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Research Article

Exploring the Operations Management of Rice Farmers: A Case Study in Molave, Zamboanga Del Sur

Jessa Gallano*, Arha Mae D. Sealza, Jamby E. Basit, Ace Virgel Fiel T. Batingal

College Of Business Education, Saint Columban College, Pagadian City, 7016, Philippines

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**Corresponding author:*
E-mail:
Jessagallano0630@gmail.com

ABSTRACT

This study explored the operational management of rice farmers in Molave, Zamboanga del Sur, focusing on how they finance their farms and address farming needs from cultivation to harvest. Small to medium-sized rice farmers face increasing challenges related to funding, resource access, and labor practices. Understanding their management strategies provides insights into improving agricultural sustainability. A qualitative case study approach was employed, guided by Sharan B. Merriam's methodology. Ten experienced rice farmers aged 25 and above, each operating farm for at least two years, participated in the study. Data were collected through semi-structured interviews, field observations, and audio recordings. The researchers served as the primary instruments of data collection, ensuring accuracy and contextual depth through transcription and thematic analysis. Findings revealed significant financial constraints among farmers, including limited access to credit, high operational costs for equipment, labor, fertilizers, and pesticides, and a lack of effective risk management practices. Additionally, unfair labor practices in rice trading were found to negatively impact farmer income and sustainability. Based on these findings, the study recommends that local governments enhance support for farmers by investing in agricultural infrastructure, organizing farmer associations, and providing free fertilizers and pesticides.Farmers are encouraged to engage in continuous learning and strengthen peer networks to build resilience. Future research should explore the broader impact of farm operations on local economies to inform policy and innovation. This study contributes to a deeper understanding of rice farming operations and highlights the need for targeted support to improve rural livelihoods.

Keywords: *Operational Management of Rice Farmers' Unfair Labor Practices*

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Introduction

Rice farmers are vital to national food security and rural livelihoods, providing a staple crop that sustains millions. Their management of farming operations involves strategic land use, careful resource allocation, and the adoption of appropriate technologies to optimize production. Despite facing challenges such as unpredictable weather, pest infestations, rising input costs, and fluctuating market prices, they demonstrate resilience and adaptability through innovative practices, community cooperation, and prudent decision-making. In Molave, Zamboanga del Sur, rice farming serves not only as a livelihood but also as a cultural legacy, with many farmers continuing the practice driven by family heritage and limited educational opportunities, reflecting both the economic importance of their work and their enduring commitment to sustaining agricultural life. However, unfair labor practices, such as low wages, excessive working hours, lack of social protection, and unequal treatment of hired laborers, remain common, adding to the difficulties faced by farmers and workers alike. These issues underscore both the economic importance of rice farming and the urgent need for more equitable labor practices to sustain agricultural life.

Rice farmers' decisions are shaped by factors such as land size, irrigation access, land ownership, and age, while their productivity is influenced by pest and disease management, soil fertility, and access to modern technologies (Bunyasiri et al., 2024; Surya et al., 2024). Despite adopting practices like integrated pest management, smart farming, and precision irrigation, challenges persist due to limited awareness, resource constraints, and mismatched technology preferences (Fatondji et al., 2020; Abebrese et al., 2019; K et al., 2024). Climate variability, fluctuating market prices, and environmental degradation further complicate operations, highlighting the need for flexible sowing schedules, drought-tolerant varieties, and climate-smart agriculture supported by extension services and institutional linkages (Aye et al., 2022; Nath et al., 2024). Effective operational management requires optimized resource allocation, labor organization, and technology adoption, coupled with strong connections among farmers, credit institutions, service providers, and markets (A et al., 2021; Mekonen, 2024). Integrating indigenous knowledge with modern tools, promoting group farming, improving credit access, and fostering knowledge sharing are critical to enhancing efficiency, productivity, and resilience (Kommey et al., 2022; Apeh et al., 2024). This study in Molave, Zamboanga del Sur, evaluates how funding, resource use, and operational strategies affect farm efficiency, risk management, and sustainability, offering practical insights to strengthen livelihoods, food security, and sustainable rural development.

Statement of the Problem

This study explored the Operations Management of Rice Farmers of Molave, Zamboanga Del Sur, the academic year 2024 - 2025. This study addressed the central question, "What are the key financial strategies that help Rice Farmers to manage their operations for the long-term success in Farming? Specifically, it answered the following questions:

1 What are the sources of funds of the rice farmers financing the farm?
2 What are the operational needs of the rice farmers?
3 What are the challenges encountered by the rice farmers in the operations?
4 How do the rice farmers cope with the challenges encountered in their farming operations?

Methodology

This study employed a qualitative case study approach, following Merriam's framework, to explore how rice farmers in Molave, Zamboanga del Sur manage their agricultural operations, particularly in financial planning, resource allocation, and overall farm management. Ten purposively selected farmers, aged 25 and above with 1–4 hectares of land, participated in the study. Data were collected through semi-structured interviews, observations, and artifact analysis, with participants coded for anonymity. The researchers examined daily operations, financial decisions, labor deployment, risk management strategies, and technology use. Data were analyzed iteratively

using thematic coding to identify patterns in financial management, operational challenges, coping strategies, and technological adaptation. Ethical protocols, including informed consent, confidentiality, and voluntary participation, were strictly observed. This methodology provided in-depth, context-rich insights into how rice farmers navigate financial, environmental, and logistical challenges, offering practical understanding to address the study's problem.The study found that rice farmers in Molave manage their operations by combining traditional practices with adaptive strategies to overcome financial, environmental, and operational challenges. Key factors affecting their decisions included land size, irrigation access, labor, and credit availability. Farmers employed flexible planting schedules, drought-tolerant and early-maturing rice varieties, pest management practices, and selective technology adoption to sustain productivity. Community collaboration and knowledge-sharing also played a significant role in coping with challenges. The study concludes that rice farmers demonstrate resilience and innovation despite resource limitations, climate variability, and market pressures. Strengthening access to credit, modern technologies, extension services, and collaborative networks is essential to enhance productivity, income stability, and long-term sustainability, contributing to food security and rural development.

Results and Discussion

Table 1. Sources of Funds of the Rice Farmers Financing the Farm

Response	No. of Respondents
1. Short Term Loan	7
2. Selling of Assets	2

The data showed that temporary borrowing was a common strategy among rice farmers to manage operational costs during planting and cultivation, particularly for expenses like fertilizers. Farmers typically borrowed short-term with the intent to repay after selling the harvest, helping them manage cash flow without incurring long-term debt. To avoid deeper debt, many also sold assets such as pigs, cows, or jewelry, providing immediate funds while preserving more valuable resources like land. This approach reflected a practical means of addressing short-term financial needs while maintaining long-term stability.

Borrowing money can improve farming efficiency, especially for low-income farmers, by providing them with the resources needed to enhance productivity. Improving financial services in rural areas, reducing transaction costs through closer credit institutions, and lowering interest rates are essential steps to support agricultural growth (Wang et al., 2024). Additionally, providing training, helping farmers meet quality standards, and strengthening cooperatives can further improve their incomes and asset accumulation, particularly for those accessing High-Value Markets. Effective management of support programs like the Rice Competitiveness Enhancement Fund (RCEF), with a focus on microfinancing and accessible community support, is also critical for sustainable development (Huka et al., 2024).

The concept of temporary borrowing was evident among rice farmers who relied on short-term loans to manage immediate operational costs due to insufficient funds. Instead of paying all expenses upfront, they preferred borrowing manageable amounts to avoid financial strain, often repaying the loans after harvest. However, high-interest rates made large loans less desirable, prompting some to favor self-financing. Others repaid most of their debt post-harvest, clearing remaining balances in the next cropping season. To avoid excessive borrowing, many turned to asset liquidation, such as selling livestock or pawning jewelry, which they redeemed after selling the harvested rice. This strategy provided a practical way to ease financial pressure during tight periods and maintain cash flow.

Rice farmers often relied on temporary borrowing to cover immediate operational costs, such as fertilizers, with plans to repay after the harvest. While some preferred self-financing to

avoid high interest, limited resources made borrowing necessary. They typically borrowed small amounts, repaid post-harvests, and used asset liquidation like selling livestock or jewelry to avoid long-term debt and preserve land. This short-term strategy helped manage cash flow but hindered the capital buildup for future investments. Improved access to financial support, such as low-interest loans or subsidies, could offer greater stability and reduce reliance on selling assets for survival.

Table 2. Operational Needs of the Rice Farmers

Response	No. of Respondents
1. Farm Management	5
2. Funds	4
3. Farming Machineries	8
4. *Fertilizers*	4

Farmers emphasized the importance of proper land preparation, including irrigation, plowing, and the use of tractors or carabaos, as essential steps for a successful harvest. Preparing the soil involved hard labor, from clearing debris to creating seedbeds, with some resting the land before fertilizing for a new cycle. Scheduling machinery services was often a challenge, especially when personal equipment was unavailable. Labor and costs were major factors in farming, with expenses covering seeds, fertilizers, machinery rentals, and hired help. Farmers agreed that success required both hard work and smart financial planning. The use of modern technology and machines improved efficiency, increased productivity, and added value to harvests. Effective farm management and responsible pesticide use were also seen as critical to protecting crops and ensuring healthy yields. Overall, combining innovation, organization, and resource management was key to maintaining a sustainable and profitable rice farm.

Farmers who converted their land use experienced a significant drop in rice farming income, highlighting the economic challenges of such changes (Yuliantina et al., 2024). To improve productivity and income, many adopted soil nutrient managements, used modern machinery, and relied on key factors like seed quantity, fertilizer and pesticide use, and labor efficiency. Training and supportive policies such as subsidies, rental centers, and access to stress-tolerant rice varieties encouraged technology adoption. Efficient pesticide use, guided by farmer knowledge and extension services, helped reduce health and environmental risks while improving crop health (Wang et al., 2024).

Rice farmers prioritized key preparation practices such as irrigation, plowing, and seedbed preparation, using methods aimed at improving soil fertility and pest control. They faced challenges like scheduling tractor services and managing labor but overcame these through experience and strategic planning. A consistent theme emerged showing that success in farming required a balance of hard work and smart financial management, with costs for seeds, labor, and equipment being critical. The adoption of machinery such as tractors, harvesters, and seeders significantly improved efficiency, reduced labor costs, and increased yields. Farmers agreed that machinery enhanced the precision and speed of farming tasks, contributing to higher productivity and profitability. Fertilization and pest control were also carefully managed, with the right amount of fertilizer applied in multiple cycles and proper chemicals used to ensure healthy crop growth. Labor decisions, including hiring for tasks like spraying and planting, reflected a strategic use of resources to maximize outcomes. Overall, effective resource management and the integration of technology were key to improving rice farming operations.

Rice farmers prioritized irrigation and land preparation using a combination of tractors, carabaos, and rotavators to till the soil and control pests like rats. Renting tractors, which cost about 7,000 pesos per hectare for three passes, posed scheduling challenges that could delay

planting. Farmers typically allowed the land to rest before fertilizing and planting, highlighting their resourcefulness despite limited equipment access. Success in farming relied heavily on both labor and financial management, as managing costs for seeds, labor, and equipment was as important as physical effort. To boost efficiency and productivity, farmers increasingly adopted modern machines and innovative techniques that simplified operations, reduced labor, and increased profits through better crop preservation. Fertilizer and pesticide use was carefully planned, with significant investments like applying 16 sacks per hectare twice per season. While some managed their fields independently, many relied on hired labor for key tasks such as spraying and planting. Overall, rice farmers balanced hands-on work, strategic spending, and modern practices to improve sustainability and profitability.

Table 3. Challenges Encountered by the Rice Farmers in the Operations

Response	No. of Respondents
1. Climate	9
2. Unfair Practice in Trading	8
3. Agricultural Pest	7
4. High-Cost Expenses	4

Researchers validated the farmers' experiences by consulting family members, neighbors, local customers, and agricultural experts. Family and neighbors confirmed the impact of unpredictable climate conditions on farming, citing wasted fertilizers and pesticides due to heavy rain or droughts. These accounts highlighted the losses farmers faced during disrupted planting seasons. Cross-checking with other farmers confirmed issues like unfair price manipulation and inaccurate measurements, with buyers admitting their role in setting low prices. Local consumers and agricultural records also supported findings on pest damage from stemborers, rats, and snails. High farming expenses, particularly for fertilizers, fuel, and equipment, were consistently reported. Input from neighboring farmers, buyers, and agricultural experts, along with data from agricultural reports, reinforced the widespread nature of these financial challenges, ensuring the reliability of the findings.

Reliable early warning systems and modern technology are becoming increasingly important in helping rice farmers adapt to climate-related challenges, as they face heightened vulnerability due to unpredictable weather patterns and environmental stressors (Dhanya et al., 2024). To build resilience, it is crucial to integrate traditional farming knowledge with innovative practices, ensuring both sustainability and adaptability. In addition to climate adaptation, the efficiency and safety of pesticide use among farmers depend heavily on their knowledge, experience, and access to extension services. Proper training, the use of personal protective equipment, and adherence to safety protocols are essential to minimize health risks and improve pesticide practices (Hossian et al., 2023). Furthermore, strengthening the relationship between farmers and buyers through transparent and fair-trading systems could foster more sustainable agricultural practices, while improving profitability through better market access and reduced exploitation. Enhancing farmers' entrepreneurial mindset and providing access to resources like land and capital are also vital, as these factors strongly influence productivity and income.

Climate-related disruptions had a major impact on rice farming efficiency, with farmers, family members, and neighbors reporting significant losses due to unpredictable weather that rendered fertilizers and pesticides ineffective. These disruptions created a cycle of poor productivity and financial strain, highlighting the need for climate adaptation strategies and resilient agricultural practices. Farmers also faced exploitation from buyers who manipulated rice weights and prices, especially when quality was low or during peak harvest periods, with prices dropping to as low as 15 pesos per kilo. Pests like steamborers, rats, snails, and diseases such as Tungro and fire blight further

damaged crops, especially during floods that made pest control harder. In addition, high costs for fertilizers, fuel, and water pumps placed a heavy financial burden on farmers, particularly in areas without irrigation. Many were forced into debt to sustain operations, often without earning enough to break even, making it increasingly difficult for them to keep their farms running.

Flooding was identified as the most damaging climate-related challenge in rice farming, destroying crops, delaying harvests, and causing major financial losses due to wasted seeds, fertilizers, and labor. Some farmers even lost farmlands entirely, highlighting the urgent need for better flood management and support systems. Beyond climate issues, they also faced unfair trade practices, with buyers manipulating prices and weights based on moisture content and harvest timing, leaving farmers with little control over their earnings and financial stability. The lack of transparency and fairness in the rice market called for immediate intervention to protect farmers' rights and incomes. Pests like stemborers, rats, and snails especially during floods further reduced yields and increased crop vulnerability, while unpredictable weather worsened these infestations. At the same time, rising costs for fertilizers, fuel, and irrigation strained farmers financially, especially as rice prices remained low. Many were forced into debt just to stay operational. Despite these setbacks, farmers showed resilience, but the combination of climate risks, pest threats, market exploitation, and high production costs made it increasingly difficult to sustain profitable rice farming.

Table 3. Rice Farmers Cope with the Challenges Encountered in their Farming Operations

Response	No. of Respondents
1. *Faith and acceptance of farming Failure*	2
2. *Accept Systematic Nature of Rice Pricing*	4
3. *Pest Management*	9
4. *Balancing Costs*	6
5. Department of Agriculture Support	8

To ensure the reliability and accuracy of the findings, researchers gathered information from a wide range of sources, including rice farmers, their neighbors, family members, local buyers, agricultural experts, and government agencies. This approach allowed for a more comprehensive understanding of the real challenges farmers face in their daily operations. Farmers shared personal accounts of their struggles with high input costs, fluctuating market prices, and climate-related disruptions, while neighbors and family members confirmed these experiences by describing the broader impact on their communities. Local buyers provided insights into pricing practices, revealing how factors like harvest timing and rice quality influenced what farmers earned. Researchers also reviewed farming cost documents, pest control records, and historical rice price data to identify consistent patterns and economic trends. Consultations with pest control suppliers and agricultural organizations further validated information about farming practices and input availability. Additionally, farmers were given the opportunity to review and confirm the accuracy of the findings, ensuring their perspectives were truthfully represented. By triangulating data from these various sources, the study was able to provide a detailed and credible picture of the hardships and economic pressures rice farmers face, while also highlighting the importance of multi-stakeholder involvement in addressing these challenges.

Rice farmers showed resilience by adapting to challenges like drought, poor soil, pests, and unpredictable weather instead of giving up, learning from failure, and continuing to hope for better outcomes (Aye et al., 2022). Despite using pesticides and adopting new tools like mechanical seeds, they still faced difficulties in achieving consistent results. Many improved soil managements and relied on fertilizers to reduce costs and increase yields. The Rice

Tariffication Law, however, reduced incomes and forced some farmers to leave agriculture or find other sources of income, while government subsidies helped others manage costs and stay afloat (Aureada & Dizon, 2024).

Farmers showed resilience by accepting setbacks like floods and poor harvests as part of farming, relying on faith and practical strategies such as using tarps to reduce costs to adapt and protect their livelihoods. They acknowledged having little control over rice prices but focused on improving their yields through better field care. Pest control was a major priority, with farmers using both chemical and natural methods, investing in early intervention despite high costs to protect their crops. Financial challenges were constant, especially for essentials like fuel, fertilizers, and pesticides, yet they remained committed to sustaining their farms. Support from the Department of Agriculture (DA) played a vital role, with farmers benefiting from free seeds, fertilizers, expert advice, and training sessions that helped improve farming techniques and ease their financial burden.

The data showed that faith and adaptability helped farmers cope with challenges, as they accepted setbacks like floods as part of farming and responded with practical solutions such as using tarps to reduce losses. While they recognized the unfairness of the pricing system, they stayed focused on improving what they could control, like crop care and income strategies demonstrating strong resilience. Pest management was a top priority, and despite the high cost of pesticides and chemicals, farmers invested in them to protect their yields. They often borrowed money or sold assets to afford essential supplies, balancing financial strain with the need for a successful harvest. Farmers also emphasized the vital role of the Department of Agriculture (DA), whose guidance, free seeds, fertilizers, and training helped them improve productivity and reduce costs. Overall, the responses highlighted the farmers' perseverance and the importance of continued government support in sustaining their livelihoods.

Conclusion

This study explored the factors that affected rice farmers and how they managed operational and financial challenges. Aligned with the Resource-Based View (RBV) theory, it emphasized that access to resources such as capital, knowledge, and assets significantly influenced farm success. Effective financial management through self-financing, loans, and partnerships played a key role in sustaining operations. Rice farmers may motivated by economic needs, family traditions, and business growth, engaging in activities such as crop production, farm management, and technology adoption. However, they faced challenges like unpredictable weather, crop diseases, and market fluctuations. To address these, they implemented strategies such as pest control, climate adaptation, income diversification, and market monitoring. Despite these efforts, external factors like environmental conditions and market trends heavily impacted their success. The study highlighted the need for greater support, including financial aid, training, and access to modern technologies, to improve operational efficiency and long-term sustainability.

To enhance rice farming in Molave, farmers should adopt climate-smart practices, such as drought-tolerant and early-maturing varieties with flexible planting schedules, as successfully applied in Bukidnon. Strengthening access to credit and shared resources can enable investment in modern technologies, similar to cooperative-based systems in Isabela. Knowledge-sharing and training on pest management, soil fertility, and sustainable practices, as seen in Nueva Ecija's farmer field schools, can improve productivity. Promoting fair labor practices and reasonable wages, along with fostering community collaboration through cooperative farming, can optimize resources, increase yields, and support both farmers and laborers for long-term sustainability.

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