

Effects of Microfinance Credits on Farm Performance of Small-Scale Mango Farmers in Davao del Sur

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Abstract. The study aimed to determine the impact of credit access from microfinance institutions on the farm performance of 87 small-scale mango farmers in Davao del Sur. It addressed the lack of literature documenting the effects of microfinance credit on farm productivity. The findings of this study are expected to inform policy formation and interventions that enhance access to microfinance credit among mango farmers. A cross-sectional and descriptive research design was utilized to meet the study objectives. Using statistical tools such as frequency distribution, mean, standard deviation, and regression analysis showed that most small-scale mango farmers were aged 36 to 51, predominantly male, married, and high school graduates. Most had 4 to 6 household members, identified as Cebuano, and owned 1 to 2 hectares of farmland. Most received and repaid loans in cash, with interest, and were required to provide collateral to access credit. Increased access to capital and higher productivity per hectare were rated highly among the economic benefits. The level of engagement and collaboration among small-scale mango farmers was rated as moderate. Furthermore, there was a significant relationship between economic benefits and financial performance; however, no significant association was found between engagement/collaboration and the farmers' financial performance. Additionally, most farmers identified climate change, pest and disease outbreaks, limited access to quality inputs, and market access and pricing issues as key challenges in mango production. Since many respondents were small-scale farmers with only a high school education, providing targeted training programs on available financial services, agricultural best practices, and climate change adaptation strategies would be beneficial. This would help ensure that farmers are better informed about improved productivity and financial management options.

Keywords: Credit; Financial performance; Mango; Microfinance.

1.0 Introduction

Mango is one of the most significant and extensively grown fruits in tropical and subtropical regions (Zuazo et al., 2021). Mango (*Mangifera indica* Linn.) has growing commercial importance worldwide. The Philippines, now ranked 11th among mango-producing countries, plays a key role in this market (Dar et al., 2023). The country's mangoes are grown for local consumption and export and are available as fresh or processed products (Thakor, 2019). It is considered one of the most important export crops in terms of volume and value, with promising prospects (Matkovski et al., 2022). Culturally, the mango symbolizes Filipino nationalism and community identity, being recognized as the national fruit (Paredes, 2024). Despite advancements in yield and quality, technical and non-technical challenges limit mangoes' full economic potential (Vargas-Carpintero et al., 2023). The industry faces numerous obstacles, including declining yield and quality, pest infestations, high production costs, low

profit margins, and unstable supply despite high demand (Sacramento & Cuizon, 2020). Many farmers lack resources, modern technologies, and knowledge of advanced farming methods (Khan et al., 2021). A critical issue that affects crop production is limited access to credit (Linh et al., 2019). This remains a persistent constraint for many smallholder farmers, especially in Davao del Sur, limiting their ability to invest in quality inputs and technologies. These limitations have slowed sectoral growth and undermined the competitiveness of small-scale mango growers (Hagos et al., 2020).

Fabregas et al. (2019) emphasized that access to finance can improve agricultural productivity. Small-scale farmers often turn to microfinance institutions (MFIs), which offer credit at varying rates (Abebe & Kegne, 2023). Credit helps farmers buy inputs, hire labor, and use machinery—supporting continuous farm operations (Ruan et al., 2019). It also enables livelihood diversification and income increases. Takahashi et al. (2020) noted that access to credit allows investments in storage facilities, which preserve produce during transport (Ceballos et al., 2020), reduce post-harvest losses, and improve market timing for better profits (Kotu et al., 2019). Although some farmers in Davao del Sur have availed themselves of microfinance credit, there is limited data on its perceived impact on productivity. Mango is cultivated year-round in several regions, satisfying domestic and international market demands (Chay et al., 2019). It contributes significantly to industry growth, tourism, and local economies and provides a livelihood for about 2.5 million farmers (Alcasid et al., 2021). It remains a top agricultural commodity in the country (Paguia et al., 2019). From January to March 2015, mango production reached 148,085 tons, with Central Luzon accounting for 20.2% of the total (Siaton, 2024). In 2018, the country produced 711,660 metric tons of fresh mangoes from 185,858 hectares, contributing ₱4.3 billion in agricultural export earnings (Cubelo & Cubelo, 2021). That year, fresh mango exports were valued at ₱990.97 million, with Hong Kong, Korea, and Japan as the primary destinations. Processed mango exports exceeded ₱3.3 billion (PSA, 2019).

Small-scale mango farming plays a key role in the agricultural landscape of the Philippines, especially in Davao del Sur, where it boosts the local economy and supports rural livelihoods. It remains a major income source for many farmers (Chay et al., 2019). According to Nelson et al. (2023), profitability in mango farming in the region is higher for those with mature trees, production experience, higher education, training, and membership in producers' organizations. Many Digos City mango farmers possess these attributes (Rajan et al., 2021). However, farm performance still needs improvement to increase yields and income despite growing production. Small-scale farmers differ from commercial farmers in land size, crop sales, financial capacity, and market integration (Guarin et al., 2020). They market mangoes to both low-value (e.g., roadside vendors) and high-value markets (e.g., processors, supermarkets, exports) (Akron et al., 2020; Mossie et al., 2020). About 42% of mangoes go to low-value markets, while 58% reach high-value markets that pay at least three times more per unit (Badar & Ahmad, 2021).

Access to finance is vital for agricultural growth and productivity. Some farmers enter income-sharing arrangements in mango production when they lack the manpower or resources to manage trees (Do et al., 2020). Depending on the arrangement, contractors may take 10–70% of the profit. Typically, farmers engage in 90–10% or 80–20% sharing schemes. The farmer provides the trees in such contracts, while contractors handle labor and inputs (White & Wijaya, 2022; Githiomi, 2019; Chaudhary, 2022; Staton et al., 2022). Microfinance credits (MCs) support small-scale farmers by enabling access to capital and overcoming financial barriers (Jumpah et al., 2019). MFIs aim to alleviate poverty by offering credit to marginalized communities (Yasin, 2020; Chikwira et al., 2022). These services allow farmers and small businesses to secure funds for production and expansion (Langley & Leyshon, 2021).

However, microcredit access remains limited for many farmers due to collateral requirements or lack of formal land ownership (Kiloes et al., 2024; Luan & Kingsbury, 2019). These restrictions hinder their ability to invest in productivity-enhancing tools (Tetteh et al., 2022). Research shows that access to credit is linked to improved farm output and poverty reduction (Urago & Bozoglou, 2022; Gershon et al., 2020; Boucher et al., 2021; Bah et al., 2022). Still, high interest rates and dependence on social ties as collateral limit access to informal loans (Moahid & Maharjan, 2020; Marzouk, 2021). Formal loans often involve complex processes, high transaction costs, and collateral that smallholders lack (Silong & Gadanakis, 2020; Odhong' et al., 2019; Pomeroy et al., 2020). Though MFIs offer microcredit to assist farm improvements, compliance with their requirements remains challenging (Anwar et al., 2019). MCs enable small-scale farmers to reach their potential, strengthen their resilience to financial shocks, and support sustainable rural development (Shohel et al., 2023). Hence, this study aims to assess the

impact of microfinance credit access on the farm performance of small-scale mango farmers in Davao del Sur, addressing a gap in the current literature. Findings will provide insights to inform policy and improve access to microfinance for mango farmers in the region.

2.0 Methodology

2.1 Research Design

The study was cross-sectional and descriptive. As defined by Wang and Cheng (2020), the cross-sectional study is a type of research design in which the researcher collects data from many different individuals at a single point in time. Moreover, descriptive research is a methodological approach that seeks to depict the characteristics of a phenomenon or subject under investigation (Gopalan et al., 2020). The said research design was suitable as it assesses the level and evaluates the impact of access to credit on the farm performance of small-scale farmers. This particular research design is deemed appropriate to present the impact of MCs on the farm performance of small-scale mango farmers in the research locale. However, due to the limitation on the area covered by the research and the number of respondents, this particular research design may not be applicable in some areas should this study be replicated.

2.2 Research Locale

The study was conducted in the province of Davao del Sur, where the agricultural sector is rich in various crops. The province is a major producer of rice, corn, sugarcane, cacao, mango, and bananas due to its favorable climate conducive to agricultural production. Specifically, the research focused on three municipalities and one city – Magsaysay, Matanao, Bansalan, and Digos. These areas were identified as the top mango-producing localities in Davao del Sur, contributing a total production volume of approximately 48,243 metric tons in 2020, according to the Philippine Mango Industry Roadmap 2021–2025. Available data also indicate that small-scale farmers primarily produce mangoes in these localities. Therefore, this research locale was deemed appropriate for understanding the current conditions of mango farmers, particularly in terms of their farming practices and overall performance.

2.3 Research Participants

The study's respondents were the selected small-scale mango farmers in the province of Davao del Sur, particularly in Matanao, Magsaysay, Bansalan, and Digos City. Stratified random sampling was used to select the study respondents. Meanwhile, the inclusion criteria in selecting the research respondents were that farmers must have at least 1 hectare of cultivated land intended for mango farming and must have availed of any service/product offered by any microfinance institutions in Davao del Sur. The analysis was limited to the 87 farmers who reported availing credit from these institutions. Total enumeration was used as the sampling method of the study. Small-scale mango farmers who were not availed of were not included as respondents of the study since the study requires data that could only be supplied by small-scale farmers who had availed of microfinance credits.

2.4 Research Instrument

The researcher utilized an adopted survey questionnaire anchored on the study of Nordjo and Adjasi (2020) in assessing the impact of credit access from microfinance institutions on farm performance among small-scale mango farmers in Davao del Sur. The survey questionnaire was checked and validated by the experts. In assessing the demographic profile of small-scale mango farmers, age, sex, marital status, educational attainment, household size, ethnicity, and land size allotted for farming were used as the indicators of the demographic profile. On the other hand, the second part dealt with the availability and accessibility of credit offered by the institutions to small-scale farmers. The economic benefit derived by small-scale farmers through accessing the services/products of microfinance institutions was assessed by harvested yield and returns from mango farms. The next part dealt with the challenges faced by the respondents, followed by the level of engagement and collaboration of small-scale mango farmers.

A 5-point Likert scale was used to assess the level of economic benefits derived by small-scale mango farmers through accessing the services/products of microfinance institutions (5 -Very high, 4 –High, 3-Moderate, 2 – Low, and 1- Very Low). On the other hand, a 5-point Likert scale was used to assess the extent of the economic impact of microfinance services on mango farming (5 -Very high, 4 –High, 3-Moderate, 2 – Low, and 1- Very Low).

2.5 Data Gathering Procedure

The necessary data for the study were gathered through a series of systematic procedures. First, the researchers formally requested permission to survey by submitting a letter to the Institution of Graduate and Professional Education at Davao del Sur State College. Once approval was secured, they obtained a list of financial institutions in the province and a list of farmers from the Office of the Provincial Agriculturist (OPAG). Field experts then validated the research instrument to ensure its reliability, validity, and alignment with the study's objectives. After finalizing the instrument, it was administered to the selected respondents and retrieved upon completion. The collected data were encoded into a spreadsheet, summarized, and analyzed using appropriate statistical tools to prepare for interpretation.

2.6 Data Analysis

This study employed transcendental phenomenology as its qualitative methodology to explore the lifeworld, lived experiences, and perspectives of the Country's Most Outstanding School Paper Advisers at the Secondary Level in SOCCSKSARGEN Region XII. Data was collected through structured and semi-structured interviews with five outstanding school paper advisers. The interviews were audio-recorded and transcribed verbatim for rigorous thematic analysis following Moustakas' (1994) procedures. The researcher began data analysis by immersing herself in the transcripts, repeatedly reading them to understand the advisers' lived experiences deeply. In line with the transcendental phenomenological approach, the researcher practiced epoche—bracketing personal biases and preconceptions to view the data freshly and openly. Significant statements and phrases that revealed essential elements of the advisers' coaching and mentoring experiences were identified and coded. These significant statements were then clustered into meaning units and preliminary themes reflecting the participants' worldviews and experiences. Throughout the analysis, themes were continuously compared and refined to ensure that they accurately represented the participants' perspectives. The researcher developed textural descriptions (what the advisers experienced) and structural descriptions (how they experienced it in context), culminating in a comprehensive synthesis that captured the essence of their coaching and mentoring phenomenon. Direct quotations from participants were included to illustrate and support the findings, providing vivid and authentic insights into their lifeworlds. This systematic and rigorous procedure ensured a faithful representation of the advisers' lived experiences, aligned with the study's purpose of understanding and improving campus journalism mentorship.

2.7 Ethical Considerations

This research study strictly adhered to established ethical guidelines. To ensure privacy and confidentiality, the researchers obtained informed consent from respondents, used appropriate data collection methods, securely stored and ethically handled the data, and disposed of it properly. Participation in the study was entirely voluntary; respondents were free to withdraw without pressure, coercion, or the need to explain. The informed consent process ensured that all participants fully understood the study's purpose, procedures, and potential risks or benefits before agreeing to participate. Permission to conduct the study was also obtained from relevant organizational authorities, with the researchers communicating the study's purpose, methods, and expected outcomes. The potential benefits of the research were considered carefully, including access to the findings for respondents and the potential use of results to inform policy or intervention strategies. Moreover, the researchers upheld academic integrity by avoiding fabrication and falsification, ensuring the accuracy of all data and methodologies. Ethical authorship was maintained by giving proper credit to contributors and ensuring all claims were truthful. Finally, plagiarism was strictly avoided by appropriately citing all sources according to APA 7th edition guidelines, ensuring that any idea that was not originally their own was credited.

3.0 Results and Discussion

3.1 Demographic Profile of the Small-Scale Mango Farmers

Table 1 shows the demographic profile of small-scale mango farmers in Davao del Sur. It includes age, gender, marital status, educational attainment, household size, ethnicity, and land size allotted for farming. The highest percentage of the small-scale mango farmers are in the age range of 36 to 51 years old (41.40%), followed by 52 to 67 years of age (40.20%), 20 to 35 years old at 14.90%, and 68 years old and above acquired the lowest percentage of 3.40%. Meanwhile, 63 small-scale mango farmers out of 87 are male (72.40%) and females 27.60% of the total population. Most of the population indicated that they were married, 12.60% considered widowed, and 4.60% of the total population were single. This means that the demographic profile of small-scale mango farmers in Davao del Sur reveals an aging farming population, a male-dominated workforce, and a strong family-based livelihood

structure. These findings emphasize the need for youth engagement, gender inclusivity, and support programs to ensure the long-term sustainability of mango farming.

Table 1. *Demographic Profile of Small-Scale Mango Farmers December 2024-January 2025*

Profile	Frequency	Percentage (%)
Age		
20-35	13	14.90
36-51	36	41.40
52-67	35	40.20
68 and above	3	3.40
Gender		
Male	63	72.40
Female	24	27.60
Marital Status		
Single	4	4.60
Married	72	82.80
Widowed	11	12.60
Educational Attainment		
Elementary	25	28.70
High School	40	46.00
Tertiary	16	18.40
Vocational Level	6	6.90
Household Size		
1-3	15	17.20
4-6	48	55.20
7-9	22	25.30
10 and above	2	2.30
Ethnicity		
Cebuano	82	94.30
Tagalog	2	2.30
Ilonggo	3	3.40
Land Size allotted for Farming		
1-2 ha	55	63.20
3-4 ha	26	29.90
5 ha and above	6	6.90

Some of the small-scale mango farmers are high school graduates (46.00%), others are elementary graduates (28.70%), while 18.40% are college graduates, and the rest have taken vocational courses (6.90%). Most small-scale mango farmers tend to have a household size of 4 to 6 members (55.20%), followed by those with 7 to 9 members (25.30%). Others have 1 to 3 members (17.20%), while only 2.30% have households with 10 or more members. Additionally, 82 out of 87 small-scale mango farmers (94.30%) identified as Cebuano, while three farmers (3.40%) were Ilonggo, and 2 (2.30%) were Tagalog. Most farmers (63.20%) own 1 to 2 hectares of land, while a notable portion (29.90%) own 3 to 4 hectares. Only a small percentage (6.90%) cultivate 5 hectares or more. Regardless of farm size, these farmers typically own their farms, manage their financing, and supplement their income by offering spraying services to other farms.

The findings reveal that most farmers have attained a high school level of education, which may influence their access to advanced farming techniques and business strategies. Most farmers also have medium-sized households of four to six members, indicating that family labor likely plays a significant role in farm operations. Moreover, the dominance of Cebuano ethnicity among mango farmers suggests cultural homogeneity, which may influence farming practices and market networks. These farmers also tend to cultivate mangoes on relatively small landholdings of one to two hectares, underscoring the need for efficient land use and sustainable practices to maximize productivity and profitability.

The findings of this study are consistent with previous research on mango farmer demographics. Yiran et al. (2023) indicated that most small-scale mango farmers are male and range from young to middle-aged adults. Their ages ranged from 39 to 72 years, they were married with five or more children, and most had attained a high school education (Asare-Nuamah et al., 2022). This implies that many small-scale farmers dedicate most of their time to farming. Similarly, Musyoka et al. (2020) reported that most small-scale mango farmers are males between 41 and 50, with household sizes of 5 to 8. Most had lived in the area for over 34 years, owned their farms, and earned an annual average income of Php 121,668 from all sources. Furthermore, half of the farmers owned the land they

farmed, while a quarter were share tenants. The average land area planted with mangoes was 4.5 hectares (Sacramento & Cañete, 2023).

Availability and Accessibility of Credit offered by MCs

Table 2 presents the availability and accessibility of credit microfinance institutions offer to small-scale mango farmers in Davao del Sur. Results revealed that all small-scale mango farmers applied for a loan or borrowed money from some source of credit, indicating a 100% response rate to the survey. 84 out of 87 farmers (96.60%) reported that the credit provider required collateral when accessing credit, while the remaining 3.40% indicated otherwise. Moreover, nearly all respondents (96.60%) stated that they received the loan or credit they requested, while the remaining 3.40% reported not receiving it. This suggests that the primary reasons for being denied credit were the lack of proper land title documentation, inadequate income or cash flow, and insufficient financial records. Furthermore, most respondents (81.60%) received their credit in cash, while 14.90% received it in kind. Three respondents (3.40%) did not provide any response. This lack of response likely corresponds to those whose credit applications were denied due to insufficient documentation or financial capacity.

Table 2. *Availability and Accessibility of Credit offered by Microfinance Institutions to Small-Scale Mango Farmers*

Profile	Frequency	Percentage (%)
Have you applied for a loan or borrow money?		
Yes	87	100.00
No	-	-
Did the provider of the credit require collateral?		
Yes	84	96.60
No	3	3.40
Did you receive the loan or credit?		
Yes	84	96.60
No	3	3.40
If yes, what is the form of credit?		
Cash	71	81.60
Kind	13	14.90
No Response	3	3.40
How many days did you process your loan?		
2-3 days	-	-
4-5 days	-	-
6-7 days	5	5.70
8 days and above	82	94.30
What is the credit or loan used for?		
Farming	19	21.80
Personal Expenses	7	8.00
Both Farming and Personal Expense	61	70.10
In what form is the repayment required?		
Cash	87	100
Kind	-	-
Others	-	-
Did the lender request for interest on the credit?		
Yes	83	95.40
No	4	4.60

The findings indicate that all small-scale farmers rely on loans or credit to support their farming operations, emphasizing the critical role of financial assistance in sustaining agricultural activities. Most farmers encounter a collateral requirement when accessing credit, which may pose challenges for those with limited assets, potentially restricting their borrowing capacity. Despite this requirement, nearly all of them successfully obtained their requested loans, with cash being the predominant form of credit received—highlighting the preference for financial liquidity in managing farm expenses. These results underscore the need for more accessible and flexible microfinance policies that accommodate small-scale farmers, ensuring equitable access to financial resources regardless of asset ownership.

On the other hand, all respondents indicated that repayment was required in cash. Additionally, 83 out of 87 farmers (95.40%) stated that the loans accrued interest, and the majority (94.30%) noted that it took eight days or more to process the loan. At the same time, the rest mentioned a processing time of six to seven days. Furthermore, most farmers reported applying for loans to cover farming and personal expenses (70.10%), while 21.80% cited farming alone and 8.00% for personal expenses only. This implies that while MFIs are reaching small-scale mango

farmers, the credit is often split or diverted to meet household needs beyond agriculture. It suggests that farming income alone is insufficient, prompting farmers to rely on credit for day-to-day living expenses. To enhance the effectiveness of credit programs, MFIs and stakeholders may consider offering customized loan structures, implementing financial literacy programs, and establishing safeguards to promote proper loan utilization for sustainable farming and household well-being.

Access to financial capital (credit) is one of the critical inputs farmers require to adopt new agricultural technologies that boost productivity (Gershon et al., 2020). Financial institutions, therefore, play a vital role in enabling farmers to access credit, which significantly benefits crop production. Boucher et al. (2021) supported this claim, stating that the availability of finance can substantially improve farm output and productivity, thereby reducing poverty. Consequently, small-scale farmers depend on microfinance institutions (MFIs) to obtain microcredit that can improve their livelihoods and help them overcome financial challenges (Bah et al., 2022). Smallholder farmers often turn to MFIs to improve farm performance, offering differing interest rates and credit terms (Abebe & Kegne, 2023).

The Source and Amount of Credit/Loan

About the source and amount of credit or loan, it is shown in Table 3 that all the respondents mentioned that they do not avail of formal and informal sources of credit or loan such as commercial banks, rural banks, development banks, relatives, friends, moneylenders, and farmer groups. Meanwhile, small-scale farmers admitted that their sources of credit or loans are semi-formal sources of credit. Most respondents mentioned that they availed of credit or loans from microfinance (55.20%), and the rest borrowed from cooperatives.

Table 3. *The Source and Amount of Credit/Loan*

Profile	Frequency	Percentage (%)
Formal Source of Credit/Loan		
None	87	100
Informal Source of Credit/Loan		
None	87	100
Semi-Formal Source of Credit/Loan		
Microfinances	48	55.20
Cooperatives	39	44.80
Amount Requested		
Php 0 – 25,000	4	4.60
Php 25,001 – 100,000	13	14.94
Php 100,001 – 500,000	60	68.97
Php 500,001 and above	10	11.49
Amount Received		
Php 0 – 25,000	5	5.75
Php 25,001 – 100,000	15	17.24
Php 100,001 – 500,000	57	65.52
Php 500,001 and above	10	11.49
Amount Devoted to Mango Farming		
Php 0 – 25,000	8	9.20
Php 25,001 – 100,000	20	22.99
Php 100,001 – 500,000	51	58.62
Php 500,001 and above	8	9.20

The result above reveals that farmers rely merely on semi-formal credit sources, such as microfinance institutions and cooperatives, rather than formal financial institutions or informal lenders. This indicates a preference for financial services that offer accessibility and flexibility, which may not be readily available through commercial banks, rural banks, or money lenders. Indeed, the higher percentage of farmers obtaining credit from these institutions suggests that these entities play a significant role in providing financial support to agricultural communities. These results highlight the need for strengthened financial inclusion strategies, ensuring that small-scale farmers have improved access to diverse and sustainable credit options that meet their financial needs.

Thus, most small-scale farmers requested an amount of Php 100,001 to Php 500,000 (68.97%), some requested a maximum amount of Php 25,001 to Php 100,000 (14.94%), others requested Php 500,001 and above (11.49%), and some farmers requested 0 to Php 25,000 (4.60%). Some small-scale farmers indicated that from their requested amount of loan, they received Php 100,001 to Php 500,000; others (17.24%) mentioned that they received Php

25,001 to Php 100,000, while the rest indicated that they received Php 500,001 and above, and with very few farmers acquired a maximum amount of Php 25,000. Given those received amount, only 58.62% said that they devoted an amount of Php 100,001 to Php 500,000 in mango farming, some devoted a maximum amount of Php 25,001 to Php 100,000 (22.99%), others devoted Php 500,001 and above, and a maximum amount of Php 25,000 with both have a percentage of 9.20.

Meanwhile, while most farmers secured their requested loan amounts, variations in loan distribution suggest differences in financial capacity, borrowing eligibility, or institutional lending policies. Many of the loans received were allocated to mango farming, demonstrating the reliance on credit for agricultural investment and operational sustainability. These results highlight the need for tailored financial programs that align with the specific funding needs of small-scale farmers, ensuring efficient loan utilization and improved agricultural productivity.

Furthermore, the high interest rate charged and reliance on social ties as insurance limit the extent to which farmers can access loans from informal credit sources (Moahid & Maharjan, 2020). This increased cost of borrowing could be burdensome for farmers with limited financial resources, reducing their ability to access funds for agricultural activities, investment, or coping with unforeseen expenses (Marzouk, 2021). On the other hand, farmers are constrained by collateral requirements and high transaction costs when securing loans from formal sources (Silong & Gadanakis, 2020). Many small-scale farmers do not own enough physical assets to secure loans (Odhong' et al., 2019). In order to reduce the risk of default, MFIs usually require collateral, but smallholder farmers frequently have their land, which might not be sufficient (Pomeroy et al., 2020). This hampers their capacity to obtain loans from conventional MFIs.

3.2 Economic Benefits Gained by Farmers from Microfinance Access

The level of economic benefits farmers derives through accessing microfinance institutions' services or products is presented in Table 4. It includes increased access to capital for purchasing inputs, expansion of mango orchards, improved irrigation systems, enhanced post-harvest handling and storage facilities, diversification into value-added mango products, increased productivity and yield per hectare, and better market linkages and access to buyers. The level of economic benefits acquired an overall mean score of 3.01 ($SD = 1.23$) with a descriptive level of moderate. This suggests that small-scale mango farmers perceived fair or average economic benefits from their engagement with microfinance institutions.

Table 4. *Level of Economic Benefits derived by Farmers thru accessing the Services/Product of Microfinance Institutions*

Profile	Mean	SD	Interpretation
Increased access to capital for purchasing inputs	3.82	1.47	High
Expansion of mango orchards	3.20	1.47	Moderate
Improved irrigation systems	3.37	1.43	Moderate
Enhanced post-harvest handling and storage facilities	3.22	1.39	Moderate
Diversification into value-added mango products	1.01	0.11	Very Low
Increased productivity and yield per hectare	3.69	1.38	High
Better market linkages and access to buyers	2.76	1.35	Moderate
Overall	3.01	1.23	Moderate

Increased access to capital for purchasing inputs received the highest mean score of 3.82 ($SD = 1.47$) among the seven economic benefits, with a descriptive rating of high. This indicates that small-scale mango farmers experienced substantial economic benefits—though not to the greatest extent—from accessing microfinance services. It suggests that while the services may not have achieved their maximum potential impact, microfinance played a significant role in enabling farmers to acquire essential agricultural inputs such as fertilizers, pesticides, and quality planting materials, all crucial for improving productivity and sustaining farm operations. This was followed by increased productivity and yield per hectare, with the second-highest mean score of 3.69 ($SD = 1.38$), also rated high. This indicates that microfinance access contributed positively to farming productivity and output, likely enabling farmers to enhance cultivation practices and invest in inputs that support higher yields.

Meanwhile, improved irrigation systems, enhanced post-harvest handling and storage facilities, expansion of mango orchards, and better market linkages and access to buyers all received moderate descriptive ratings. Specifically, the improved irrigation system had a mean score of 3.37 ($SD = 1.43$), indicating a fair or average economic benefit from MFIs in this area. While there was some positive impact, it was not significant enough to indicate transformative improvements in irrigation infrastructure or water management. A notable portion of

respondents disagreed or remained neutral, possibly due to financial constraints or barriers to infrastructure development.

Similarly, enhanced post-harvest handling and storage facilities received a mean score of 3.22 ($SD = 1.39$), indicating only moderate benefits. While some improvements may have occurred, microfinance support did not significantly address losses, inefficiencies, or post-harvest quality issues. The expansion of mango orchards had a mean score of 3.20 ($SD = 1.47$), again rated moderate. This suggests that although MFIs provided some support, it was not enough to affect land acquisition or scaling of production meaningfully. While some respondents strongly agreed that access to credit supported orchard expansion, a considerable number disagreed or remained neutral, indicating variation in financial capacity and land availability.

Better market linkages and access to buyers had a mean score of 2.76 ($SD = 1.35$), also rated moderate. This indicates that while there was some benefit in connecting farmers to markets, the overall impact was insufficient to transform market access or sales opportunities. Finally, diversification into value-added mango products received the lowest mean score of 1.01 ($SD = 0.11$), rated very low. This means small-scale mango farmers experienced minimal or no economic benefit from microfinance institutions in this area. The findings suggest that while some farmers had access to microfinance services, the support was insufficient to encourage diversification or the development of value-added products.

These results align with Yasin (2020), who noted that microfinance aims to alleviate poverty by providing credit to underprivileged and marginalized groups. The primary aim is to help such groups access credit and services that are beneficial to them. Another purpose of microfinance is to support farmers and small enterprises with access to capital (Chikwira et al., 2022), offering a platform for funding and recapitalization (Langley & Leyshon, 2021). However, farmers often have limited financial resources to undertake innovative farming practices, and the rural financial market has not fully met their credit needs (Silong & Gadanakis, 2020). As a result, they must resort to formal loan sources since informal credit is often insufficient for meaningful production activities (Balana et al., 2022). This highlights why some farmers seek credit from various lending institutions to purchase inputs for specific crop production.

3.3 Level of Engagement and Collaboration of Small-Scale Mango Farmers

Table 5 presents the level of engagement and collaboration of small-scale mango farmers. Based on the data gathered, the overall mean score for engagement and collaboration was 3.02 ($SD = 1.44$), interpreted as moderate. This indicates that while small-scale farmers are somewhat engaged with the microfinance institutions they collaborate with, barriers or limitations may still hinder stronger participation. These findings highlight the need for improved financial literacy programs and more farmer-centered credit initiatives. Among the three indicators, engagement with microfinance institutions received the highest mean score of 3.94 ($SD = 1.40$), with a descriptive level of high. This suggests that small-scale mango farmers have a strong level of interaction with microfinance institutions. However, while engagement is high, additional efforts may be necessary to strengthen other aspects of collaboration.

Followed by the level of collaboration with an average mean of 2.88 ($SD = 1.45$), described as moderate. This indicates that while partnerships exist, there is room for improvement in strengthening cooperative efforts. Lastly, awareness of microfinance institutions got the lowest mean of 2.25 ($SD = 1.46$), with a descriptive level as low. This also suggests that the low level of awareness about these institutions indicates a lack of sufficient information or outreach, highlighting the need for targeted awareness campaigns and educational programs to enhance farmers' understanding of available financial services.

Table 5. *Level of Engagement and Collaboration of Small-Scale Mango Farmers*

Indicators	Mean	SD	Interpretation
Engagement with Microfinance Institutions	3.94	1.40	High
Awareness of Microfinance Institutions	2.25	1.46	Low
Level of Collaboration	2.88	1.45	Moderate
Overall	3.02	1.44	Moderate

Fabregas et al. (2019) further indicated that finance can boost agricultural productivity. The provision of credit to farmers facilitates the purchase of inputs and the hiring of labor and machinery, which helps sustain the crop

cycle even after harvesting (Ruan et al., 2019). This means that access to credit enables livelihood diversification and increases farmers' income. Takahashi et al. (2020) noted that farmers could invest in storage facilities, which help keep produce fresh during transportation.

As a result, farmers can secure better prices for their products by transporting them to markets offering higher returns rather than being forced to sell quickly due to the perishable nature of their goods (Ceballos et al., 2020). Moreover, improved storage facilities allow farmers to avoid selling during harvest when prices are typically low, enabling them to wait for more favorable market conditions and thus increase their income (Kotu et al., 2019). However, such investments require substantial capital, which some farmers struggle to afford.

3.4 Level of Financial Performance of Small-Scale Mango Farmers

Table 6 shows the level of financial performance of small-scale mango farmers. It includes the yield, sold, consumed, gifted, unit price, and total price of mango production. In terms of yield, the majority of the respondents have 1,500 to 4,500 kgs yield in mango production at 71.26%; others have 10,800 kgs and above with 13.79%; some respondents have 7,700 to 10,700 kgs (8.05%), and others have 4,600 to 7,600 kgs (6.90%). On the other hand, 62 out of 87 respondents indicated that they had sold 1,500 to 4,500 kgs (71.26%), 12 sold 10,800 kgs and above (13.79%), seven respondents sold 7,700 to 10,700 kgs (8.05%), and the remaining six sold 4,600 to 7,600 kgs with a percentage of 6.90. This means that while some farmers achieve higher production levels, the overall distribution suggests variability in productivity, which may be influenced by factors such as farm size, resources, and access to financial support.

Table 6. *Level of Financial Performance of Small-Scale Mango Farmers*

Description	Frequency	Percentage (%)
Yield		
1,500-4,500 kg	62	71.26
4,600-7,600 kg	6	6.90
7,700 – 10,700 kg	7	8.05
10,800 kg and above	12	13.79
Sold		
1,500-4,500 kg	62	71.26
4,600-7,600 kg	6	6.90
7,700 – 10,700 kg	7	8.05
10,800 kg and above	12	13.79
Consumed		
1-15 kg	-	
16-31 kg	-	
32-50 kg	6	6.90
None	81	93.10
Gifted		
1-15 kg	-	-
16-31 kg	2	2.30
32-50 kg	2	2.30
None	83	95.40
Unit Price		
Php 40-54	36	41.38
Php 55-69	26	29.89
Php 70-84	21	24.14
Php 85-100	4	4.60
Total Price		
Php 67,500-475,625	68	78.16
Php 475,626-883,750	12	13.79
Php 883,751-1,291,875	6	6.90
Php 1,291,876 and above	1	1.15

Most respondents (93.10%) indicated they did not consume any mango yields. The remaining 6.90% reported consuming between 32 to 50 kilograms. Regarding gifting, most small-scale farmers (95.40%) stated they did not give away any portion of their yield. A small percentage gave 16 to 31 kilograms (2.30%) and 32 to 50 kilograms (2.30%). This suggests that most small-scale mango farmers prioritize selling their yield over personal consumption or gifting, highlighting a strong market-oriented approach. Only a small portion allocated minimal quantities for personal use or sharing, indicating that mango production primarily serves as a source of income rather than subsistence.

Meanwhile, 41.38% of respondents reported that the average buying price of mangoes ranged from Php 40.00 to Php 54.00 per kilogram. This was followed by Php 55.00 to Php 69.00 (29.89%), Php 70.00 to Php 84.00 (24.14%), and Php 85.00 to Php 100.00 (4.60%). In terms of earnings, 68 out of 87 farmers (78.16%) earned between Php 67,500 to Php 475,625. Others earned Php 475,626 to Php 883,750 (13.79%), Php 883,751 to Php 1,291,875 (6.90%), and only a few (1.15%) earned Php 1,291,876 and above. These results indicate that most farmers sell their produce at a moderate price range, resulting in varying total earnings. While mango farming provides a significant source of income, only a small percentage achieve higher revenues, likely due to differences in yield, pricing strategies, or market access.

This aligns with the findings of Lajoie-O'Malley et al. (2021), who noted that the environmental impacts of economic activities have become important in evaluating overall performance. Similarly, Giller et al. (2021) emphasized that most small-scale farmers strive to increase their yields and reduce expenses. As described by Nyam et al. (2020), sustainable farm performance reflects farmers' collective perception of their environmental, yield, and financial performance following the adoption of various farming practices.

3.5 Level of Economic Impacts of Microfinance Institutions on Mango Farming

Table 7 presents the economic impacts of microfinance institutions on mango farming. These impacts include increased income, improved standard of living, reduced vulnerability to financial shocks, enhanced ability to invest in farm productivity, and others. The economic impacts of microfinance services on mango farming received an overall mean score of 3.48 (SD = 1.56), which is considered high. This suggests that microfinance services had a considerable positive economic impact on mango farming, significantly improving farming outcomes.

Table 7. *The Level of Economic Impacts of Microfinance Services on Mango Farming*

Profile	Mean	SD	Interpretation
Increased Income	3.24	1.57	Moderate
Improved standard of living	3.63	1.61	High
Reduced vulnerability to financial shocks	3.49	1.53	High
Enhanced ability to invest in farm productivity	3.57	1.51	High
Overall	3.48	1.56	High

Microfinance institutions were found to have a high impact on improving the standard of living, as shown by the highest mean score of 3.63 (SD = 1.61). This indicates that microfinance services had a considerable positive economic effect on mango farming, significantly contributing to better farming outcomes. For small-scale farmers, microfinance services provide the financial resources necessary to meet basic needs and invest in health, education, and other personal and family well-being. Similarly, microfinance also greatly enhanced farmers' ability to invest in farm productivity (Mean = 3.57, SD = 1.51), suggesting that access to microfinance has substantially strengthened their capacity to invest in improving their farms. However, the results also imply that while many farmers benefited significantly, others still face challenges in fully utilizing financial resources for farm development. In addition, microfinance greatly impacted reducing vulnerability to financial shocks (Mean = 3.49, SD = 1.53). This indicates that microfinance services have contributed meaningfully to the economic resilience of small-scale mango farmers. Access to loans has helped reduce financial vulnerability and provided greater stability, though some farmers still experience financial uncertainties. On the other hand, microfinance institutions had a moderate impact on increasing income (Mean = 3.24, SD = 1.57). The results reveal that while many small-scale farmers experienced increased income, others reported minimal or no improvement. This suggests that the financial benefits vary among farmers and are likely influenced by productivity, market access, and financial management skills.

Farmers in developing economies such as Nigeria often face low income, limited savings, and minimal investment due to low yields and price uncertainty, leading to low agricultural output (Oluwatayo, 2019). This implies that farmers struggle to earn higher incomes for various reasons (Elder et al., 2020). Among the key constraints is limited access to credit, which remains a major obstacle to agricultural production and development (Balana & Oyeyemi, 2022). This lack of credit resources hinders farm productivity, as farmers cannot afford improved seedlings, chemicals, hired labor, and transportation to market their produce—resources that would have boosted both productivity and welfare (Quddus & Kropp, 2020). Consequently, small-scale mango growers may lack access to essential inputs such as water, land, high-quality seeds, fertilizer, and pesticides (Asare-Nuamah et al., 2022), limiting their ability to optimize yield and product quality.

3.6 Relationship between the Level of Economic Benefits and Financial Performance in Mango Farming

Table 8 shows the relationship between the level of economic benefits by farmers and financial performance in mango farming. Results revealed a significant relationship between economic benefits and financial performance in mango farming as it accumulated a *t*-value of 2.95 and a *p*-value of .003, less than the 0.05 significance level. This implies that as the economic benefits derived from accessing microfinance services increase, the financial performance of farmers also tends to improve at a modest rate. Correspondingly, the significance of the economic benefits emphasizes its critical role in improving the economic outcomes of mango farmers in the locality. In conclusion, the findings suggest that enhancing the economic benefits of accessing microfinance services and allocating the budget accurately could improve local farmers' financial returns.

Table 8. Relationship between the Level of Economic Benefits by Farmers and Financial Performance in Mango Farming

	Unstandardized Coefficients	Standardized Coefficients	Std. Error	<i>t</i>	<i>p</i>
Model	B	Beta			
(Constant)	15990.44		18668.26	0.86	.392
Economic Benefits	16520.28	0.14	5592.58	2.95	.003

3.7 Relationship between the Level of Engagement and Collaborations to the Financial Performance

The level of engagement and collaboration among mango farmers and financial performance is presented in Table 9. The standardized beta coefficient of 0.01 suggests a negligible positive association. In contrast, the unstandardized coefficient (*B* = 1,935.91) implies that a one-unit increase in engagement and collaboration corresponds to an increase of Php 1,935.91 in financial performance. However, this association is not significant, as evidenced by a *t*-value of .30 and a *p*-value of .761, above the significance level of 0.05. These findings suggest that variations in the level of engagement and collaboration have minimal to no predictive power on the financial outcomes of mango farmers. In general, the findings suggest that current forms of engagement and collaborative activities do not significantly contribute to improving the financial performance of mango farmers.

Table 9. Relationship of the Level of Engagement and Collaborations to the Financial Performance of Farmers

	Unstandardized Coefficients	Standardized Coefficients	Std. Error	<i>t</i>	<i>p</i>
Model	B	Beta			
(Constant)	56520.84		26994.47	2.09	.037
Engagement and Collaboration	1935.91	0.01	6355.76	0.3	.761

3.8 Different Challenges faced by Small-Scale Mango Farmers

Table 10 shows the different challenges faced by small-scale mango farmers. These include climate change, pests and diseases, access to quality inputs, lack of technical knowledge, postharvest losses, market access and pricing, financial constraints, land tenure issues, labor shortages, and environmental sustainability. Results showed that all respondents reported experiencing challenges related to climate change and pest and disease infestations during mango production. These findings highlight that such issues are pervasive and significantly threaten the productivity and long-term sustainability of mango farming. Most respondents (51.70%) also reported difficulties accessing quality inputs, while the remaining 48.30% indicated it was not a problem. This suggests that access to quality inputs remains a critical barrier for more than half of the farmers, potentially limiting their ability to optimize yield and improve farm efficiency. Additionally, 53 out of 87 respondents (60.90%) stated they possess sufficient technical knowledge in their farming practices, while the remaining 39.10% admitted that lack of technical knowledge was a challenge. This indicates that although most are knowledgeable, a substantial number still require targeted training and capacity-building programs.

Similarly, 63.20% of small-scale mango farmers reported difficulties accessing markets and securing better product prices. These findings emphasize that limited market access and unfavorable pricing structures are major constraints, directly affecting farmers' income and long-term economic sustainability. Furthermore, 57.50% of the respondents mentioned that they did not experience financial constraints during mango production, while the rest identified it as a problem. Although financial constraints are not universally experienced, a notable portion of farmers still struggle to secure sufficient capital, hindering their ability to invest in improved farming practices. Nearly all small-scale mango farmers (82.80%) reported no issues related to land tenure, while 15 respondents indicated otherwise. Additionally, all participants stated that labor shortages and environmental sustainability

were not significant concerns during mango production. This suggests a relatively stable foundation for mango farming in terms of land ownership, labor availability, and environmental conditions.

Table 10. *Different Challenges faced by Small-Scale Mango Farmers*

Challenges	Frequency	Percentage %
Climate Change		
Yes	87	100
No	-	-
Pest and Disease		
Yes	87	100
No	-	-
Access to Quality Inputs		
Yes	45	51.70
No	42	48.30
Lack of Technical Knowledge		
Yes	34	39.10
No	53	60.90
Postharvest Losses		
Yes	-	-
No	-	-
Market Access and Pricing		
Yes	55	63.20
No	32	36.80
Financial Constraints		
Yes	37	42.50
No	50	57.50
Land Tenure Issues		
Yes	15	17.20
No	72	82.80

These findings are supported by Ntsoane et al. (2019), who noted that despite growing demand in both developing and developed regions, post-harvest losses remain a significant challenge to the economic benefits of mango production. Girma and Garo (2021) further explained that several factors influence the quality of mango fruits throughout the supply chain, such as poor farm sanitation, improper harvesting practices, inadequate packaging, insufficient post-harvest treatments, poor temperature management, rough handling, and substandard transport and storage conditions. If not addressed, these factors could directly or indirectly reduce income for small-scale farmers and increase post-harvest losses (Morris et al., 2019).

Negi and Trivedi (2021) emphasized that inadequate harvesting technology, storage facilities, and infrastructure continue contributing to agricultural losses, particularly in emerging economies. Similarly, Hossain et al. (2020) warned that current agricultural practices are increasingly unsustainable due to land degradation and declining productivity, posing risks to both present and future socio-economic well-being. Sarmin and Hasan (2020) also noted that small-scale farmers often struggle to access markets due to poor transportation systems, inadequate infrastructure, and limited market knowledge. As a result, they frequently rely on intermediaries who may exploit them by offering low prices for their produce (Bhatt et al., 2022). Despite agriculture's potential, it faces multiple constraints that limit its effectiveness in addressing food insecurity and poverty (Zmjia et al., 2020).

4.0 Conclusion

Based on the study's findings, several conclusions were drawn. The majority of small-scale mango farmers were between 36 and 51 years old, predominantly male, married, and high school graduates. Most had household sizes ranging from four to six members, identified as Cebuano, and owned farmlands of about one to two hectares. Regardless of farm size, these farmers typically owned their farms, managed their finances independently, and supplemented their income by offering spraying services to other farms. Most small-scale mango farmers accessed loans from microfinance institutions (MFIs), particularly within the Php 100,001.00 to Php 500,000.00 range. However, a significant number did not allocate the full loan amount exclusively for mango farming, diverting some funds to personal expenses and other needs. This reflects credit's dual role in supporting household and agricultural needs. Regarding farm productivity, most mango farmers reported yields between 1,500 and 4,500 kilograms, with the majority selling their entire harvest. Very few consumed or gave away any part of their yield. The average selling price ranged from Php 40.00 to Php 54.00 per kilogram, with earnings mostly falling between

Php 67,500.00 and Php 475,625.00. Economic benefits such as increased access to capital and higher productivity per hectare were rated high. However, areas such as orchard expansion, irrigation improvements, post-harvest handling, and market access were rated moderately. Diversification into value-added mango products received the lowest rating. Notably, the study found a significant relationship between the economic benefits of microfinance and mango farmers' financial performance. This implies that access to microfinance credit significantly contributes to the productivity of small-scale mango farming. The level of engagement and collaboration between small-scale mango farmers and microfinance institutions was rated as moderate. This suggests that their collaboration is not intensive while farmers engage with MFIs. More importantly, there was no significant relationship between this level of engagement and the farmers' financial performance. This implies that farm productivity was primarily influenced by access to microfinance credit rather than the ongoing collaboration level with MFIs. To further support these farmers, appropriate agencies are encouraged to provide localized services that address their unique challenges. These may include pest management training, climate change adaptation workshops, and labor assistance programs. Government agencies and agricultural offices can collaborate with MFIs to create more accessible loan products tailored to small-scale farmers' needs. Since many farmers reported difficulties in accessing loans due to high requirements and lengthy processing times, it is recommended that MFIs consider simplifying application procedures, reducing collateral demands, and accelerating loan approvals to serve this sector better.

5.0 Contributions of Authors

This research is an output of a collaborative effort between authors. Ms Girasol as the main author was in charge of the data gathering, writing, data encoding and interpretation, while Dr. Roxas served as the research adviser who supervised the conduct of the study, as well as proofreading and editing.

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7.0 Conflict of Interests

Non-Declared.

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