Enhancing the Financial Performance of Farm Enterprises: Does Access to Finance Mediate Financial Literacy?

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ABSTRACT

This study analyzes the effect of financial literacy on access to finance and the financial performance of farm enterprises, as well as the mediating role of access to finance. The study was conducted on members of the Women Farmer Group in Kanigaran District, Probolinggo City, using a quantitative survey approach. From a population of 175 members, 121 respondents were selected through proportional random sampling. Data were collected using questionnaires and analyzed with PLS-SEM using SmartPLS. The results show that financial literacy positively and significantly affects access to finance and farm financial performance. Access to finance also positively affects farm financial performance and mediates the relationship between financial literacy and farm financial performance. These findings indicate that financial literacy and accessible financing schemes are important for improving income, profit, capital management, and business sustainability in women-led farm enterprises.

Keywords: *financial literacy, access to finance, farm financial performance, Women Farmer Group,*

1. INTRODUCTION

The phenomenon of financial literacy and inclusion in Indonesia shows an increase, but still leaves a gap between the ability to understand financial products and the ability to access formal financial services. Based on SNLIK 2025, Indonesia's financial literacy index will increase from 65.43% in 2024 to 66.46% in 2025, while the financial inclusion index will increase from 75.02% to 80.51% in the same period (Otoritas Jasa Keuangan & Badan Pusat Statistik, 2025). This gap shows that public access to financial services is higher than public understanding of using financial services appropriately, safely, and productively (GoodStats, 2025). This condition is important in the agricultural sector because smallholders still face obstacles in obtaining formal financing, even though financing can increase the use of inputs, technology, and production capacity of farming (Asian Development Bank, 2025).

A special phenomenon at the research location was seen in members of the Women Farmers Group (KWT) in Kanigaran District, Probolinggo City, who carried out urban agricultural activities through the use of yards to produce household vegetable commodities. The main problem that arises is not only related to the availability of capital, but also the ability of members to use business capital to develop agricultural activities sustainably (Haryuningtyas et al., 2024). The publication of the BPS Kanigaran District in 2024 also emphasizes the importance of regional sectoral data as the basis for local development planning, including community economic activities at the sub-district level (Badan Pusat Statistik Kota Probolinggo, 2024). This condition shows that research on financial literacy, access to financing, and the financial performance of farming businesses is relevant to KWT members because yard farming activities require financial management skills, capital utilization, and sustainability of household income (Soekarni et al., 2024).

The grand theory used in this study is the Resource-Based View, because business performance can be explained through the ability of business actors to manage resources that are valuable, rare, difficult to imitate, and organized. In the context of farmers, financial literacy can be positioned as a knowledge resource that helps farmers understand financial recording, capital planning, financing decision-making, and business risk control (Nolan et al., 2024). Access to financing can be understood as an external resource that allows farmers to obtain working capital, purchase production inputs, and expand the capacity of farming businesses (Haryanto et al., 2023). Farmer financial performance describes the ability of farmers to generate income, profits, capital use efficiency, and business sustainability after obtaining adequate knowledge and financing support (Onah et al., 2024). Thus, the Resource-Based View explains that financial literacy and access to financing are a combination of internal and external resources that can shape the financial performance of farming businesses better (Mangudhla et al., 2025).

This study uses the Resource-Based View because farm business performance depends on farmers' ability to manage internal and external resources. Financial literacy is viewed as an internal knowledge resource that helps KWT members plan, record, and evaluate financial decisions, while access to finance is an external resource that supports working capital, input purchases, and business development (Haryanto et al., 2023; Nolan et al., 2024). Financial performance of farm enterprises reflects farmers' ability to generate income, profit, capital efficiency, and business sustainability through adequate financial knowledge and financing support (Mangudhla et al., 2025; Onah et al., 2024).

In this study, financial literacy refers to the ability of KWT members to understand and manage farm financial decisions, access to finance refers to their ease in obtaining and using financing from groups, cooperatives, financial institutions, government programs, or digital services, and financial performance refers to improvements in income, profit, capital management, input fulfillment, and business sustainability. Previous studies show that financial literacy improves financial inclusion and productive financial behavior, while access to credit strengthens farmers' financial performance, especially when supported by good financial literacy (Akande et al., 2023; Chung & Retnoningsih, 2025; Onah et al., 2024).

The novelty of this study lies in examining the Financial Literacy → Access to Finance → Financial Performance of Farm Enterprises model among members of Women Farmer Groups in urban agricultural areas. Previous studies have mostly focused on MSMEs or rural households, while limited research has tested access to finance as a mediating mechanism in women farmer communities. Although agricultural fintech and credit access have been shown to improve farmers' literacy, productivity, and efficiency (Haryanto et al., 2023; Soekarni et al., 2024), their role in linking financial literacy to farm financial performance remains underexplored. Therefore, this study aims to analyze the effects of financial literacy and access to finance on the financial performance of farm enterprises, as well as the mediating role of access to finance among members of the Women Farmer Group in Kanigaran District, Probolinggo City.

2. THEORETICAL FRAMEWORK AND HYPOTHESIS

The Resource-Based View explains that farming performance depends on the ability of farmers to manage valuable internal and external resources. In this study, financial literacy represents a knowledge resource, access to finance represents an external financial resource, and the financial performance of farm enterprises reflects the productive use of both resources. Limited access to capital, financial services, and innovation remains a major barrier for smallholders, making resource management essential for improving farm sustainability and performance (Alamsyah et al., 2024; Ha et al., 2025; Persaud & Thaffe, 2023). Financial literacy refers to farmers' ability to understand and use financial information in making farm business decisions, including recording costs, calculating profits, managing loans, and assessing financial risks. Strong financial literacy supports better credit access, payment behavior, production decisions, and resource allocation in agricultural activities (Benedict et al., 2024; Li et al., 2024; Lu et al., 2024a). Access to finance refers to the ease with which farmers obtain, use, and repay business funds from formal or informal sources, such as farmer groups, cooperatives, banks, microfinance institutions, government programs, and digital financial services. Better access to finance helps farmers obtain capital, reduce transaction barriers, purchase production inputs, and adopt improved agricultural practices, especially for smallholders and women farmers (Food and Agriculture Organization of the United Nations, 2025; Jiang et al., 2024a; Ullah et al., 2024). Financial performance of farm enterprises refers to the financial outcomes of farming activities, including increased income, profit, ability to meet production costs, loan repayment capacity, and business sustainability. Previous studies show that access to credit and investment support can improve productivity, income, input use, and the economic resilience of smallholder farming households (Global Agriculture and Food Security Program, 2025; Lelisho & Lelisho, 2024; United Nations Development Program, 2024).

3. RESEARCH HYPOTHESIS

Financial literacy can improve the financial performance of farm enterprises because farmers with better financial knowledge are more able to record costs, manage capital, calculate profits, control debt, and make business decisions. Previous studies show that financial literacy helps farmers understand their financial position, improve business performance, access credit, and manage farm income more effectively (Benedict et al., 2024; Chung & Retnoningsih, 2025; Nolan et al., 2024). Therefore, the hypothesis proposed is:

H1: Financial literacy has a positive effect on the financial performance of farm enterprises.

Financial literacy also supports access to finance because farmers who understand financial products and loan risks are more capable of choosing suitable financing sources and meeting financing requirements. Studies show that financial literacy improves financial inclusion, credit behavior, and creditworthiness among rural and farming communities (Akande et al., 2023; Dash & Mohanta, 2024; Lu et al., 2024a). Therefore, the hypothesis proposed is:

H2: Financial literacy has a positive effect on access to finance.

Access to finance can improve the financial performance of farm enterprises by enabling farmers to purchase production inputs, adopt technology, expand farming activities, and maintain working capital. Prior research confirms that credit access increases productivity, technical efficiency, income, and technology adoption among smallholder farmers (Haryanto et al., 2023; Lelisho & Lelisho, 2024; Shano & Waje, 2024). Therefore, the hypothesis proposed is:

H3: Access to financing has a positive effect on the financial performance of farm enterprises.

Access to finance can mediate the relationship between financial literacy and the financial performance of farm enterprises because financial knowledge becomes more effective when farmers can obtain and use capital productively. Previous studies show that financial inclusion and credit access act as important mechanisms linking financial literacy, credit utilization, and farmers' economic outcomes (Jiang et al., 2024a; Mangudhla et al., 2025; Onah et al., 2024). Therefore, the hypothesis proposed is:

H4: Access to finance mediates the influence of financial literacy on the financial performance of farming businesses.

4. RESEARCH METHODS

This study uses three main variables, namely financial literacy, access to financing, and financial performance of farming businesses. Financial literacy plays a role as an influencing variable, access to financing plays a role as a connecting variable, while the financial performance of farming businesses plays a role as a result variable that needs to be explained in the research. The operational definition and measurement of variables explain how each research variable is defined, translated into measurable indicators, and assessed through questionnaire items. This study uses three main variables: financial literacy, access to finance, and the financial performance of farm enterprises. Each variable is measured using a Likert scale ranging from 1 = strongly disagree to 5 = strongly agree.

Table 1. Variable Operational Definition

Variable	Operational Definition	Indicators	Source
Financial Literacy	Financial literacy refers to the ability of members of the Women Farmer Group to understand, plan, manage, and evaluate financial decisions related to farming activities.	1. Basic financial knowledge 2. Farm financial planning 3. Recording income and expenses 4. Understanding loans and financial risks 5. Managing savings or reserve funds 6. Separating household and farm finances	(Akande et al., 2023, 2023; Benedict et al., 2024; Chung & Retnoningsih, 2025; Lu et al., 2024b)
Access to Finance	Access to finance refers to the ease with which members of the Women Farmer Group obtain, use, and benefit from financial sources to support farming activities. These sources may include farmer groups, cooperatives, banks, microfinance institutions, government programs, or digital financial services.	1. Ease of obtaining financial information 2. Ease of meeting financing requirements 3. Ease of obtaining loans or business capital 4. Availability of financing sources 5. Use of financing for productive activities 6. Ability to repay financing on time	(Food and Agriculture Organization of the United Nations, 2025; Haryanto et al., 2023; Jiang et al., 2024b; Onah et al., 2024; Persaud & Thaffe, 2023)
Financial Performance	Financial performance of farm enterprises refers to the financial	1. Increased farm income 2. Increased farm profit	(Global Agriculture and Food Security Program,

Variable	Operational Definition	Indicators	Source
of Farm Enterprises	results achieved by members of the Women Farmer Group from farming activities, as reflected in income, profit, capital management, ability to finance production needs, and business sustainability.	3. Ability to meet production costs 4. Ability to manage business capital 5. Ability to repay loans 6. Sustainability of farming activities 7. Increase in farming assets or production facilities	2025; Lelisho & Lelisho, 2024; Nolan et al., 2024; Onah et al., 2024; Shano & Waje, 2024; United Nations Development Programme, 2024)

Source: Researcher-Processed Data, 2026

The population in this study is all members of the Women Farmers Group in Kanigaran District, Probolinggo City, which totals 175 people and is spread across 7 groups of farmer women. The research sample was determined using the proportional random sampling technique, which is random sampling based on the proportion of the number of members in each group, so that the entire group is represented in a balanced manner. The number of samples was calculated using the Slovin formula with an error rate of 5%, so that a sample of 121 respondents was obtained. Thus, this study uses 121 members of the Women Farmers Group as respondents representing the population in examining financial literacy, access to financing, and financial performance of farming businesses.

5. DATA ANALYSIS AND DISCUSSION

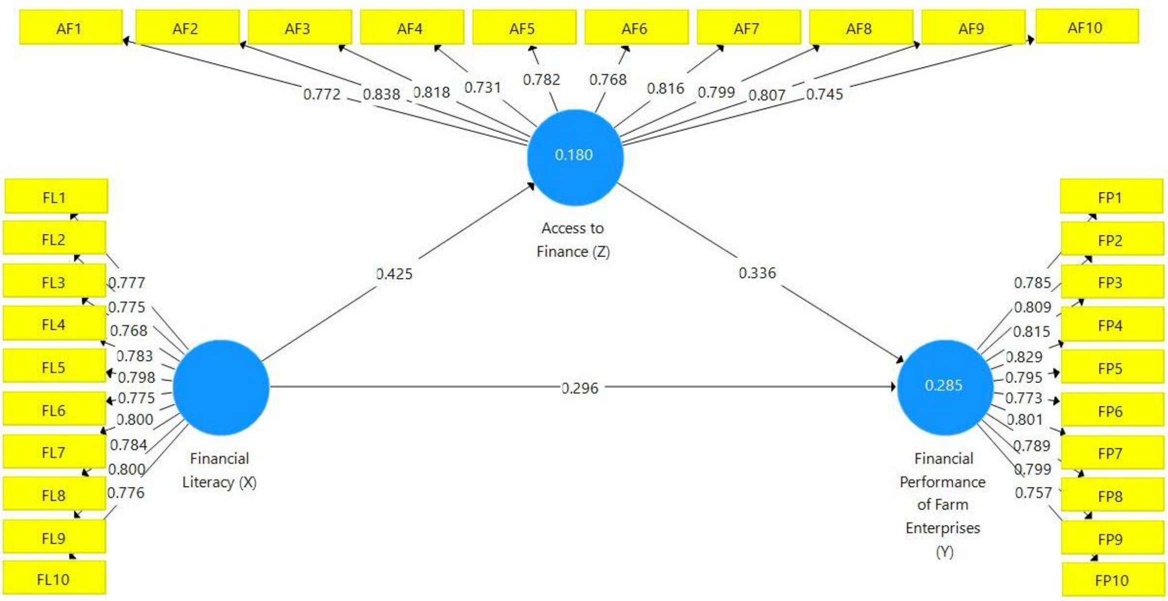

Figure 1. Loading Factor Results

Table 2. Construct Validity and Reliability

Latent construct	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Financial Literacy (X)	0.931	0.941	0.614
Access to Finance (Z)	0.933	0.942	0.621
Financial Performance of Farm Enterprises (Y)	0.936	0.945	0.633

Source: SmartPLS Data Processing Results v. 3.2.8.

The results of the loading factor in Figure 1 show the overall loading factor value > 0.7 and the AVE value in Table 1. Each construct has a value of > 0.50, so that it can be concluded that the instrument can be said to be valid. The results of Cronbach's alpha and composite reliability show that a value of > 0.70 can be interpreted as indicating that the entire construct has high reliability. The R-Square result showed a value of 0.285, indicating that the model explained 28.5% of the endogenous construct variation, while the rest was explained by other factors outside the model. Referring to the guidelines of Hair et al. (2022), the value of $f^2 = 0.02$ is categorized as a small effect, 0.15 as a medium effect, and 0.35

as a large effect. Based on these criteria, the results of the calculation of f² on each structural path are presented in Table 3 below:

Table 3. Effect Size (f2)

Path	f^2	Clasification
Financial Literacy (X) → Access to Finance (Z)	0,220	Medium
Access to Finance (Z)→ Financial Performance of Farm Enterprises (Y)	0,129	Small
Financial Literacy (X) → Financial Performance of Farm Enterprises (Y)	0,100	Small

Table 4. Hypothesis Test Results

Variable Relationships	Original Sample (O)	T-Statistics	P Values	Description
Financial Literacy (X) → Financial Performance of Farm Enterprises (Y)	0.296	4.325	0.000	H1 Accepted
Financial Literacy (X) → Access to Finance (Z)	0.425	4.864	0.000	H2 Accepted
Access to Finance (Z)→ Financial Performance of Farm Enterprises (Y)	0.336	5.363	0.000	H3 Accepted
Financial Literacy (X) → Access to Finance (Z) →Financial Performance of Farm Enterprises (Y)	0.143	3.227	0.001	H4 Accepted

Source: SmartPLS Data Processing Results v. 3.2.8.

Based on the results of the hypothesis test in Table 3, all direct and indirect influence pathways showed positive and significant results (p-value < 0.05), so that all H1–H4 hypotheses were accepted.

6. DISCUSSION

The results show that financial literacy has a positive and significant effect on the financial performance of farm enterprises. This indicates that members of the Women Farmer Group with better financial knowledge are more capable of preparing capital plans, recording income and expenses, calculating profits, managing loans, and controlling production costs. In the context of yard-based farming in Kanigaran District, these abilities are important because farming activities are closely related to household income and daily financial decisions. This finding supports Nolan et al. (2024), Benedict et al. (2024), and Chung and Retnoningsih (2025), who found that financial literacy contributes to better financial performance of farm enterprises.

Financial literacy also has a positive and significant effect on access to finance. This result means that farmers with higher financial literacy are better able to understand financing procedures, prepare loan requirements, evaluate risks, and choose appropriate sources of capital for their farming activities. Good financial understanding can increase farmers' confidence in dealing with farmer groups, cooperatives, microfinance institutions, banks, government programs, or digital financial services. This finding is consistent with Akande et al. (2023), Dash and Mohanta (2024), and Lu et al. (2024), who stated that financial literacy improves financial inclusion, credit behavior, and creditworthiness.

Access to finance has a positive and significant effect on the financial performance of farm enterprises. Easier access to capital enables Women Farmer Group members to purchase production inputs such as seeds, fertilizers, planting media, pesticides, and farming tools. Access to finance also helps farmers maintain working capital, expand small-scale production, and continue farming activities when household funds are limited. This finding is in line with Haryanto et al. (2023), Lelisho and Lelisho (2024), and Shano and Waje (2024), who showed that credit access improves productivity, income, and agricultural technology adoption among farmers.

The mediation result confirms that access to finance mediates the effect of financial literacy on the financial performance of farm enterprises. This means that financial literacy not only improves the financial performance of farm enterprises directly, but also indirectly by increasing farmers' ability to access and use financing. Farmers with better financial literacy are more likely to obtain suitable financing and use it for productive farming purposes, which then supports income, profit, capital management, and business sustainability. This finding supports Mangudhla et al. (2025), Onah et al. (2024), and Jiang et al. (2024), who emphasized the mediating role of financial inclusion and credit access in improving farmers' economic outcomes.

7. CONCLUSION

This study concludes that financial literacy significantly improves access to finance and the financial performance of farm enterprises among members of the Women Farmer Group in Kanigaran District, Probolinggo City. Access to finance also significantly improves the financial performance of farm enterprises and mediates the relationship between financial literacy and the financial performance of farm enterprises. These findings indicate that better financial knowledge helps farmers obtain and use financing more effectively, which then supports income, profit, capital management, and business sustainability. Therefore, improving financial literacy and providing accessible financing schemes are important strategies to strengthen the financial performance of women farmers.

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