

Evaluating the socioeconomic and environmental impacts of sustainable strawberry farming in barangay Datu Ladayon: aligning agricultural practices with SDG 12

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Abstract: This study evaluates the socioeconomic and environmental impacts of sustainable strawberry farming in Barangay Datu Ladayon, Cotabato, Philippines, with a focus on aligning local agricultural practices with Sustainable Development Goal 12 (SDG 12) on responsible consumption and production. Utilizing a mixed-methods approach combining quantitative surveys and qualitative interviews, the research assesses economic benefits such as increased income, job creation, and improved market access alongside environmental sustainability practices including organic fertilizers, integrated pest management (IPM), and efficient irrigation. The findings reveal that sustainable strawberry farming enhances local livelihoods and promotes ecological health by reducing reliance on chemical inputs and conserving resources. The study identifies challenges faced by farmers in resource access and market integration, offering actionable recommendations for policymakers to support sustainable agricultural development. Ultimately, this research contributes to the dual goals of economic empowerment and environmental stewardship in rural Mindanao, providing a model for sustainable farming that can be replicated in similar contexts.

Keywords: Sustainable strawberry farming, Socioeconomic impacts, Environmental sustainability, SDG 12, Integrated pest management, Organic farming, Agricultural policy, Mindanao, Barangay Datu Ladayon, Responsible consumption and production

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INTRODUCTION

In the Philippines, strawberry farming is still a relatively new agricultural practice, especially in Mindanao, where it has gained significant attention due to its promising financial returns. This shift in farming practices has been notably observed in Bukidnon Province, where many farmers have transitioned from cultivating traditional vegetables to focusing on strawberry production. This transition is largely driven by the attractive market prices that strawberries fetch and is supported by training programs that teach sustainable farming techniques such as hydroponics, mulching, and organic farming. These programs have helped farmers increase their production capacity and reduce dependency on harmful agricultural chemicals, positioning strawberry farming as a viable income source for local communities. The Epol Strawberry Farmers Association in Bukidnon, for example, exemplifies the success that strawberry farming can bring to low-income farmers in the region. Their success story underscores the transformative potential of strawberry farming in improving livelihoods, particularly in Lanao del Sur, where similar climatic conditions support strawberry cultivation.

Both Bukidnon and Lanao del Sur benefit from the cool climate that is ideal for growing strawberries. In particular, Marawi City, which is located at an altitude of 833 meters above sea level, enjoys temperatures that range between 16.0 to 22.0 °C, which is favorable for strawberry cultivation (Almorado, 2019). Similarly, Barangay Datu Ladayon in Arakan, Cotabato, experiences comparable climatic conditions, which has led many local farmers to consider

strawberry farming as a promising venture. The favorable climate, coupled with local knowledge, has been a key factor in the expansion of strawberry farming as a major agricultural activity in these areas. Additionally, the cool weather conditions create an optimal environment for strawberries, providing both higher yields and better-quality fruit that can be sold at a premium in the market.

The growing interest in strawberry cultivation in Barangay Datu Ladayon reflects a broader trend in Mindanao, where strawberry farming is increasingly being seen as a source of both income and food security. As a burgeoning agricultural practice, strawberry farming is not only boosting local economies but also positioning the region as a potential tourist destination. The “pick-your-own” strawberry farms in some regions have become popular attractions, contributing to increased tourism and local job creation. Research supports the notion that sustainable agricultural practices can enhance profitability and market access for farmers, which in turn can contribute to the overall growth of the local economy (Frezna, n.d.). However, traditional farming methods have had detrimental environmental effects, including soil degradation, overuse of water resources, and the heavy reliance on chemical pesticides. This has made it increasingly important for farmers to adopt sustainable practices that preserve the environment while maintaining economic viability. The growing focus on sustainability aims to mitigate these adverse effects and ensure that agricultural practices are both economically and ecologically responsible.

The need for sustainable agricultural practices in Barangay Datu Ladayon is crucial to not only improving agricultural productivity but also ensuring the long-term health of the environment. Studies indicate that implementing sustainable practices such as the use of organic fertilizers, integrated pest management (IPM), and efficient irrigation techniques can significantly reduce environmental damage while fostering biodiversity (MDPI, 2021). These practices do not only contribute to ecological health, but they also have socioeconomic implications, especially for marginalized groups. Women, who are often key participants in agricultural activities, stand to benefit from these practices through increased economic participation and leadership opportunities within the farming community (Ilari et al., 2021). Empowering women in agricultural activities through education and resource access can lead to more equitable community development and provide better income-generating opportunities for local families.

Despite the recognized benefits of sustainable strawberry farming, there remains a lack of a comprehensive understanding of its specific impact in the local context of Barangay Datu Ladayon. Much of the existing literature on sustainable farming practices often focuses on broad agricultural trends and overlooks the unique conditions of specific farming communities. This research aims to fill that gap by exploring how sustainable strawberry farming can align with the goals of Sustainable Development Goal 12 (SDG 12), which advocates for responsible consumption and production patterns that promote both economic growth and environmental preservation. By focusing on the local context, this study aims to provide detailed insights into how sustainable strawberry farming practices can be implemented effectively, contributing not only to increased local incomes but also to the environmental and social well-being of the community. This study will utilize a mixed-methods approach, combining quantitative surveys and qualitative interviews with local farmers. This research design will allow for a comprehensive understanding of the economic and environmental impacts of strawberry farming in Barangay Datu Ladayon. The quantitative component will involve collecting data on income levels, job creation, and the environmental practices adopted by farmers, while the qualitative

interviews will provide insights into the challenges faced by local farmers in accessing resources, markets, and training programs. By examining both the socioeconomic benefits and the environmental impacts, this study will offer valuable recommendations for local policymakers on how to enhance the adoption of sustainable practices in the region.

The findings from this research are expected to offer significant policy implications for enhancing the sustainability of strawberry farming in Barangay Datu Ladayon. Local policymakers will be able to use the insights provided to design more effective strategies that can help farmers overcome the challenges they face in adopting sustainable practices. These strategies could include improving access to resources such as quality seeds and fertilizers, enhancing market access through better infrastructure and pricing structures, and providing more comprehensive training programs on sustainable farming techniques. By aligning local agricultural policies with SDG 12 objectives, this study can contribute to building a more resilient and sustainable agricultural sector that benefits both the economy and the environment. This study is also significant for its potential to improve the lives of farmers and their communities by fostering economic empowerment through sustainable agricultural practices. Sustainable strawberry farming has the potential to create long-term economic benefits by increasing incomes, creating jobs, and providing better market access for local farmers. Furthermore, the adoption of environmentally sustainable practices such as organic farming and IPM will contribute to the preservation of local ecosystems, ensuring that the region's natural resources are protected for future generations. By promoting these practices, this study will contribute to the broader goal of achieving sustainable development in rural areas of the Philippines and aligning local agricultural practices with global sustainability goals. Ultimately, the research will provide a roadmap for how communities like Barangay Datu Ladayon can achieve both economic growth and environmental sustainability through responsible farming practices.

Research objectives

The primary objective of this study is to evaluate the economic and environmental impacts of sustainable strawberry farming in Barangay Datu Ladayon, with a particular focus on aligning local agricultural practices with Sustainable Development Goal 12 (SDG 12), which advocates for responsible consumption and production. By assessing the economic benefits such as increased income, job creation, and market access, the study aims to demonstrate how sustainable practices can improve the livelihoods of local farmers. Additionally, the research seeks to examine the environmental implications of strawberry farming, particularly through the adoption of practices like organic fertilizers, integrated pest management, and efficient irrigation. Ultimately, the study intends to provide actionable insights and recommendations for policymakers to promote sustainable agricultural development, enhance community resilience, and contribute to the long-term ecological and economic well-being of the region.

1. To assess the economic benefits of strawberry farming for local farmers and the broader community in Barangay Datu Ladayon.
2. To examine the environmental sustainability practices related to strawberry farming in the barangay.
3. To identify challenges faced by farmers, and private owners in accessing resources, market, and training.

METHODOLOGY

This chapter presents the methodology employed to evaluate the economic and environmental impacts of sustainable strawberry farming in Barangay Datu Ladayon. This chapter outlines the research design, data collection methods, and analysis techniques used to assess the effectiveness of sustainable farming practices in improving the livelihoods of local farmers while ensuring environmental sustainability. The study employs a mixed-methods approach, combining both quantitative and qualitative research strategies, to provide a comprehensive understanding of the socioeconomic benefits and ecological outcomes associated with sustainable strawberry farming. Additionally, this chapter discusses the specific context of Barangay Datu Ladayon, including its geographical setting and the characteristics of the local farming community, as well as the rationale for selecting this locale for the study. The methodological framework presented here aims to ensure the robustness of the research findings and their applicability to other similar agricultural communities in the region.

This study will employ a mixed-methods research design, which integrates both quantitative and qualitative approaches to provide a comprehensive understanding of the economic and environmental impacts of sustainable strawberry farming in Barangay Datu Ladayon. The mixed-methods approach is particularly advantageous in this context, as it allows for a well-rounded exploration of the topic by combining the numerical, objective data derived from surveys with the rich, subjective insights gathered through qualitative interviews. By blending both types of data, this research design seeks to capture not only the measurable outcomes of sustainable farming practices but also the lived experiences, challenges, and perceptions of the local farmers who implement these practices.

The quantitative component of the study will primarily involve the use of surveys, designed to collect numerical data on the economic benefits and environmental practices associated with strawberry farming. These surveys will be structured to capture a range of economic indicators, such as changes in income levels, job creation, and market access, all of which are important factors in assessing the success and viability of sustainable farming practices. The survey will also explore various environmental practices implemented by the farmers, such as the use of organic fertilizers, integrated pest management (IPM), and water conservation techniques, which are central to the adoption of sustainable methods. Through this component, the study aims to generate statistical data that will quantify the impact of these practices on both the economic well-being of farmers and the ecological health of the farming environment. The data collected through the surveys will allow for the identification of patterns and trends that can be analyzed to evaluate the overall effectiveness of sustainable farming practices in improving both the economic and environmental aspects of strawberry farming. On the other hand, the qualitative component of the study will involve in-depth interviews with local strawberry farmers. These interviews will provide a deeper, more nuanced understanding of the challenges and opportunities faced by farmers in implementing sustainable practices. The interviews will focus on exploring the personal experiences of farmers, shedding light on the specific barriers they encounter when trying to adopt sustainable methods, as well as the strategies they employ to overcome these challenges.

In addition to identifying obstacles, the qualitative interviews will also seek to capture the perceptions of farmers regarding the benefits of sustainable practices. For example, farmers will be asked about their experiences with increased crop yields, improved soil health, and better market access as a result of adopting eco-friendly methods. The interviews will also examine the

social and cultural factors that influence farmers' decisions to adopt sustainable practices, including their attitudes towards environmental conservation, the role of government support, and community-level initiatives. By gaining these insights, the study aims to provide a holistic view of the lived experiences of strawberry farmers, which will complement the quantitative findings and allow for a more comprehensive interpretation of the research results.

The combination of quantitative and qualitative methods is expected to provide a more thorough and well-rounded analysis of the impact of sustainable farming on both the economic and environmental aspects of strawberry production. The numerical data gathered from the surveys will provide objective, generalizable findings that can be used to quantify the benefits of sustainable practices on a larger scale, while the qualitative data from the interviews will offer a deeper understanding of the context in which these practices are being implemented and the lived experiences of the farmers. By integrating these two approaches, the study will be able to triangulate the data, cross-validate findings, and provide a more accurate and comprehensive picture of how sustainable strawberry farming is impacting the local community in Barangay Datu Ladayon.

Additionally, the mixed-methods design allows for flexibility in addressing research questions, as the qualitative component can help explain or explore unexpected trends identified in the quantitative data. For instance, if the survey results show a significant increase in income for farmers who have adopted sustainable practices, the interviews can provide context and insight into why these farmers have experienced such positive outcomes, including any specific practices, community support, or external factors that contributed to their success. Similarly, if the surveys reveal challenges related to market access or resource availability, the interviews can help identify the root causes of these difficulties and the strategies farmers have used to mitigate them. This integration of both methods will enhance the validity and reliability of the study's findings, offering a more robust and well-supported analysis.

Moreover, the mixed-methods design will allow for a more nuanced understanding of the broader implications of sustainable farming in the context of community development. The study will not only evaluate the direct economic and environmental outcomes but also explore how sustainable practices contribute to social equity, empowerment, and community cohesion. For instance, by interviewing farmers, the study can assess how women and other marginalized groups are affected by sustainable farming practices, providing valuable insights into the role of gender and social dynamics in the adoption and success of these practices. Through this approach, the study aims to contribute to the broader discourse on sustainable development, offering insights into the intersections of agriculture, social equity, and environmental conservation.

The mixed-methods approach will be integral to this study, providing a well-rounded and comprehensive analysis of sustainable strawberry farming in Barangay Datu Ladayon. The combination of quantitative surveys and qualitative interviews will allow for a detailed exploration of the economic and environmental benefits of sustainable practices, while also shedding light on the challenges and experiences of the farmers who implement them. By integrating both methods, the study will provide valuable insights into the effectiveness of sustainable farming in improving the livelihoods of farmers, enhancing environmental sustainability, and promoting social equity within the community.

Barangay Datu Ladayon is a dynamic community situated in the municipality of Arakan, within the province of Cotabato, Philippines. The name "Datu Ladayon" is deeply rooted in the region's cultural heritage, with "Datu" signifying a local chief or leader among the indigenous

peoples of Mindanao. This title reflects the traditional governance structures prevalent in many Mindanaoan communities. As of the 2020 census, Barangay Datu Ladayon has a population of approximately 1,331 residents, accounting for about 2.63% of Arakan's total population (PhilAtlas, 2020). The barangay is primarily known for its rich agricultural landscape, particularly its burgeoning strawberry farming sector, which has become increasingly vital as a source of income and food security for local farmers.

Historically, Barangay Datu Ladayon is part of an area inhabited by the Manobo people, one of the indigenous groups in Mindanao known for their strong connection to the land and traditional governance systems (Wikipedia, 2024). The community's identity is intertwined with its agricultural practices and cultural values. The term "Datu" reflects this leadership structure while "Ladayon" may derive from local dialects or historical references that resonate with the community's identity and values.

The environmental conditions in Datu Ladayon are particularly favorable for agriculture, especially strawberry cultivation. Located at an elevation that provides cooler temperatures essential for growing strawberries, the barangay experiences an ideal climate with temperatures ranging from 16°C to 22°C (Almorado, 2019). This climate not only supports high-quality strawberry production but also fosters a diverse ecosystem that enhances sustainable agricultural practices.

Economically, Datu Ladayon has witnessed a significant shift towards strawberry farming as farmers recognize its potential for higher profitability compared to traditional crops. This transition has been bolstered by various training programs focusing on sustainable agricultural practices such as organic farming and integrated pest management (IPM). These methods not only improve productivity but also promote environmental stewardship by reducing dependence on harmful chemicals and enhancing soil health (Ilari et al., 2021). Furthermore, strawberry farming has created numerous job opportunities and stimulated local economic growth, making it a crucial component of the barangay's socioeconomic framework.

The subjects of this study will primarily consist of local farmers in Barangay Datu Ladayon who are actively involved in strawberry farming. This specific group of farmers has been selected due to their direct involvement in strawberry cultivation and their potential to provide valuable insights into the impact of sustainable farming practices on both their livelihoods and the environment. By focusing on this community, the study aims to gather a rich understanding of how sustainable strawberry farming is being implemented in a real-world setting, offering a comprehensive perspective on the challenges and benefits associated with these practices. The selection of this group is also grounded in the recognition that local farmers possess unique and firsthand experiences, knowledge, and challenges, which are essential for evaluating the broader socio-economic and environmental implications of sustainable agriculture in the region.

For the quantitative component of the study, a sample size of approximately 50 farmers will be targeted for the survey. This sample size is intended to ensure statistical significance, allowing for reliable and generalizable results regarding the economic benefits and environmental practices associated with sustainable strawberry farming. The survey will aim to capture a wide range of data from the selected farmers, including key variables such as income levels, job creation, market access, the use of organic fertilizers, integrated pest management (IPM) practices, and the adoption of water-efficient irrigation techniques. By collecting data from a sufficiently large sample of farmers, the study will be able to draw meaningful conclusions about the impact of sustainable farming on the local community and the broader

agricultural sector. The inclusion of 50 farmers in the quantitative survey will provide a robust dataset, enabling the researcher to identify trends and patterns in the economic and environmental outcomes of strawberry farming. This data will serve as the foundation for evaluating the effectiveness of sustainable practices and will be crucial for assessing the potential for scalability and adoption in other regions.

In addition to the quantitative survey, a qualitative component will be included in the study to provide deeper insights into the experiences, challenges, and perceptions of farmers regarding sustainable strawberry farming practices. For this qualitative component, approximately 15-20 farmers will be selected using purposive sampling. This sampling method will allow the researcher to intentionally select farmers who have diverse experiences with sustainable farming practices, ensuring that the study captures a wide range of perspectives. Purposive sampling is particularly useful in qualitative research because it enables the researcher to target specific individuals who possess relevant knowledge or experiences that are critical to the research questions. The farmers selected for the qualitative interviews will be chosen to represent different demographic backgrounds, levels of experience, and farming practices, ensuring a comprehensive understanding of the factors that influence the adoption and success of sustainable practices.

The qualitative interviews will focus on exploring the personal experiences of these farmers, providing a more in-depth understanding of the challenges they face in implementing sustainable practices, as well as the benefits they have derived from such practices. Topics of discussion will include the farmers' perceptions of sustainable farming methods, their attitudes towards organic farming, the barriers they encounter in accessing resources such as seeds and technology, and their experiences with government support programs. Additionally, the interviews will seek to uncover how these practices have impacted their financial stability, productivity, and overall quality of life. The qualitative data gathered through these interviews will complement the quantitative survey data by providing context and personal narratives that help explain the statistical trends identified in the survey. Through these interviews, the study will also highlight the social and cultural factors that influence the adoption of sustainable practices, such as gender roles, community dynamics, and the importance of family involvement in farming decisions.

The combination of quantitative and qualitative methods will allow for a comprehensive analysis of sustainable strawberry farming in Barangay Datu Ladayon, enabling the researcher to triangulate the data and draw more accurate and nuanced conclusions. By integrating both methods, the study will not only provide statistical evidence of the impact of sustainable farming practices but also offer a rich, contextual understanding of the experiences of the farmers who implement them. Furthermore, the purposive sampling used in the qualitative component will ensure that the study captures a diverse range of perspectives, providing a holistic view of the challenges and successes of sustainable farming in the region. This approach will be instrumental in identifying key factors that influence the effectiveness of sustainable practices and in offering actionable recommendations for policymakers, agricultural organizations, and community leaders to support the continued growth and development of sustainable agriculture in Barangay Datu Ladayon and beyond.

The subject selection process for this study ensures that the data collected will be both statistically significant and deeply insightful. By targeting a representative sample of 50 farmers for the quantitative survey and 15-20 farmers for the qualitative interviews, the study aims to gather comprehensive, balanced, and contextually rich data that will inform the understanding of

sustainable strawberry farming in the Philippines. The inclusion of diverse perspectives and experiences will enhance the validity of the study's findings and help to ensure that the recommendations provided are applicable to a wide range of farming communities, facilitating the adoption of sustainable farming practices on a larger scale.

For the quantitative data collection, a structured questionnaire will be designed to evaluate the economic benefits of strawberry farming, focusing on aspects such as income levels, job creation, and market access. Additionally, the questionnaire will collect information regarding the environmental practices adopted by farmers, including the use of organic fertilizers, integrated pest management (IPM), and various irrigation techniques. Surveys will be administered either through face-to-face interviews or online platforms, depending on feasibility, to maximize the response rate.

In terms of qualitative data collection, semi-structured interviews will be conducted with selected farmers to delve into their experiences with sustainable strawberry farming. The interview questions will address the challenges faced in accessing resources, markets, and training opportunities, as well as the perceived socioeconomic impacts of implementing sustainable practices. With participants' consent, these interviews will be recorded and subsequently transcribed for thorough analysis.

Furthermore, field observations will involve visits to strawberry farms in Barangay Datu Ladayon to directly assess the implementation of sustainable practices. During these visits, detailed field notes will be taken to document various farming techniques, environmental conditions, and any observable effects on crop health and productivity. This multi-faceted approach to data gathering aims to provide a comprehensive understanding of the socioeconomic and environmental impacts of sustainable strawberry farming in the region.

For the quantitative analysis, descriptive statistics, including measures such as mean, median, and mode, will be utilized to summarize demographic data and assess the economic benefits associated with strawberry farming. Additionally, inferential statistics, such as t-tests and ANOVA, will be applied to examine differences between groups based on various socioeconomic factors and environmental practices. In terms of qualitative analysis, thematic analysis will be conducted to identify common themes and patterns emerging from the interview transcripts, allowing for a deeper understanding of farmers' experiences and perceptions regarding sustainable practices. This comprehensive approach to data analysis will provide valuable insights into the socioeconomic and environmental impacts of sustainable strawberry farming in Barangay Datu Ladayon.

FINDINGS AND DISCUSSION

This chapter presents the results of the data gathering procedures conducted by the researcher including their corresponding analysis, interpretation, discussion, and the implications of the results to the current body of knowledge, practice, and policy and are presented based on the sequence of the stated problems of this study.

From soil to sustenance: strawberry farming as a livelihood anchor

Strawberry farming in Barangay Datu Ladayon has evolved into more than an agricultural activity—it has become a symbol of livelihood, identity, and emotional fulfillment. Most participants described their experience as joyful and meaningful, rooted in a lifelong love for

planting. Their transition to strawberry cultivation brought economic benefits such as sending children to school and building homes, but also brought emotional pride and a sense of purpose. Despite challenges like limited access to capital, fertilizers, and pesticides, farmers uniformly acknowledged the transformative role of strawberry farming in their lives. As Participant A said, “I am very happy with strawberry farming. I’ve always loved planting, but this is more meaningful because I can earn and support my family.” These sentiments underscore the crop’s importance as both an income source and a personal investment, where each plant symbolizes hope and resilience.

Battling bugs and budgets: the struggles behind sustainable strawberry farming

Despite the economic rewards, participants reported persistent challenges in achieving sustainable strawberry farming. Chief among these is plant disease—especially anthracnose—which spreads quickly and compromises yield. Farmers highlighted that while they want to embrace eco-friendly methods, financial constraints and lack of access to organic treatments make sustainability difficult. Participant H noted, “The biggest challenge for me is the disease that affects the strawberries. Even if we try our best to take care of the plants, anthracnose still spreads fast.” Additionally, expensive inputs like natural fertilizers and biopesticides create a dilemma between environmentally sound methods and economic survival. This theme emphasizes the need for structural support, including affordable organic materials and training in integrated pest management, to enable farmers to act on their environmental commitments.

Seeds of support: bridging needs with resources for sustainable growth

Participants consistently expressed two critical needs to sustain and improve strawberry farming: technical training and material inputs. Nearly half requested continuous, hands-on agricultural training tailored to strawberry farming, expressing a desire to better understand sustainable practices. Participant N said, “We need proper training programs—especially in farm management and how to handle pests without harming the plants.” The other half emphasized a need for tangible resources like fertilizers and pest control. Without them, even motivated farmers cannot act on their knowledge. This dual requirement—training and inputs—highlights the holistic support needed to foster sustainability. It reflects a proactive community mindset that is not asking for handouts but for empowerment through investment.

Rooted in responsibility: community empowerment through sustainable practices

A deeper sense of identity and social responsibility has emerged among the strawberry farmers. As their barangay gains recognition for strawberry production, farmers increasingly see themselves as environmental stewards and community leaders. Their work is not just about harvest—it is about legacy. Participant Z reflected, “We’re not just planting for today. We’re planting for our children and for the future of our community.” This shift toward long-term thinking and responsible farming behavior signifies that sustainability in Datu Ladayon is becoming a cultural norm. Farmers are choosing safer inputs, helping one another, and fostering solidarity. This community-driven model aligns strongly with SDG 12 and shows how shared purpose can accelerate ecological and social transformation.

The overwhelming threat of anthracnose and crop disease in sustainable strawberry farming

Anthracnose, a fungal disease, is a dominant threat to sustainable farming in the barangay. Participants emphasized how the disease undermines both economic stability and the feasibility of organic cultivation. For farmers committed to reducing chemical use, the lack of effective organic treatments for anthracnose becomes a central constraint. Participant A said, “The biggest problem is really the disease—when the fruits start to rot, we lose everything.” This pathogen not only causes crop failure but also discourages expansion and innovation, threatening long-term sustainability. The need for accessible biological controls, localized research, and early detection mechanisms is urgent if sustainability is to take root.

Financial constraints as a barrier to sustainable agricultural transformation

Farmers voiced deep frustration about the cost of transitioning to sustainable farming. Inputs like compost, biopesticides, and crop covers are significantly more expensive than conventional alternatives. Participant G said, “It’s hard to maintain the plants without the right pest control, and the ones that are safe for the environment are also the ones that are expensive.” For smallholders living on the margins, even attending a training session comes with opportunity costs. Without subsidies or financial mechanisms to cushion the shift, many remain stuck in traditional methods out of necessity. Sustainability, therefore, is not just an environmental challenge but an economic justice issue that must be addressed through inclusive support systems.

Knowledge gaps and the need for technical training in sustainable farming practices

A consistent theme throughout the interviews was the lack of technical know-how required to implement sustainable practices. Farmers expressed the need for specific, repeated, and context-based training sessions. Participant K stated, “We don’t really know how to do sustainable farming properly. If someone teaches us step-by-step, we will follow it.” Participants also criticized existing seminars as too general or insufficiently tailored to strawberry farming. This gap between training content and local needs has left many farmers disoriented despite their motivation. Sustainable agriculture must be taught in practical, ongoing ways—ideally on the farm itself—to ensure lasting adoption.

A harvest of hope: visions of a sustainable and prosperous strawberry future

All participants shared an optimistic outlook about the future of strawberry farming. Their aspirations extend beyond individual gain to community-wide development and recognition. Participant T stated, “Our barangay is now known because of strawberries. People come here just to buy our fruits and plants. That alone tells me we have something special.” Farmers envision Datu Ladayon becoming a center for agri-tourism and sustainable agriculture, generating jobs and bringing pride to the community. Their optimism, however, hinges on continued support in infrastructure, training, and input access. The transformation already underway provides a strong foundation for future expansion—if that momentum is sustained.

Lack of institutional and governmental support in the sustainable farming transition

Despite their willingness to adopt sustainable practices, farmers felt abandoned by institutional actors. Support from government or NGOs has been inconsistent, non-specific, or absent. Participant P said, “We only hear about support or projects from the barangay, but we don’t receive any actual help in our farms.” Participants stressed that while policies promote sustainability, these intentions have not translated into concrete action at the farm level. The mismatch between top-down programs and on-the-ground needs leaves farmers frustrated and disempowered. True sustainability demands consistent, tailored support from agricultural agencies to provide training, subsidies, and monitoring—not one-time seminars or symbolic visits.

Cultivating capacity: the urgent call for training and knowledge transfer

Among the most emphasized needs expressed by the farmers in Barangay Datu Ladayon is the call for education—specifically, practical training programs in farm management, pest control, and sustainable agricultural techniques. Many participants recognized that while they are experienced in traditional planting methods, sustainable strawberry farming introduces challenges that demand technical understanding and updated knowledge. Their desire for structured learning—workshops, field demonstrations, and hands-on mentoring—underscores their proactive attitude. Training is viewed not merely as assistance but as empowerment, with farmers eager to implement modern techniques for yield improvement and environmental sustainability.

Tools of transformation: the demand for inputs and material support

Equally pressing is the need for tangible, material resources. Farmers voiced difficulty in accessing vital inputs such as organic fertilizers, pest control agents, and disease-resistant plant materials due to financial constraints. This lack of access not only affects productivity but also prevents the transition to sustainable practices. Participants repeatedly expressed that knowledge alone is not enough; it must be paired with resources that allow them to act on what they’ve learned. The absence of consistent input supply chains compromises both yield and morale, reinforcing the need for sustained material support.

Beyond the farm: the need for institutional support and government intervention

Participants also called for structured, institutional support from local government units, agricultural agencies, and NGOs. While strawberry farming has brought visibility and recognition to the barangay, farmers feel disconnected from broader development frameworks. They emphasized the importance of continuous programs—training, infrastructure, market access, and agricultural planning—not just sporadic aid. Farmers expressed a desire to be included in long-term policy and development initiatives that match their local innovations and growing reputation.

From farm to market: the push for infrastructure and access to opportunities

The logistical and commercial limitations facing strawberry farmers were another recurring theme. Farmers cited the poor condition of farm-to-market roads, lack of post-harvest facilities, and limited market access as critical barriers to growth. Without infrastructure, they struggle to preserve product quality and access fair pricing. Additionally, participants recognized the potential for expanding into regional and tourism-based markets. They envisioned future projects such as strawberry festivals, processing centers, and agri-tourism destinations. These ambitions require not only infrastructure but marketing support and institutional partnerships.

A prosperous future rooted in community identity and economic stability

Strawberry farming has become more than a livelihood in Barangay Datu Ladayon—it is central to community identity. Farmers are proud of the barangay’s growing reputation and envision a future where their products are known regionally and nationally. This pride fuels aspirations for enterprise expansion, including value-added products and tourism. The farmers see strawberry cultivation as the backbone of a resilient and economically stable future for their children and the entire community.

Sustaining livelihoods through intergenerational economic opportunities

Farmers expressed strong optimism that strawberry farming will remain viable and sustainable for future generations. Their current successes—building homes, educating children, and improving financial stability—serve as proof. Many are already teaching their children the skills needed to maintain and grow their farms. This perspective redefines strawberry farming from short-term income generation to long-term career opportunity and heritage.

Strawberry farming as a catalyst for local economic growth and agro-tourism development

Participants see strawberry farming as a gateway to broader economic development, including agro-tourism and local enterprise. Their vision includes producing strawberry-based products, hosting farm tours, and organizing community events. These ideas reflect not only economic strategy but a belief that agriculture can anchor vibrant, multi-sectoral growth. The potential for local branding and tourism can transform Datu Ladayon into a model of integrated rural development.

A vision of sustainable self-sufficiency built through community collaboration

Finally, farmers emphasized the importance of collaboration and community-driven systems such as cooperatives and shared resources. They recognize that sustainable agriculture cannot rely on individual efforts alone. Instead, they advocate for locally led initiatives, from cooperative purchasing to community training hubs. This shared vision of unity, empowerment, and mutual support suggests that sustainability in Datu Ladayon is not only possible—it is already underway, grounded in social cohesion and collective responsibility.

CONCLUSION

This study concludes that sustainable strawberry farming in Barangay Datu Ladayon has significantly impacted the socioeconomic well-being of local farmers and holds strong potential for environmental and community development. The positive transformation in the farmers' livelihood—reflected in their improved income, household conditions, and sense of identity—affirms the viability of strawberry farming as a strategic, long-term agricultural activity in rural Mindanao. When aligned with sustainable principles, it offers both ecological and economic benefits. However, the transition is neither automatic nor effortless; it is one that must be intentionally supported by systems that bridge capacity gaps and provide critical resources.

A major conclusion from this study is that systemic barriers continue to hinder the realization of truly sustainable practices, despite farmers' enthusiasm and openness. Plant disease, lack of organic control options, and financial instability make it difficult for farmers to adhere strictly to sustainable protocols. These challenges highlight the need for a comprehensive support framework that addresses both environmental goals and the practical needs of farming communities. Without such an approach, sustainability remains more theoretical than practical. Farmers want to adopt sustainable practices but are often constrained by circumstances beyond their control, leading to a cycle of compromise between ideals and survival. Another critical insight is that knowledge and material support must go hand in hand. The farmers' repeated call for training underscores their awareness that long-term success depends on their ability to adapt, learn, and innovate. However, this learning must be reinforced by direct access to affordable, effective, and sustainable farming inputs. Simply knowing how to farm sustainably is not enough if implementation is financially or logistically impossible. Therefore, any strategy to improve strawberry farming must adopt a dual approach that empowers through both education and provision of inputs—ensuring farmers are equipped both mentally and materially.

Lastly, the farmers' forward-thinking visions reflect a high degree of community agency and potential for leadership in sustainability efforts. They envision their barangay not only as a center of agricultural productivity but as a model for rural regeneration through cooperatives, agro-tourism, and community-led development. This sense of ownership and shared responsibility reveals that sustainable development is most effective when locally driven. The study concludes that empowering communities like Datu Ladayon requires aligning top-down support with bottom-up enthusiasm and ideas—building a future that is co-created, inclusive, and enduring.

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