

Analysis of horticulture farmers credit provision in Kemungsarilor Village, Panti District, Jember Regency

Mudahar Abusiri*, Budi Santosa, Jatmiko Setiaji

Tribhuwana Tungadewi University, Malang, Indonesia

*Correspondent Author Email: email: mudaharabusiri@gmail.com

Abstract. This study aims to analyze the factors influencing the success of credit provision to horticultural farmers in Kemuningsarilor Village, Panti Sub-district, Jember District, East Java. Given the capital-intensive nature of horticultural farming, access to credit is essential to support productivity. The research employed a census approach, using a saturated sampling technique that included all 50 farmers in the population. Data were analyzed using multiple linear regression to evaluate the influence of farmer experience, education, income, credit interest rates, and credit terms on the success of credit provision. The results indicate that farmer experience, income, interest rates, and credit terms significantly affect the success of credit provision, while education shows no significant impact. This is because, in rural agricultural settings, success in credit provision is more strongly influenced by practical farming experience, financial capability, and institutional criteria than by formal educational attainment. These results highlight the importance of strengthening farmers' financial readiness and providing tailored credit schemes that consider their experiential knowledge rather than relying solely on formal qualifications. Future research is recommended to explore additional socio-economic and behavioral factors, such as financial literacy, access to farming advisory support, and risk attitudes, which may further explain variations in credit success among farmers.

Keywords: Experience, Farmer Education, Farmer Income, Credit Term, Interest Rate, Credit Success

INTRODUCTION

The provision of credit for farmers as a form of business formed by the government and financial institutions strongly supports the agricultural sector, especially in order to increase productivity (Agbeno, 2021; Taremwa et al., 2021; Benson & Faguet, 2023). Credit is crucial for horticultural farmers because this agriculture often requires considerable capital, ranging from seed procurement and plant maintenance to harvesting. Business capital is one of the key factors for farmers to manage their farming, so the availability of capital is an important issue in increasing agricultural success (Dai et al., 2019).

In Panti District, Jember Regency, the horticultural agriculture sector is a key field with a significant impact on the regional economy. Farmers of Kemuningsari Lor Village, located in Panti District, mainly depend on cultivating horticultural crops such as vegetables, fruits, and medicinal plants. However, despite the considerable agricultural potential in this region, horticultural farmers still face several challenges, one of which is limited capital in business development. The use of credit to increase horticultural productivity still encounters various obstacles. Credit acts as additional capital to finance inputs and production facilities, thus enabling farmers to increase their production output (Scott, 2013; Abdurohim & Meirinawarti, 2019; Barusman et al., 2021).

Various internal and external factors influence the low credit disbursement to the agricultural sector. Viewed from the farmer's side, they face difficulties repaying credit and often do not have adequate credit guarantees. Meanwhile, financial institutions are still worried about the risk of default or bad loans, especially due to production in the agricultural sector which tends to be seasonal. As a result, banks tend to limit themselves by refraining from lending to this sector. The purpose of the research is to analyze the factors that affect the success of credit distribution to horticultural farmers in Panti District, focusing on farmers in Kemuningsari Lor Village. With a better understanding of these factors, it is hoped that credit disbursement policies can become more effective and targeted, thereby supporting the development of the horticultural sector in the region

METHODS

2.1 Place and Time of Research

The location of the research is Kemuningsarilor Village, Panti District, Jember Regency, East Java, from January to March 2024.

2.2 Types of Research

Survey analysis through quantitative methods. The survey analysis was chosen because data was collected and information from respondents was obtained through questionnaires as the main instrument (Scott, 2018). states that quantitative methods, which are research methods based on the philosophy of positivism, are used to research a certain population or sample by collecting data through research instruments and statistical analysis to test the specified hypothesis.

2.3 Sampling Method

This study uses the *Non Probability Sampling method* based on the Saturated Sampling technique, where each member of the population is selected as a sample. This technique was chosen because of the relatively small population size. In the context of this study, the entire population, consisting of 50 farmers, was used as a sample due to its limited number. The sample in this study includes the chairman and members of the farming group based on the criteria of running a hobby farming for the past 5 years, taking credit for farming capital, and being active in farmer groups.

2.4 Data Collection Techniques

The data collection technique was carried out to measure the value of variables in this study through a questionnaire, which was included in the primary data and collected directly at the research location. Primary data collection in the form of questionnaires, observations, interviews and documentation (Rouf, 2011). The measurements in this study were carried out using a scale *Likert* With five levels of answer preference, where respondents give a score between 1 and 5, ranging from 1 for "strongly disagree" to 5 for "strongly agree."

2.5 Data Analysis

Multiple linear regression analysis aims to find out whether independent variables affect dependent variables. In this study, independent variables included farmer experience (X_1), farmer education (X_2), farmer income (X_3), credit interest rate (X_4) and credit term (X_5), while the success of credit was expressed by (Y) which is a dependent variable. The model of the success of crediting horticultural farmers in this multiple linear regression equation is arranged as Formula 1:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 \dots\dots\dots (1)$$

Where:

- Y = Credit Success
- a = Consanta
- b = coefficient
- x1 = Experience
- x2 = Farmer Education
- x3 = Farmer Income
- x4 = Credit Interest Rate
- x5 = (X_5)

2.6. Validity and Reliability Tests

Validity test is one of the tests carried out to determine whether a questionnaire is valid. The questionnaire is considered valid if the question can explain the matrix to be measured. The validity test refers to the r-value of the table and the calculated r. If the value of r is calculated $> r$ of the table and has a positive value, then the research instrument is considered valid. However, if r calculates $< r$ of the table and is negative, then the instrument is considered invalid (Janti, 2014). On the other hand, reliability testing involves a series of measurements or instruments that show the consistency of results when measurements are taken repeatedly. A variable is considered reliable if *alpha Cronbach* ≥ 0.60 (Riyani et al., 2017). High reliability ensures that research instruments produce stable and consistent data.

2.7 Classical Assumptions

2.7.1 Normality Test

Normality testing is used to determine whether residual or interference variables in a multiple linear regression model are normally distributed. This test used the Kolmogorov-Smirnov test at a significance level of 0.05. If the significance value is less than 0.05, it indicates a significant difference. However, if the significance value is greater than 0.05, it means that the sample is not from a population that follows the normal distribution (Paryanti et al., 2024).

2.7.2 Heteroskedasticity Test

The heteroscedasticity test was used to identify the presence of heteroscedasticity problems in the regression model, i.e. the inconsistency of residual variance among the observations in the model. Heteroscedasticity should be avoided as one of the prerequisites in regression analysis. This residual variance disparity, if it occurs, can affect the efficiency of the regression estimator and the validity of the hypothesis test (Panggabean et al., 2020; Bramasto & Khairiani, 2022; Saswita et al., 2024). Heteroscedasticity can be tested using various methods, one of which is using the scatterplot test.

2.7.3 Multicollinearity Test

Multicollinearity testing aims to identify the presence of intercorrelation or collinearity among independent variables in a regression model (Indri & Putra, 2022). The optimal regression model does not show any correlation between independent variables. The decision on the test was based on a tolerance value of ≥ 0.1 with a VIF value of ≤ 10 , which indicates the absence of multicollinearity (Shrestha, 2020; Rejivas et al., 2023). Thus, all variables meet the classical assumption rules so that the model can be used to estimate the provision of credit to horticultural farmers.

2.8 Hypothesis Testing

2.8.1 t-test (Partial test)

To find out how significant the influence of independent variables is on the dependent variable partially, a t-test is performed. This test was performed at a significance level of 0.05. A significance value of t below 0.05 indicates that there is a significant influence between the independent variable and the dependent variable (H_0 is rejected), and a significance value of t above 0.05 indicates that there is no significant influence between the two (H_0 is accepted) (Latvia et al., 2016; Hikmah et al., 2018; Lestari et al., 2020).

2.8.2 F Test (Simultaneous Test or Model Test)

The F test is used to measure the significance of the influence of each independent variable on the dependent variable simultaneously. A probability significance value of less than 0.05 indicates that each independent variable affects the dependent variable simultaneously, while a significance value of more than 0.05 indicates that all independent variables do not significantly affect the dependent variable (Lestari et al., 2020; Siegel & Wagner, 2022).

2.8.3 Coefficient of Determination Test (R^2 Test)

The R^2 test functions in determining the magnitude of a variable derived from the dependent variable intended for the Independent variable (Lestari et al., 2020). Ghosalli (2018) states that the purpose of the determination coefficient test is to determine how much capacity independent variables have to simultaneously explain changes caused by dependent variables.

RESULT AND DISCUSSION

3.1 Characteristics of Respondents

The characteristics of the respondents describe the condition of the respondents consisting of gender, age, education and length of work. The data of the characteristics of the research respondents are presented in Table 1. The survey results show that the majority of respondents who apply for credit are male farmers. A total of 32 male farmers use credit, which accounts for 64% of the total respondents, while only 18 or 36% of female farmers are women. Research by (Gebeyehu et al., 2019; Mulatu et al., 2020; Kiros & Meshesha, 2022) shows that male farmers generally have wider access to credit than female farmers. In terms of age group, the majority of farmers who became Based on the age group, the majority of farmers who became respondents were included in the age group of 41 to 50 years, namely

26 people equivalent to 52%. Research by Kiros & Meshesha, (2022) concludes that with age, farmers are more interested in accessing credit. Most of the farmer respondents have their last education at the junior high school level, which is 26 people or around 46%, while the least are S1 graduates with only 2 respondents or 4%. Mulatu et al., (2020) stating that farmers with higher levels of education tend to find it easier to obtain and understand credit-related information. The respondents with the highest farming experience were those who had farmed for around 11-20 years, with a total of 19 respondents (38%).

Table 1. Respondent Characteristics

Characteristic		Total	Percentage (%)
Gender	Man	32	64
	Woman	18	36
Age	20-30	2	4
	31-40	10	20
	41-50	26	52
	>50 Years	12	24
Education	Elementary School	15	30
	Junior High School	23	46
	Senior High School	10	20
	Undergraduate	2	4
Length of business (Years)	1 to 10	14	28
	11 to 20	19	38
	21 to 30	11	22
	>31	6	12

Source: Primary data processed 2024

3.2 Validity and Reliability Tests

3.2.1 Validity Test

Table 2. Validity Test Results

Variable	Indicators	r-value	Variable	Indicators	r-value
Farming Experience	X1.1	0,657	Credit Interest Rates	X4.1	0,534
	X1.2	0,704		X4.2	0,506
	X1.3	0,598		X4.3	0,712
	X1.4	0,554		X4.4	0,455
	X1.5	0,548		X4.5	0,687
	X1.6	0,562		X4.6	0,605
Farmer Education	X2.1	0,660	Credit Term	X5.1	0,584
	X2.2	0,603		X5.2	0,594
	X2.3	0,538		X5.3	0,606
	X2.4	0,586		X5.4	0,653
	X2.5	0,560		X5.5	0,708
	X2.6	0,568		X5.6	0,684
Farmers' Income	X3.1	0,561	Credit Success	Y1.1	0,559
	X3.2	0,681		Y1.2	0,575
	X3.3	0,484			
	X3.4	0,609			
	X3.5	0,617			
	X3.6	0,539			

Source: Primary data processed 2024

Each question for each variable has an r-count (*Corrected Item Total Correlation*) value $\geq$ r-table which is 0.2787. Thus, all items are considered valid because the r-calculated value of each variable exceeds the r-table value.

3.2.2 Reliability Test

Table 3. Reliability Test Results

Variable	Cronbach α	Threshold	Information
Farming Experience	0,635	0,60	Reliable
Farmer Education	0,616	0,60	Reliable
Farmers' Income	0.606	0,60	Reliable
Credit Interest Rates	0,615	0,60	Reliable
Credit Term	0,710	0,60	Reliable
Credit Success	0,648	0,60	Reliable

Source: Primary data processed 2024

Referring to Table 3, the entire variable has an alpha Cronbach α value of ≥ 0.60 . This indicates that the six instruments are declared reliable.

3.3 Classical Assumption Test

3.3.1 Normality Test

Table 4. Normality Test Results

Kolomogorov-Smirnov Result		Unstandarized Residual
N		50
Normal Parameters	Mean	.000
	Std. Deviation	.884
Most Extreme Differences	Absolute	.0767
	Positive	.0767
	Negative	-.0767
Test Statistic		.0767
Asymp. Sig. (2-Tailed)		.200

Source: Primary data processed 2024

Referring to Table 4, the results of the Normality test using the Kolmogorov-Smirnov method in the multiple linear regression model between variables X and Y produced a significance value of 0.200. Because the value exceeds 0.05 ($p > 0.05$), it is interpreted that the residual is normally distributed and the assumption of normality has been met.

3.3.2 Heterokedaticity Test

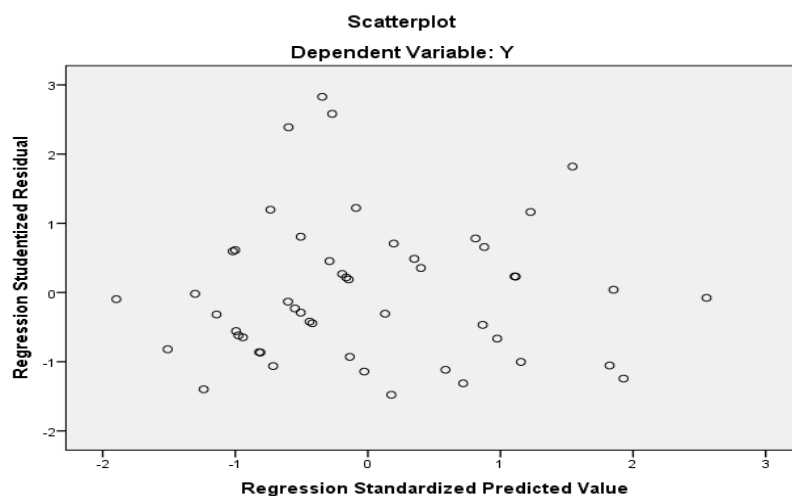


Figure 1. Heterokedasticity Test Results using scatterplots

Figure 1 illustrates the spread of the scattered data points. The dots are scattered randomly without forming a specific pattern. Therefore, the data was stated to have no symptoms of heteroscedasticity.

3.3.3 Multicollinearity Test

Table 5. Multicollinearity Test Results

Model	Collinearity Statistics	
	Tolerance	VIF
Farming Experience (X ₁)	.576	1.735
Farmer Education (X ₂)	.808	1.237
Farmer Income (X ₃)	.564	1.772
Credit interest rates (X ₄)	.607	1.647
Credit term (X ₅)	.630	1.588

Source: Primary data processed 2024

The results of the multicollinearity test using tolerance values and VIF produced significant results. The VIF value of each independent variable ≤ 10 with all *tolerance* values exceeding 0.1 indicates that there is no multicollinearity problem.

3.4 Simultaneous Test (F Test)

F-test to find out if all independent variables simultaneously have a significant effect on the dependent variables. Based on Table 6, it shows that the value of $F_{cal} = 27.683 \geq F_{table} = 2.43$ significantly $= 0.000 \leq 0.05$ ($\alpha=5\%$), this value shows that independent variables simultaneously have a significant effect on dependent variables, namely the success of granting credit. From these results, it can be concluded that simultaneously farming experience, farmer education, farmer income, credit interest rate and credit term affect the success of providing credit for horticultural farming.

Table 6. Simultaneous Test Results (F Test)

Model	Sum of Squares	Df	Mean Square	F	Sig
Regression	120.51	5	24.102	27.683	.000 ^b

3.5 Partial Test (t-test)

Table 7. Partial Influence Test (t-Test)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.444	2.557		1.347	.185
Farming Experience (X ₁)	.240	.105	.223	2.289	.027
Farmer Education (X ₂)	.118	.088	.111	1.346	.185
Farmer Income (X ₃)	.326	.105	.306	3.108	.003
Credit interest rates (X ₄)	.288	.097	.281	2.957	.005
Credit term (X ₅)	.203	.084	.224	2.405	0.20

Source: Primary data processed 2024

Table 7 show the t-test result to assess how significant the influence of the partially independent variable is on the dependent variable. The farming experience variable (X₁) shows a T_{hal} value of $2.289 \geq T_{table}$ is 2.0153 with a significance of 0.027 ($sig < 0.05$). This indicates that the farming experience variable (X₁) has a significant positive effect on the success of lending (Y). The farmer education variable (X₂) with a T_{hal} value = 1.346 $\leq T_{table}$ = 2.0153 with a significant level of 0.185 ($sig > 0.05$) means that the farmer education variable has no effect on the success of providing credit (Y). The farmer income variable (X₃) shows the value of T_{hitung} = 3.108 $\geq T_{table}$ = 2.0153 with a

significance of 0.003 (sig<0.05). This indicates that the variable of farmer income (X_3) has a significant positive effect on the success of credit (Y). The variable of the credit interest rate (X_4) with the value of $T_{hitung} = 2.957 > T_{table} = (2.0153)$ with a significant of 0.005 (sig<0.05) means that there is an influence between the variable of the credit interest rate on the success of lending (Y). The credit term variable (X_5) shows the value of $T_{hitung} = 2.405 \geq T_{table} = 2.0153$ at a significance level of 0.020 (sig<0.05). This indicates that the credit term variable (X_5) has a significant positive effect on the success of granting credit.

3.6. Coefficient of Determination (R^2)

The coefficient of determination basically measures the extent to which the model is able to explain variations in dependent variables. The higher the value of the determination coefficient, the better the model is able to explain its dependent variables or it can be said that the better the model. The results of data analysis on the R^2 test are shown in Table 8.

Table 8. Determination Coefficient Test Results (R^2)

R	R Square	Adj. R Square	Std. Error
.871 ^a	.759	.731	.93309

Source: Primary data processed 2024

After the calculation was carried out, the value of the determination coefficient was obtained, which was 0.759. Therefore, it can be concluded that overall all independent variables affect the success of lending by 75.9%, and the rest, which is 24.1%, is influenced by other factors. Or in other words, the model of success in providing credit for horticultural farmers is explained by farming experience, farmer education, farmer income, credit interest rate and credit term of 75.9%.

3.7 Multiple linear regression

Referring to Table 6, the results of the calculation of independent variables can be formulated into the success model of lending horticultural farmers as follows:

$$Y = 3.444 + 0.240 X_1 + 0.118 X_2 + 0.326 X_3 + 0.288 X_4 + 203 X_5$$

3.7.1 The effect of farming experience on credit success

The variable of farming experience (X_1) with a value of $T_{hitung} = 2.289 > T_{table} = 2.0153$ at a significant 0.000 (sig<0.05) This indicates that there is a significant positive influence on the farming experience and the success of credit, so H_0 is rejected and H_1 is accepted. It was concluded that the variable of farming experience had a positive and significant influence on the success of granting credit. Because these influences are positive, the relationship between farming experience and credit success is unidirectional, which means that improved farming experience tends to increase credit success.

Based on research, the farming experience of farmers in Kemuningsari Lor Village, Panti District, Jember Regency, is the highest on average for 11-20 years. Farming experience is important in determining the success of providing credit to horticultural farmers. Longer farming experience usually provides better knowledge, experience, and skills in land management and cultivation techniques and has high productivity (Bakhri, 2016; Dewi et al., 2017; Fadhilah et al., 2018). This knowledge allows farmers to manage risk better, increase productivity, and ultimately, give lenders confidence in the farmer's ability to repay loans. In line with research (Balgah et al., 2022), farming experience was identified as one of the key factors facilitating access to credit for farmers. Similarly, menuurt Javed et al., (2022) Farming experience was found to have a positive and significant impact on the use of agricultural credit.

The results of this study further highlight that farming experience is crucial for operational efficiency and financial reliability among horticultural farmers. Farmers who have more experience exhibit improved technical skills, better risk management capabilities, and a greater comprehension of market dynamics, which all lead to increased agricultural productivity and income steadiness. Thus, policies aimed at enhancing farmers' access to credit should view farming experience as a crucial eligibility factor and promote mentorship initiatives to speed up experiential learning for farmers with less experience.

3.7.2 The influence of farmers' education on the success of credit

The variable of farmer education (X_2) with a value of $T_{\text{count}} = 1.346 \leq T_{\text{table}} = 2.015$ at a significance level of 0.185 ($\text{sig} > 0.05$) explains that there is no significant influence between farmer education and the success of credit. This may be due to the fact that practical skills and hands-on experience in farming are preferred by financial institutions over formal education backgrounds. Thus, there is no relationship between the variable of farmer education and the success of credit, so the second hypothesis (H_a) is rejected. Farmers with low education tend to be more hesitant to try new things and less cautious in making decisions, including in choosing the type of credit from financial institutions. Education affects the lifestyle of farmers, where farmers with higher education will be more selective in making choices, including in choosing financial institutions (Rahayu, 2015).

3.7.3 The effect of farmers' income on the success of credit

The variable of farmer income (X_3) with a value of $T_{\text{count}} = 3.108 \geq T_{\text{table}} = 2.015$ at a significance level of 0.003 ($\text{sig} < 0.05$) showed a significant positive influence between farmer income and the success of granting credit. This means that the variable income of farmers significantly affects the success of lending by 3,108. Because of this positive influence, the increase in farmers' income is predicted to increase the success of credit provision. Thus, farmers' income has a positive and significant effect on the success of credit, and the third hypothesis is accepted. According to Iski et al., (2016) Income is one of the aspects that is raised by lenders. Farmers with higher incomes, have a better capacity to meet credit repayment obligations thereby increasing their chances of getting credit. This supports the finding in Kemuningsari Lor Village, that higher incomes allow horticultural farmers to more easily access credit and use the funds to increase the productivity and sustainability of their businesses. Thus, enhancing market access, offering training on value-added agricultural methods, and enabling access to premium inputs can indirectly bolster the effectiveness of credit programs by increasing farmers' earning capabilities. Financial institutions and policymakers should regard income enhancement as an essential aspect of sustainable rural credit efforts instead of considering credit provision and income generation as distinct matters.

3.7.4 The effect of credit interest rates on the success of lending

The variable lending rate (X_4) has a value of $T_{\text{count}} = 2.957 \geq T_{\text{table}} = 2.015$ at a significance level of 0.005 ($\text{sig} < 0.05$) explaining the significant positive influence between the lending rate and the success of lending. This means that the variable lending rate significantly affects the success of lending with a value of 2.957. Because of this positive influence, an increase in lending rates is predicted to increase the success of lending services. Thus the lending rate has a significant positive influence on the success of lending, so the fourth hypothesis is accepted.

The findings of this research indicate that the lending rate is crucial in affecting the effectiveness of credit allocation to farmers. An organized and reasonable lending rate can enhance farmers' interest and trust in using credit options to aid their farming endeavors. When interest rates are seen as reasonable and sustainable, farmers are more inclined to seek and successfully secure loans, thereby boosting agricultural productivity and financial stability. The credit interest rate is the amount of interest determined by the bank in the loan for the customer. Based on research carried out by (Herman, 2023), interest rates have a significant influence on decisions in lending. By setting appropriate and affordable interest rates, people's interest in applying for loans will increase. In addition, considerations related to interest rates also have an impact on the decision to take credit (Huda et., al, 2019; Siwi, 2019). This emphasizes that interest rates significantly affect borrowers' decisions about accessing credit. Therefore, setting appropriate lending rates becomes a key strategy for financial institutions to encourage credit uptake, strengthen the agricultural sector, and support broader economic growth in rural communities.

3.7.5 The effect of the credit term on the success of the granting of credit

The variable of credit term (X_5) with a value of $T_{\text{cal}} = 2.405 > T_{\text{table}} = 2.015$ with a significant level of 0.020 ($\text{sig} < 0.05$), meaning that the variable of credit term (X_5) has a significant positive effect on the success of granting credit. So, because the effect is positive, it means that the relationship between the variable of the credit term and the success of the credit period is partially unidirectional, meaning that the credit term is increased, the success of the credit is predicted to increase. The public's interest in taking credit can be influenced by the suitability of the credit term period, repayment,

compensation, and credit term extension (Suliasa et al., 2018). The Longer credit terms provide flexibility for farmers to better plan and manage their loan repayments, which in turn increases their chances of success in repaying loans on time. More adaptable and prolonged credit conditions enable farmers to align repayment schedules with their agricultural cycles, ensuring that repayments happen when income is available, thus reducing the chance of default. This finding indicates that financial institutions must develop credit products that cater to the seasonal characteristics of farming, offering repayment plans that correspond with the real timelines of agricultural output. By doing so, lenders improve farmers' capacity to repay loans while cultivating trust and lasting partnerships between farmers and financial institutions, which ultimately supports the enhancement of financial inclusion and the sustainability of rural credit systems

CONCLUSION

This study concludes that the success of credit provision to horticultural farmers is significantly influenced by practical farming experience, income level, credit interest rates, and credit terms. These factors collectively enhance farmers' ability to access, manage, and repay credit effectively. In contrast, education was found to have no significant impact, suggesting that hands-on experience and financial capacity are more critical in determining credit success in rural agricultural settings. To improve credit outcomes, it is essential to promote continuous capacity building for farmers, offer income-enhancing opportunities, and design credit schemes that are flexible and tailored to farmers' needs. Affordable interest rates and strong collaboration between financial institutions and farmers are also key to ensuring credit aligns with actual farming conditions. The study recommends establishing sustainable partnerships through regular mentoring, implementing accessible credit guarantee mechanisms, and maintaining competitive lending terms. Furthermore, consistent monitoring and evaluation of credit use should be prioritized to ensure that credit is utilized productively and contributes to the long-term advancement of agricultural productivity and rural economic resilience.

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