthermore, the descriptive result also revealed that the minimum and maximum values of years of farming experience

(EXP) are 1 and 4, respectively; this indicates the non-existence of outlier issues from the data set. The mean score of 2.30 and standard deviation of 0.899 suggest that most of the farmers have a relatively reasonable level of farming experience, as it recorded the highest mean value. The result also shows some degree of variation among the respondents, indicating that while some farmers are relatively new to soya bean farming, others are more experienced. This implies that farming experience plays an important role in enhancing decision-making, improving the use of resources, and increasing overall

4.2 Regression Results

Table 2

Model Summary

Model	R	R Square	Adjusted R-Square	Std. Error of the Estimate
1	.255 ^a	.065	.054	.753

Source: Researcher's SPSS Linear Regression (LS) Analysis Output, 2026

Table 2 shows the model summary of the simple regression analysis carried out in this study. The table revealed that the analysis returned a coefficient of correlation (R) of 0.255, indicating a weak positive correlation between the dependent variable (soya bean yield per hectare) and the explanatory variables (credit, experience age group). The table also shows that the coefficient of determination (R-squared) value is 0.065 and the adjusted R Squared of 0.054. This implies that 6.5% of the variation in soya bean production is explained by the variables included in the model. The Adjusted R² value of 0.054 shows that, after accounting for the degrees of freedom, the explanatory power of the model slightly decreases, indicating that

farm efficiency. The result from the table also indicates that the minimum and maximum values of the age group (AGE), which was introduced as a control variable to explain production differences, are 1 and 4, respectively, indicating the non-existence of outlier issues in the data set. The mean value of 1.89 and a standard deviation of 0.752 suggest a moderate variation in age distribution. This implies that the farming population is relatively young and economically active; hence, there is a balanced mix of younger and older farmers.

the independent variables explain about 5.4% of the variation in soya bean production. The results also show a standard error of 0.753, which reflects the average distance between the observed and predicted values, indicating the level of dispersion in the model's residuals.

The relatively low R² suggests that soya bean production is influenced by several other factors not captured in the model, such as fertilizer usage, seed quality, access to extension services, and weather conditions. However, despite its limited explanatory power, the model still offers useful policy insights, particularly regarding the roles of credit access and farming experience in influencing production outcomes.

Table 3
ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	9.987	3	3.329	5.864	.001 ^b
Residual	143.071	252	.568		
Total	153.059	255			

Source: Researcher's SPSS Linear Regression (LS) Analysis Output, 2026

Table 3 is the ANOVA table for the simple regression analysis, which tests for the overall statistical significance of the regression model. The ANOVA result indicates that the F-value of (5.864) tests whether the regression model explains a significant amount of variance in soya bean production, and the p-value ($0.001 < 0.05$)

suggests that the independent variables jointly have a significant effect on soya bean production. Thus, there is a collective explanatory power of credit experience and age. Therefore, policies targeting these variables (especially credit and experience) can jointly improve agricultural productivity.

Table 4

Regression Coefficients Table

Variable	(β)	Std. Error	Beta	T	Sig. (p-value)	Tolerance	VIF
(Constant)	1.533	.213		7.204	.000		
Amount of credit received in the last farming season (CA)	.124	.051	.150	2.447	.015	.992	1.008
Years of farming experience (EXP)	.167	.053	.194	3.184	.002	.997	1.003
Age Group (AGE)	-.026	.063	-.025	-.410	.682	.995	1.005

Source: Researcher's SPSS Linear Regression (LS) Analysis Output, 2026

Table 4 is the regression coefficients table that shows the coefficients of the independent variables with their associated values. The constant term of the model is positive (1.533) and statistically significant at the 1% level ($\beta_0 = 1.533$, $p < 0.000$). This indicates that when all explanatory variables are held constant, the baseline level of soya bean output is 1.533 units. This baseline may be influenced by other unobserved factors not included in the model, such as soil fertility, weather conditions, and traditional farming practices.

In addition, the coefficient for the amount of credit received in the last farming season is positive and statistically significant at

the 5% level ($\beta = 0.124$, $p = 0.015$). This suggests that a one-unit increase in credit access leads to a 0.124 increase in soya bean yield per hectare, assuming other factors remain constant. This finding is consistent with several previous studies, including Bebeley et al. (2025), Ayobami et al. (2025), Kamara et al. (2025), Sunday et al. (2025), Alexis et al. (2025), Nnamani and Iwezor-Magnus (2024), and Osabohien (2020), all of which report a positive relationship between credit access and soya bean production. However, it contrasts with the findings of Nsikan et al. (2025), Olowe et al. (2023), and Tanko et al. (2023), who reported a negative relationship in their respective studies.

Overall, the result implies that access to credit plays a vital role in improving agricultural productivity. Farmers with better access to credit are more capable of purchasing improved seeds and fertilizers, hiring labour, and adopting modern farming practices. This highlights credit as an important production-enabling factor, suggesting that improved access to agricultural finance can significantly enhance soya bean output among female farmers.

Similarly, the coefficient for years of farming experience ($\beta = 0.167$, $p = 0.00$) is positive and statistically significant at the 1% level. This indicates that a one-unit increase in farming experience leads to a 0.167 increase in soya bean yield. The result suggests that more experienced farmers tend to use resources more efficiently, manage farm risks better, and apply improved farming practices more effectively. This implies that farming experience serves as an important form of human capital that contributes significantly to higher productivity. The finding is in line with studies such as Nnamani and Iwezor-Magnus, which highlight the positive role of key enabling factors in improving the output performance of rural women soya bean farmers. On the contrary, the age group introduced as a control variable has a negative and insignificant relationship with soya bean production ($\beta = -0.026$, $p = 0.682$), indicating that the age group does not have a meaningful effect on soya bean production. This suggests that productivity is not determined by age alone; what matters more is experience rather than age. The result is in line with the findings of Tanko et al (2023), who found age to negatively influence the adoption of soybean production in their study.

In conclusion, the regression results show that access to credit and farming experience are the key factors influencing soya bean production among female

farmers in the study area. Access to credit strengthens farmers' ability to invest in essential inputs, while farming experience improves efficiency, decision-making, and overall farm management. On the other hand, age was not statistically significant, indicating that productivity depends more on practical experience than on the age of the farmers.

5. Conclusion and Recommendations

This study examined the effect of agricultural credit accessibility on the output performance of rural women soya bean farmers in Sabon Gari Local Government Area of Kaduna State using cross-sectional survey data and multiple regression analysis. The findings revealed that access to agricultural credit and farming experience have positive and statistically significant effects on soya bean output, while age has no significant influence on production performance. The results suggest that productivity among rural women farmers is driven more by access to productive resources and accumulated farming knowledge than by demographic characteristics.

The study therefore concludes that inadequate access to agricultural credit remains a major constraint to improving output performance among rural women soya bean farmers in the study area. It also concludes that farming experience enhances productivity by improving farmers' ability to make efficient production decisions and utilize available resources effectively. Based on these findings, the study recommends that government agencies, financial institutions, and agricultural development programmes should expand affordable and gender-responsive credit schemes targeted at rural women farmers to improve their access to production finance. Financial institutions should also review collateral requirements and lending conditions that restrict women farmers' participation in

formal credit markets. Furthermore, efforts should be made to support experienced farmers in accessing larger credit facilities

that correspond to their production capacity and investment needs.

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