Assessing the Relationship Between Financial Knowledge and Resilience Among Small-Scale Rice Farmers in Davao Oriental

Cherry Mae B. Guay[1], Teddy E. Colipano[2]

Davao Oriental State University-Cateel Campus, Central Mindanao University

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ABSTRACT

Small-scale rice farmers had faced several problems that includes high production cost, unsustainable income, environmental challenges that affect the livelihood of the farmers. These obstacles make the financial knowledge become essential for helping the farmers manage their finances while coping with unexpected situation. This study aimed to examine the relationship of financial knowledge and resilience of the small-scale rice farmers. The study used a quantitative descriptive correlational design, with 360 respondents selected using stratified random sampling. The data were collected using a self-structured questionnaire and analyzed using mean, standard deviation and the Pearson product-moment correlation coefficient. The results showed that respondents had a high level of financial knowledge (m= 4.18) and were resilient (m = 4.17). A significant moderate positive correlation between financial knowledge and resilience was also discovered (r = .534, p = .000). This indicates that farmers who are more knowledgeable about financial matters are also more capable of coping with financial and farming problems. Consequently, the study found that financial knowledge is a significant factor in enhancing the financial resilience of small-scale rice farmers.

Keywords: financial knowledge, rice farmer, resilience

INTRODUCTION

Rice farming is one of the primary sources of livelihood for rural families in the province of Davao Oriental, particularly for small scale farmers, who rely on small land holdings and seasonal farming for their livelihood. Many rice farmers face problems like rising costs of farm inputs, price volatility for rice, difficulty in accessing agricultural support services and climate-related issues like droughts and floods, even though they are vital in rice production. The challenges have a significant impact on their livelihoods and productivity. Smallholder farmers are one of the most vulnerable groups of people, as they depend on agriculture to survive, according to the Food and Agriculture Organization (2017). Additionally, Harvey et al. (2014) cited that a negative impact of climate related risks on the livelihood and productivity of farming households and Morton (2007) pointed out that small-scale farmers are highly vulnerable to economic and environmental uncertainties because they lack resources and support systems.

Resilience has become an important concern among small-scale rice farmers because many farming households struggle to cope with financial and agricultural difficulties. Farmers may experience difficulties as a result of crop failures, natural disaster, debt and fluctuating income, particularly if they do not have large savings and financial resources. Barrett and Constas (2014) defined resilience as households' capacity to resist and rebound from problems and stresses in their lives that threaten their livelihood and wellbeing. Likewise, Béné et al. (2016) reported that resources and the ability of households to adapt in challenging contexts are key factors that affect resilience. Folke (2006) also noted that resilience is relevant to rural communities to maintain their livelihoods in the face of ongoing environmental and economic shifts.

Financial literacy is one of the important factors which can help in the resilience of the rice farmers. Financial knowledge is the ability to comprehend the basic financial concepts including budgeting, saving, borrowing and financial planning. Farmers who possess a higher degree of financial literacy will be more likely to be able to

handle their farm income appropriately, to plan for emergencies, and to make economically sound decisions. Lusardi and Mitchell (2014) pointed out that financial knowledge is associated with better financial behavior, and better financial wellbeing. Additionally, Xu and Zia (2012) have reported that those who are knowledgeable about finance practice it better, and Klapper et al. (2015) has found that financial knowledge will lead to higher financial preparedness in the period of economic hardship. When applied to the agriculture sector, financial knowledge can empower smallholder rice farmers with the ability to manage their finances better and enhance their financial stability, which is crucial for their resilience and successful response to uncertainties and challenges.

This study sought to determine the relationship between financial knowledge and resilience among small-scale rice farmers in Davao Oriental. Specifically, it aimed to assess the level of financial knowledge and resilience of the respondents and examine whether financial knowledge significantly influences the ability of rice farmers to cope with financial and agricultural challenges. The study was conducted in response to the observed limited financial knowledge, poor budgeting practices and inadequate financial planning among small-scale rice farmers which may weaken their capacity to adapt to unexpected economic and environmental difficulties.

REVIEW OF LITERATURE

Financial knowledge is also considered an important component of financial literacy and it can enable people to grasp the fundamental financial concepts and make appropriate financial judgments. The OECD (2025) defines financial knowledge as the ability to comprehend savings, budgeting, financial risks and financial management related to financial well-being and financial resilience. Earlier research has demonstrated financial knowledge's contribution to the resilience of rural households and farmers. Catacutan (2023) highlighted that financial literacy has the contribution in sustaining the resilience of the rice farmers in the aspect of financial management and on the ability to cope up when there is adversity. In addition, Mullaymeri and Gjoni (2025) through financial knowledge the rice farmers decision making in terms of finances, risk and sustainability has improved.

Financial knowledge is applied by farmers in various ways like budgeting for input cost, understanding loan term, calculating interest and repayment schedules, diversifying income sources, investing in farm machinery or improved seed and managing risk (Santoso, Asmara & Abidin, 2020). In the study of rice farmers in the Philippines, Sanglay, Apat Sumague and Tec (2021) found that age, educational attainment and income had significant difference in how farmers distributed income and these were associated with their financial literacy level. In the learning FarminFin, (2024) highlight by the author that many farmers have low knowledge of modern financing instrument and that when knowledge is scarce, usage of this instrument is also low. In one of the Philippine studies of small-scale farmers in Guimaras, financial knowledge was assessed and found that only 39.7% achieved high knowledge score while 53.2% were in a moderate category implying gaps remaining in applying knowledge to farm decision (Galapin et al., 2025).

In addition to resource allocation and investment, financial knowledge has been associated with higher household income and economic stability of rural farm families. Evidence from rural China indicates that an improvement in financial knowledge is positively linked to an increase in the income of the farming households, implying that farmers with financial knowledge will find it easier to manage their loans and take decisions that boost net returns (Guo et al., 2023). Farmers' financial knowledge is also linked to their access to and utilization of formal credit, which can be vital for coping with production shocks, anticipating irregular income cycles, and incorporating new technologies (Galapin et al., 2025).In Indonesia, for example, studies examining smallholder farmers' financial behaviors indicate that greater understanding of credit and savings tools enhances precautionary saving and credit use, both of which function as buffers against economic and climate shocks (Retnoningsih & Chung, 2025). Collectively, these findings demonstrate that financial knowledge not only supports better financial choices at the farm and household levels but also contributes to broader rural economic sustainability, resilience, and capacity to cope with uncertainties in agricultural livelihoods.

Resilience refers on the ability to cope up and withstand amidst financial uncertainties, can recover shocks, economic challenges and able to maintain financial difficulty. The OECD (2022), emphasized that acquiring financial knowledge can promotes the adoption of financial behavior leading towards resilience. Thus, farmers

with a high financial literacy are more likely to be financially prepared and able to cope with agricultural and economic risks. Resilience in farming is not a singular nor uniform concept rather than it encompasses multiple dimension that reflect how agricultural systems responds to unwanted changes. Upon understanding the different type of resilience is important as each has to play their distinct role in shaping the farm sustainability, productivity and long-term viability. The commonly discussed forms in agricultural research are adaptive resilience and planned resilience which give emphasis on farmers capacity to adjust over time and proactively prepare for future uncertainties (Cabell & Oelofse, 2012; FAO, 2023).

Planned resilience presents the proactive approach in strengthening agricultural system before the shocks occur. It simply emphasizes the anticipation, preparation and risk mitigation through deliberate strategies policies and investment (OECD, 2020). In the agricultural literature, planned resilience it being characterized as forward-looking planning and structural measures that reduces vulnerability to known and projected risk (OECD, 2020; Meuwissen et al., 2019). It consists of several core component, first is risk assessment and forecasting that allow farmers and institutions to systematically evaluate possible potential hazards such as climate extremes, market fluctuation and develop contingency plan (OECD, 2020; Meuwissen et al., 2019).

In the aspect of rice farming, planned resilience is distinctly crucial because production is very sensitive to the environmental changes and market fluctuation. The program supported by the Internation Rice Research Institute (IRRI) give emphasis on the proactive measures in the aspect of financial safety nets, crop insurance, farmers cooperatives and diversification strategies to stabilize production and improve livelihood of the farmers (IRRI, 2025). In the farm level, planned resilience had manifested that cultivating stress tolerant rice varieties, implementing water-saving techniques like alternating wetting and drying and maintaining the records for pre-season budgeting and resource allocation. In this way, it helps farmers anticipate potential threats to the production cycle, reduce risk of crop losses and ensured continue productivity even during the adverse environmental condition (FAO, 2025). By adopting planned resilience measures, the farmers are well prepared to responds to environmental shocks leading to stable income and maintain food security.

Hypothesis

Null hypothesis: There is no significant relationship between financial knowledge and resilience of small-scale rice farmers.

METHODOLOGY

The study utilized quantitative descriptive correlation research design. Descriptive was employed in determining the level of financial knowledge and resilience while correlational design was used examining the relationship of financial knowledge and resilience. The respondents were the rice farmers of Davao Oriental and registered in the Registry System for Basic Sectors in Agriculture. The study used the responses of 360 rice farmers respondents which were selected through stratified sampling per municipality. The researcher used self-constructed survey questionnaire. The questionnaire was subjected to validation and pilot testing which resulted to Cronbach's alpha of 0.708 for financial knowledge and 0.787 for resilience, indicating an acceptable level of reliability and internal consistency among items on the questionnaire. Prior to the data gathering, the paper underwent Institutional Ethics Review at the University. And after the approval, the researcher conducted face to face survey and the questionnaire used 5-point Likert scale. The tool used in the study were, standard deviation, mean score and Pearson product moment coefficient to determines the relationship.

RESULTS AND DISCUSSION

Financial Knowledge

Financial knowledge refers to rice farmers that able read and interpret financial information and apply it to real life financial situations. The financial knowledge in rice farming comprises of budgeting farm income, saving money, farm loans management, farm expenses planning and financial risk management for farm activities.

Table 1. Level of financial knowledge of the rice farmers

INDICATORS	STANDARD DEVIATION	MEAN	QUALITATIVE INTERPRETATION
I understand how to plan and manage a budget that cover rice production while also allocating income for my household daily needs.	0.77	4.32	Very High financial knowledge
I seek information or advice before borrowing for rice farming to make sound financial decisions.	0.76	4.24	Very High financial knowledge
I regularly set aside a portion of my income from rice farming as savings for future needs or emergencies.	0.79	4.18	High financial knowledge
I am confident in managing and repaying debts or loans I have used in rice production.	0.76	4.17	High financial knowledge
I am aware of social security programs or insurance or farmers assistance that can protect my family and farm from financial risk.	0.73	4.17	High financial knowledge
I understand the risks involved in farming and take steps to manage or mitigate them financially.	0.76	4.17	High financial knowledge
I am knowledgeable about different ways to invest related to farm improvement, inputs or other income generating activities that can increase my income	0.80	4.16	High financial knowledge
I can compute the interest and repayment amount of loans taken for rice farming and understand how these affect my farm income.	0.77	4.16	High financial knowledge
I understand that rising price of farm inputs and household reduce the value of my savings and income from rice farming.	0.75	4.11	High financial knowledge
I can compare different financial products (loans, savings) and choose the one most suitable for my rice farming needs.	0.83	4.11	High financial knowledge
Overall Mean		4.18	High financial knowledge

Legend:

Scale	Range of values	Descriptive Rating	Qualitative Interpretation
5	4.20-5.00	Strongly agree	Very high financial knowledge
4	3.40-4.19	Agree	High financial knowledge
3	2.60-3.39	Neutral	Moderate financial knowledge
2	1.80-2.59	Disagree	Low financial knowledge
1	1.00-1.79	Strongly disagree	Very low financial knowledge.

The result shows the overall mean of 4.18, which has the qualitative interpretation of high financial knowledge. This suggests that the rice growers have understood the financial concepts in terms of budgeting, borrowing, saving, investment, dealing with debt, and financial protection. This indicates that the respondents have already had years of experience in farming and regular contact with financial issues, acquiring practical financial skills. They may not always have formal knowledge of dealing with their finances; it may be from various experiences they have faced throughout their farming seasons. Lusardi and Mitchell (2017) have found that financial knowledge helps individuals make sound financial choices and work assets properly. In a similar way, Hasan et al. (2021) emphasized that rural households have knowledge on dealing with finances and even practice good financial management that is able to support them during emergencies. This revealed that rice farmers have high financial knowledge that can support continuing farming and provide for their families despite the adversities faced in the agricultural sector.

The indicator “I understand how to plan and manage a budget that covers rice production and also allocate income for my household daily needs" obtained a mean score of 4.32, which is interpreted as very high financial knowledge. This means that rice farmer-respondents have a strong understanding of the importance of budgeting farm and household expenses. The standard deviation shows that the farmers have agreed on the importance of budgeting being practiced by the rice farmers, particularly on the household and farming practices. According to the OECD (2020), budgeting skills are essential in helping individuals maintain financial stability and control expenses. In addition, Xiao and Porto (2017) state that households who have budgeting practices are better able to manage their financial hardship and financial uncertainty. For rice farmers, budgeting will help them make better use of their resources and continue to work in the field while still being able to meet the needs of their families during difficult times.

The second indicator, “I seek information or advice before borrowing for rice farming to make sound financial decisions," obtained a mean score of 4.24 with a standard deviation of 0.76, which signifies that respondents’ responses were relatively consistent and has the qualitative interpretation of very high financial knowledge in terms of seeking financial guidance before borrowing. This result shows that the majority of rice farmers are cautious of taking loans for agricultural operations. Farmers also know that, if not properly handled, it can be a burden on the farm to take on debt. Due to this, many rice farmers refer to other farmers, cooperatives, banking institutions, or agricultural technicians for guidance in deciding whether or not to borrow. Farmers may have had problems paying back loans and are more likely to be hesitant to take out loans again. Hasan et al. (2021) concluded that financial knowledge in borrowing activity plays a vital role in minimizing financial risks and enabling good debt management. Similarly, Klapper and Lusardi (2020) noted that financial education boosts interest in comparing loans and selecting appropriate ones for their financial means.

The third indicator, "I regularly save part of my income from rice farming for future needs or emergencies," obtained a mean score of 4.18, which is interpreted as high financial knowledge, with the standard deviation of 0.79 indicating the respondent’s response is relatively consistent regarding the practice of saving a portion for future and emergency situations. This implies that the respondents understand the need to save for contingencies in the future. Farmers' emergencies like typhoons, pests, crop failure, or illnesses can cause a sudden drop in farm income and household finances in farming communities. Lusardi (2019) noted that the savings rate also creates financial resilience and helps households cope with unforeseen financial events. Financial knowledge of a household was also found to be associated with saving behavior and financial preparedness in times of crisis by Morgan and Trinh (2019). Rice farmers find savings to be a safety net, and they help them alleviate financial hardships in challenging farming periods.

The fourth indicator, “I am confident in managing and repaying debts or loans I have used in rice production," obtained a mean score of 4.17, which is interpreted as high financial knowledge. The standard deviation of 0.76 indicates the rice farmers in Davao Oriental were relatively consistent in the responses regarding the confidence in managing and repayment of loans or debts. This indicates that the farmers' response on their ability to manage and payback the loan availed for farm is positive. It shows that all the responses closely group and the rice farmers have similar confidence in handling farm-related debt. According to Bongomin et al. (2017), financial knowledge has a positive impact on the financial capability of people to pay their debts in a responsible way and to make a good choice on financial decisions. Also, Disney and Gathergood (2019) observed that persons who have a high level of financial knowledge are capable of avoiding excessive debt and effectively managing the debt repayment burden. With respect to rice farming, good debt management practices enable the farmers to sustain their farming operations and prevent financial issues that could have a negative impact on both their farming activities and family well-being.

The fifth indicator, “I know about social security programs or insurance or farm aid that will help to protect my family and farm from financial risk," obtained a mean score of 4.17, which is interpreted as high financial knowledge. The standard deviation was 0.73, indicating that the rice farmers in Davao Oriental were relatively consistent in their responses regarding social security programs or insurance. This indicates that there is some awareness among the rice farmers of the importance of the government's farm support systems, crop insurance and other farm support programs if they encounter problems in farming. Agricultural insurance and social protection policies are crucial for strengthening farmers' vulnerability to climate change and economic shocks, according to FAO (2021). Likewise, the International Fund for Agricultural Development (IFAD, 2021)

emphasized that the awareness of agricultural support programmes contributes to the recovery of farmers' financial losses and their ability to continue their farming. These programs provide some degree of security and protection to farmers in times of uncertainty about farming.

The sixth indicator, “I understand the risks involved in farming and take steps to manage or mitigate the risks financially," obtained a mean score of 4.17, which is interpreted as high financial knowledge. It has a standard deviation of 0.76, indicating that rice farmers in Davao Oriental are relatively consistent in their responses and have shared understanding regarding farming risk and financial preparedness. This demonstrates that the findings reveal that the respondents are aware of rice farming having a lot of uncertainties and financial risks. Rice farmers are frequently faced with typhoons, droughts, pests, declining rice prices, and rising production expenses. There have been many times in the past when farmers have suffered a loss and they aren't getting as much harvest income, so it is beginning to sink in how important it is to be financially prepared. World Bank (2022) reported that farmers who know about risks of agriculture, are more likely to do financial planning or risk management. In the case of rice, knowledge of the risks enables the farmer to be more resilient and able to sustain the production of rice in the face of financial and environmental pressures.

The seventh indicator, “I am knowledgeable about different ways to invest related to farm improvement, inputs, or other income-generating activities that can increase my income," obtained a mean score of 4.16, which is interpreted as high financial knowledge. It recorded a standard deviation of 0.80, indicating the consistent response rate of the rice farmers in Davao Oriental regarding their knowledge and exposure to the various investments. This indicates that most of the rice farmers know that they need to invest in activities that will increase the productivity of the farms and family income. According to OECD (2020), the investment knowledge helps individuals to manage their resources effectively and ensure their future financial security. Rice production provides an example of how good investments can help boost productivity and reduce farming constraints in the long-term, thereby improving the livelihood of the country and its households.

The eighth indicator, “I can compute the interest and repayment amount of loans taken for rice farming and understand how these affect my farm income," obtained a mean of 4.16 with a standard deviation of 0.77, which indicates that responses were fairly consistent, which was interpreted as a "high level of financial knowledge." This implies that the rice farmer-respondents in Davao Oriental are aware of the economic costs and benefits of taking loans for farming purposes. As many rice farmers take loans during planting seasons, it is important to know interest rates and repayment plans. If a farmer is aware of calculating the repayment of a loan, they tend to be more careful in borrowing money, since if the interest is high, the farmers may see a drop in their harvest income with an increase in repayment after harvest. Since loan terms and interest rates have a significant impact on avoiding poor financial decisions, they represent an important aspect of financial literacy (Lusardi & Mitchell 2017).

The ninth indicator, “I understand that rising prices of farm inputs and household needs reduce the value of my savings and income from rice farming," had a mean score of 4.11, which is interpreted as high financial knowledge. It has a standard deviation of 0.75, indicating relatively consistent responses among rice farmers in Davao Oriental regarding their understanding of how increasing expenses affect their savings and farming income. This finding indicates that the respondents are aware of how inflation and increasing production costs affect their financial condition. Rice farmers regularly experience increasing prices of fertilizers, pesticides, fuel, labor, and household commodities, which directly reduce their farming profits and savings. Many farmers may have personally experienced situations where the income from harvest was no longer enough because production costs became too expensive. Because of this reality, farmers become more careful in spending money and prioritizing important household and farm needs. According to the World Bank (2022), rising agricultural input costs significantly affect the income and financial stability of small-scale farmers. Understanding these economic changes helps rice farmers adjust their financial decisions and become more prepared for future farming expenses.

The tenth “I can compare different financial products (loans, savings) and choose the one most suitable for my rice farming needs” obtained a mean of 4.11, which is interpreted as high financial knowledge. It has a standard deviation of 0.83, indicating that rice farmers in Davao Oriental have slightly differed in their ability to evaluate and choose appropriate financial products for their rice farming needs. This indicates that the respondents are

capable of evaluating different financial options before making decisions. Farmers who compare these financial products are more likely to choose options with lower interest rates, flexible repayment schedules, and better financial benefits. This behavior may have developed through years of farming experience and exposure to financial transactions related to rice production. Farmers who carefully compare financial products are less likely to encounter repayment difficulties and financial burdens. According to the OECD (2020), the ability to evaluate financial products is an important sign of financial literacy because it helps individuals avoid harmful financial decisions. In rice farming, choosing suitable financial products helps reduce financial pressure and supports the sustainability of farming operations and household welfare.

Resilience of Small-Scale Rice Farmers

Resilience is the ability of the person to adapt, recover and continue when facing difficulty, shock or stress. Rice farmers' ability to face shocks and stresses such as typhoons, flooding, drought, pests, rice price fluctuations, rising production costs and financial loss and still continue farming and feeding their families is a reflection of their resilience. The table 2 shows the overall mean of 4.17 which interpreted as high resilience. This means that the rice farmers in Davao Oriental are resilient in addressing the challenges and uncertainties encountered in rice farming. The results show that many farmers have acquired the ability to adapt their methods, problem-solve and to have flexibility in their methods; they have found solutions that allow them to continue to farm in the face of environmental, financial and production pressures. These flexible responses may have been acquired as a result of typhoons, pest problems, various market prices, rising costs of producing agricultural crops and irregular harvest incomes over the years. Natural disasters and economic challenges are common occurrences for farmers in Davao Oriental, highlighting the importance of resilience in their daily lives. Resilient farmers are able to respond to climate-related risks and continue agricultural production in the face of disruptions (FAO, 2021). Likewise, Meuwissen et al. (2019) defined resilient farming systems as flexible, adaptable, and resilient against shocks. It is also important to highlight that farmers' resilience enables them to cope with uncertainty and to maintain their livelihood over time, as Darnhofer (2014) argued. High resilience is the ability of rice farmers in Davao Oriental to overcome the challenges of agricultural activities, but also their perseverance, adaptability, and willingness to keep planting rice in an uncertain environment.

Table 2. Level of resilience of small-scale rice farmer-respondents

INDICATORS	STANDARD DEVIATION	MEAN	QUALITATIVE INTERPRETATION
I use feedback from previous seasons to make better decisions for the next planting.	0.76	4.26	Very high resilience
I am open to adopting new crop varieties better suited to changing climate.	0.76	4.22	Very high resilience
I can maintain production by changing farm practices when faced with environmental stress.	0.76	4.22	Very high resilience
I collaborate with other farmers to find solutions during crises.	0.79	4.21	Very high resilience
I proactively seek information or advice to cope with new challenges in farming.	0.78	4.21	Very high resilience
I adjust spending patterns and allocate resources differently after unexpected losses.	0.82	4.19	High resilience

I diversify my sources of income related to rice farming (e.g., selling rice by-products, poultry, or side businesses) to reduce financial risk.	0.84	4.16	High resilience
I evaluate past challenges and modify strategies to prevent recurrence.	0.77	4.14	High resilience
I seek alternative sources of income when farm yields are low.	0.79	4.09	High resilience
I maintain a farm plan that accounts for seasonal changes and potential risks.	0.85	4.07	High resilience
Overall Mean		4.17	High resilience

Legend:

Scale	Range of values	Descriptive Rating	Qualitative Interpretation
5	4.20-5.00	Strongly agree	Very high resilience
4	3.40-4.19	Agree	High resilience
3	2.60-3.39	Neutral	Moderate resilience
2	1.80-2.59	Disagree	Low resilience
1	1.00-1.79	Strongly disagree	Very low resilience

The first indicator, “I use feedback from previous seasons to make better decisions for the next planting," obtained the mean score of 4.26, which is interpreted as very high resilience. The standard deviation is 0.76 that indicates that the responses of the farmers and relatively consistent on the ability to learn from the previous cropping cycle for the better future planting season. This suggests that most rice farmers recognize the importance of experience and adaptive learning in managing farming challenges and improving their farming practices. This result indicates that many Davao Oriental rice farmers are learning from their past farming practices and applying their learning to better decisions in the future. For the farmer in the field, each crop season is an educational experience in the areas of weather, plant growth, pest management, and economics. In the past, some farmers may have suffered crop losses or low yields due to improper timing, suboptimal farm management, and/or unforeseen weather events. Experiential learning allows individuals to develop their decision-making skills by reflecting and engaging in real-life experiences as per Kolb (2015). Likewise, Darnhofer (2014) stated that resilient farmers learn from past difficulties and adjust behavior to enhance performance in the future. Rice farmers' awareness of past seasons is an indicator that they are willing to learn, adapt, and still be in the rice field when hardships and uncertainties come knocking.

The second indicator, “I am open to adopting new crop varieties better suited to changing climate," obtained a mean score of 4.22, which is interpreted as very high resilience. It has a standard deviation of 0.76, signifying that the respondents had highly consistent responses regarding openness to adopting new crop varieties suited to climate change. This means that there are many Davao Oriental rice farmers who are willing to try out new rice varieties that can better cope with the changing environmental conditions. Weather conditions in the province are often capricious; the impact of strong typhoons, drought, and pest attacks are all issues that affect the productivity of farmers in the province. This has led many farmers to understand that conventional crop varieties are not always able to thrive in the new climatic conditions. Climate-resistant crop varieties enable farmers to cope with environmental stress and to make agriculture more sustainable, according to FAO (2021). Similarly, Rogers (2003) stated that financial attitude towards innovation is significant in enabling farmers to cope with the evolving agricultural situation. Taking up new rice varieties in farming communities in Davao Oriental is a farmers' response to the growing impacts of climate change on their livelihoods.

The third indicator, “I can maintain production by changing farm practices when faced with environmental stress," obtained a mean score of 4.22, which is interpreted as very high resilience. The standard deviation of 0.76, meaning that the responses were very closely grouped around the average. This indicates that the majority

of rice farmers were supportive of making adjustments to their farming practices during environmental stress to ensure rice production. The finding reveals how the rice farmers in Davao Oriental (DO) adapt their agricultural practices in response to environmental challenges such as drought, flood, pests infestation and weather change. Under these circumstances, the farmers can change their planting time, irrigation plan, farm cost, or change their production methods. Much of the time, farmers may have experienced that not adapting could result in more losses in their crops or financial hardships. Over time, farmers get more adaptable and pragmatic in managing their farms due to their exposure to the environment. Resilient farmers are farmers who are able to adjust the way they conduct their farming activities because of changes and uncertainties in the environment (Cabell & Oelofse, 2012). The adoption of farm practices in Davao Oriental's rice farming communities illustrates the farmers' resolve to farm and to feed their families even in the hard times.

The fourth indicator, “I collaborate with other farmers to find solutions during crises," obtained a mean score of 4.21, which is interpreted as very high resilience. It has a standard deviation of 0.79, which means that the responses were relatively consistent, though with slight variation regarding collaboration with other rice farmers in finding solutions. This demonstrates the importance of working together and helping one another when things get tough among rice producers in Davao Oriental. During crises, in many farming communities, the farmers will share ideas, labor, and farming methods and even offer emotional support. When faced with typhoons, pest problems, or economic problems, farmers can turn to other farmers for information, help, or encouragement. FAO (2021) argued that social collaboration contributes to farmers' resilience, as communities can collaborate to jointly address agricultural problems and mitigate the impacts of disasters.

The fifth indicator, “I proactively seek information or advice to cope with new challenges in farming," obtained a mean score of 4.21, which is interpreted as very high resilience. The standard deviation of 0.78 that indicates that rice farmers have the same views and understanding regarding on the seeking advice to resolve the problem faced by the farming. This means that many rice farmers in Davao Oriental are actively seeking information and advice for new problems in rice farming. Farmers can consult agricultural technicians, other farmers, agricultural cooperatives, and agricultural offices on matters such as pest control, climate change changes, farm management, and financial matters. Many farmers understand that farming conditions continuously change, and relying only on old practices may not always be effective. There have been instances where some did not have sufficient information and suffered crop losses, or poor yields, which compelled them to be open to learning and seeking guidance. Information seeking and learning readiness are important traits of adaptive and resilient farmers (Rogers, 2003). In rice-growing communities of Davao Oriental, farmers who actively seek advice are being prepared to enhance their knowledge and safeguard their livelihood in anticipation of future uncertainties. This is also emphasized: rice farmers always seek solutions with other rice farmers.

The sixth indicator, “I adjust spending patterns and allocate resources differently after unexpected losses," obtained a mean score of 4.19, which is interpreted as high resilience. The standard deviation of 0.82 indicating that the responses of the rice farmers slightly difference due to diverse perspectives. Even though many of the rice farmers had already agreed on they adjust their spending patterns after the occurrence of unexpected losses, some of the rice farmers may differ on the adaptability in financially due to the economic situation and household responsibilities. The discovery reveals that a significant number of rice growers in Davao Oriental are aware of ways to adjust their finances when typhoons, floods, pests, and drought, as well as low harvest income, cause losses. Unexpected losses are likely to have an immediate impact on the farm and the family's livelihood in farming communities. This means that farmers tend to become more cautious in their expenditures after a tough year. According to FAO (2021), resilient farmers are able to respond to crisis and uncertainty by changing their financial strategies and resources. The change in expenditure patterns among rice farmers in Davao Oriental communities is a reflection of the farmers' coping mechanisms to withstand the harsh conditions of life as noted in the communities and to provide for their families despite the hardships.

The seventh indicator, “I diversify my sources of income related to rice farming (e.g., selling rice by-products, poultry, or side businesses) to reduce financial risk," obtained a mean score of 4.16, indicating a high level of resilience. The responses are moderately variable, with a standard deviation of 0.84. It's important to note that although some farmers were interested in a range of livelihood alternatives as a way to lower financial risks, some farmers may have more opportunities or resources to participate in alternative livelihoods than others. The difference is due to different financial resources and income generating opportunities among farmers. For many

of the rice farmers in Davao Oriental, just farming rice is not enough for the family to survive especially during bad harvest years. The income from farming is uncertain and some farmers rear poultry, sell by-products of rice cropping, run small businesses or pursue other avocational activities to supplement their income. Diversification of income sources leads to greater financial resilience and the ability to deal with economic uncertainty, according to Morgan and Trinh (2019). The integration of other livelihood activities in the rice-farming communities of Davao Oriental is indicative of the farmers' resolve to ensure a constant source of income and security for their lives even with the challenges in agriculture of the eight indicators, “I evaluate past challenges and modify strategies to prevent recurrence” obtained a mean score of 4.14, which is interpreted as high resilience. It has a standard deviation of 0.77, indicating that the responses were closely grouped around the mean. This means that many rice farmers consistently agreed about evaluating past farming challenges and modifying strategies to avoid repeating mistakes. It indicates that most of the rice farmers in Davao Oriental have been able to appreciate the challenges encountered in past seasons' farming and apply the lessons learned to enhance their farming choices. Many rice farmers already experience problems with crop failure, pest attacks, flooding, drought, low harvest incomes, etc. in rice production year after year. With these repeated experiences, rice farmers realize that if they keep doing what they have been doing, they will have the same issues. After a poor year, many farmers look at ways to make improvements this next planting season. Some farmers change their planting plans, optimize irrigation, eliminate wasteful spending, or be more selective in their farm input selection. This is because they are able to understand that if they make a wrong choice regarding farming, they will not only suffer the consequences of that choice in their crops, but they may also suffer the consequences in their family's day-to-day life. Darnhofer (2014) states that resilient farmers can learn from past experiences and adapt their farming methods over time to better handle uncertainty. Similarly, Kolb (2015) stated that reflection and real-life experience are the means by which people make better decisions. Assessing the past difficulties in rice production is a reflection of the farmers' resolve to persevere, advance their livelihood, and keep on producing rice in spite of the numerous challenges and uncertainties they encounter each season in Davao Oriental.

The ninth indicator, “I seek alternative sources of income when farm yields are low," obtained a mean score of 4.09, which is interpreted as high resilience. The responses were fairly consistent with a standard deviation of 0.79. The majority of farmers expressed the need to look for other livelihoods when the harvest is low to support livelihoods and household livelihood. There could be some variation, due to the availability of side jobs or alternative livelihood opportunities. It means that when there is less income in rice farming, a lot of the rice farmers of Davao Oriental rely on their creativity for income generation. When it comes to difficult times like typhoons, drought, pests or the fluctuations of rice prices, some of the farmers work as day laborers, engage in small businesses or raise livestock. Farmers know that it is not always certain in rice farming, as income from the crop is not predictable. Some others may have experienced a shortage of funds to buy food, pay debts, or meet household needs during the harvest and have been encouraged to engage in other income generating activities. As mentioned by the FAO (2021), livelihood diversification is a way of making a household more resilient as it helps them to deal with agricultural and financial shocks. The ability to find alternative means of livelihood in rice farming communities of the province of Davao Oriental shows the farmers' resolve to live and still be able to take care of their families even if the farming season is not very successful. The tenth indicator, “I maintain a farm plan that accounts for seasonal changes and potential risks," obtained a mean score of 4.07, which is interpreted as high resilience. It has a standard deviation of 0.85, which indicates moderate variability among the responses of the rice farmers. This means that although many farmers recognize the importance of maintaining a farm plan for seasonal risks, some respondents may differ in their actual planning practices or ability to prepare for uncertainties. The study has found that a certain number of rice farmers of Davao Oriental are aware of the importance of planning the next cropping season. Farmers know that the weather, pests and prices can change and affect their profits. This implies that some farmers plan their planting, cost of production and saving money for emergency and also make a plan before a problem occurs. This may be something many farmers have found out, or not, but not preparing can lead to higher production and money losses. Meuwissen et al. (2019) said that farm planning helps them anticipate risks and boosts their farm's resilience when risks arise. A farm plan illustrates the attitude and pragmatic solutions of the farmers to help reduce the impact of future problems in rice farming communities for Davao Oriental.

Relationship of Financial knowledge and Resilience of Small-Scale Rice Farmers

Table 3 shows the relationship between financial knowledge and resilience using the Pearson product-moment correlation coefficient. The findings revealed that financial knowledge has a moderate positive correlation with the resilience of small-scale rice farmers with r=0.534, p=.000. This implies that rice farmers who are financially knowledgeable are more resilient in addressing the uncertainties in the farm and household.

Table 3. Pearsons Product-moment Correlation Coefficient result

VARIABLE CORRELATED WITH RESILEINCE	CORRELATION COEFFICIENT (r)	P-VALUE	INTERPRETATION
Financial Knowledge	.534**	.000	Moderate positive correlation

**. Correlation is significant at the 0.01 level (2-tailed).

Financial knowledge helps the rice farmers make better decisions in budgeting, savings, loans, and rice production. Additionally, farmers who understand financial concepts tend to be better prepared for unexpected expenses and risk management while adapting to economic uncertainties, which can enhance their ability to cope with difficult situations in both rice production and household management. Moreover, financial knowledge is significantly associated with the capacity of the rice farmers to adapt to the challenges and be financially stable.

The results are supported by Lusardi and Mitchell (2023), who revealed that financial literacy enhances farmers' ability to make better decisions and improve their capacity to cope with economic and environmental challenges. Klapper and Lusardi (2020) underscore that financially literate farmers are more resilient due to the fact that they are fully equipped to manage risk, plan for a better future, and are able to efficiently allocate resources. In addition, Catacutan et al. (2023) emphasized that financial literacy plays an important role in strengthening the resilience of the rice farmers in the aspect of managing the resources in the rice production and the sustainability.

CONCLUSION

The study concluded that rice farmers in Davao Oriental show high financial knowledge, indicating that they understand financial concepts, particularly budgeting, savings, borrowing, etc. The rice farmers show a high level of resilience, implying they are able to adapt and withstand unexpected calamities. It shows that financial knowledge has a significant moderate positive relationship with resilience (r=.534 and p=.000), indicating that rice farmers are knowledgeable in dealing with finances, either in rice production or in the household necessities, and tend to become resilient in dealing with farming challenges. This means that improving the financial knowledge can help strengthen the resilience ability of the rice farmers to continue despite the economic and environmental adversities.

PRACTICAL IMPLICATION

The result of the study can be a basis to create practical financial education programs for rice farmers by government agencies, agricultural institutions, cooperatives and extension workers. They can consist of community-based seminars, practical training and coaching on savings, budgeting, debt management and financial planning that reflect the real-life experiences and financial needs of farmers. The programs assist farmers to be better able to control their income, manage farm costs, reduce overdependence on loans, and set aside funds for contingencies, like crop failure, price changes, and natural hazards. Improving the financial literacy of the rice farmers will enable them to make better financial choices, enhance their financial resilience to withstand shocks and improve the sustainability of rice farming and production.

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