

Green entrepreneurship through melon product diversification for economic independence of KWT Lestari, Gunung Kidul

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ABSTRACT

This program is designed to improve the entrepreneurial capacity, technical skills, and environmental awareness of members of the Sustainable Women Farmers Community (KWT) in Semanu, Gunung Kidul. The program was implemented through a participatory approach that involved training in melon-based product processing, green entrepreneurship education, and intensive mentoring in business management and digital marketing strategies. Participants were trained to process melons into various value-added products such as drinks, jams, and healthy snacks, while considering environmentally friendly principles and raw material efficiency. The results of the program showed significant improvements in several aspects, namely technical product processing skills (88 percent), application of green entrepreneurship principles (83 percent), business management skills (75 percent), and digital marketing strategies (65 percent). The tangible impact of this activity is seen in the formation of three small business groups after the training, which achieved a sustainability level of 72 percent. This success demonstrates that training integrated with local potential and oriented towards environmental sustainability can be an effective strategy in strengthening the economic independence of village women. Thus, this program not only provides economic benefits but also encourages the creation of a sustainable empowerment model and contributes to inclusive and resilient rural economic development

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1. INTRODUCTION

Community empowerment through strengthening entrepreneurial capacity based on local potential is an important strategy for supporting rural economic independence. The Lestari Women Farmers Group (Kelompok Wanita Tani Lestari - KWT Lestari) in Semanu, Gunung Kidul, has strong potential in developing melon-based agribusiness, as melon is one of the region's leading commodities. However, this potential has not been optimally utilized. The harvest is predominantly sold as fresh fruit, resulting in low added value and high vulnerability to price fluctuations (BPS Kabupaten Gunung Kidul,

2023). Limited knowledge and skills in processing agricultural products into diversified products are the main challenges faced by Lestari KWT. Limited access to entrepreneurship training, environmentally friendly processing techniques, and modern marketing strategies means this community still faces obstacles in developing sustainable businesses. This situation highlights the importance of enhancing human resource capacity through training, mentoring, and collaboration with relevant institutions to strengthen the production and managerial capabilities of group members. In addition, product diversification represents a crucial strategy for increasing added value, expanding market share, and reducing business risks (Zhang & Zhang, 2020).

Challenges are intensified by limited access to relevant technology and market information. According to research, Mirantika et al. (2024). Many rural women's farming groups have not been able to utilize digital technology to support production and marketing activities. As a result, product innovation and market network expansion are hampered. To address this, synergy is needed between the government, educational institutions, and the private sector in providing integrated training programs that cover aspects of entrepreneurship, product innovation, and digital marketing based on local potential. In the context of sustainable development, the concept of green entrepreneurship is becoming increasingly relevant.

Green entrepreneurship not only focuses on creating economic value but also considers the environmental and social impacts of business activities (Yin et al., 2022). Applying green entrepreneurship principles in agricultural processing can encourage more efficient, environmentally friendly, and sustainable production practices (Demirel et al., 2019). Research shows that agricultural product diversification can improve food security and improve community economic well-being (Amam & Rusdiana, 2021). In the context of melons, diversification can include the development of derivative products such as juice, jam, syrup, chips, and even modern processed products that are highly valuable in the market. However, successful product diversification requires technical skills, robust business management, and effective marketing strategies (Karmilah et al., 2021).

Recognizing both the potential and the challenges, this community service program is designed to provide upskilling (skill enhancement) to KWT Lestari members in green entrepreneurship through diversified melon processing. This program is expected to be a strategic solution to increase the economic capacity of KWT Lestari members while strengthening their role in promoting independent and competitive village development. Green entrepreneurship has emerged as a new paradigm in the modern business world, emphasizing the balance between economic profit and environmental sustainability (Vasilescu et al., 2023). In the context of the current global ecological crisis, this approach is becoming increasingly relevant, requiring businesses to focus not only on profit but also on considering the social and ecological impacts of their business activities (Anghel & Anghel, 2022). Through green innovation, companies can create environmentally friendly products and services while strengthening their competitiveness in a global market increasingly aware of sustainability issues.

The application of the green entrepreneurship concept is also a crucial driver in achieving sustainable economic growth (Sulastiningsih et al., 2023). Numerous studies have shown that green startups play a significant role in accelerating the transition to a low-carbon economy by developing renewable energy, implementing circular economic models, and utilizing environmentally friendly technologies. With this strategy, businesses can reduce waste, optimize resource use, and increase production efficiency without sacrificing environmental quality. In addition to economic and technological aspects, an entrepreneur's environmentally friendly social behavior is a key factor in the success of green entrepreneurship (Skordoulis et al., 2022). Entrepreneurs with a high level of ecological awareness tend to be sensitive to issues such as deforestation, overexploitation of natural resources, and the high consumption of fossil

fuels. This awareness drives them to adopt socially and ecologically responsible business practices, such as the use of sustainable raw materials, integrated waste management, and consumer education on the importance of green consumption.

By integrating sustainability values into business practices, green entrepreneurship not only creates new jobs but also increases competitiveness and attracts green investment from various sectors. Its positive impact extends to reducing carbon emissions and improving social well-being. Thus, green entrepreneurship is a key pillar in supporting the achievement of the Sustainable Development Goals (SDGs), particularly in terms of inclusive economic development, environmental preservation, and sustainable innovation (Andari, 2021). Product diversification is a crucial business strategy for maintaining company sustainability and growth amidst ever-changing market dynamics (Saboori et al., 2023). This strategy enables companies to expand their product or service portfolio to reach new customer segments, increase market share, and reduce dependence on a single product type (Lamidi & Rahadhini, 2024). Thus, diversification serves not only as a business expansion tool but also as an effective risk management mechanism to address fluctuations in demand and changing consumer trends.

Product diversification can be categorized into several types, including horizontal, vertical, concentric, and conglomerate diversification (Putu et al., 2023). Horizontal diversification occurs when a company adds new products that are still related to existing product lines, while vertical diversification involves expanding the supply chain, both towards suppliers and distribution. Concentric diversification refers to the addition of new products that are still technologically or market-related to the main product, while conglomerate diversification is done by entering a completely different business field (Irmawati, 2019). The choice of diversification form depends heavily on the company's resource capacity, market conditions, and long-term strategy. Previous research shows that the success of product diversification is largely determined by several key factors, such as in-depth market research, strategic alignment with a long-term vision, commitment to quality, and the ability to continuously innovate (Syafi'i et al., 2023). Furthermore, strategic partnerships with other parties, both from the public and private sectors, can strengthen implementation of diversification by expanding access to technology, distribution, and capital. Therefore, diversification is not just about adding products, but also about building an adaptive and innovative business ecosystem.

In the agricultural context, product diversification strategies play a crucial role in increasing farmers' economic resilience and reducing their vulnerability to fluctuations in single commodity prices (Saboori et al., 2023). By processing agricultural products into various derivative products, such as processed foods, beverages, or organic products, farmers can create added value and open up new market opportunities. In addition to increasing income, agricultural product diversification also supports environmental sustainability and strengthens the competitiveness of the agribusiness sector in the green economy era. Increasing the added value of agricultural products is a key strategy for strengthening farmer welfare and driving rural economic growth (Suryaningrum & Lestari, 2025). Added value is defined as the difference between the value of the final product and the total cost of raw materials and other production inputs (Supriyati & Suryani, 2016). By processing agricultural products into value-added goods with longer shelf life and attractive packaging, farmers can not only increase their selling prices but also expand their market reach to a broader range of consumer segments. This strategy is crucial in addressing the often-volatile price fluctuations of fresh commodities.

Agricultural processing also plays a role in strengthening economic resilience and creating new jobs in the agro-industrial sector. Through product innovation and efficient processing technology, agricultural products can be developed into various high-value products such as processed foods, beverages, or functional products. This activity not only provides financial benefits but also fosters an

entrepreneurial spirit among farmers and farmer groups, thus fostering a self-sufficient and competitive local economy.

Nugraheni et al. (2022) emphasized that successful value-added increases depend not only on the processing process but also on the implementation of appropriate marketing strategies. A combination of product innovation, strong branding, and the use of digital platforms for promotion can accelerate market expansion. In the context of melons, for example, processing the fruit into various derivative products such as jam, syrup, and cake has been shown to significantly increase economic value compared to selling fresh fruit, as processed products have a longer shelf life and higher aesthetic value. Beyond the economic aspect, increasing added value also has positive social and environmental impacts. By processing crops locally, communities can reduce agricultural waste, minimize post-harvest losses, and strengthen value chains at the village level. This approach aligns with the principles of sustainable development, where increased agricultural productivity is balanced with environmental conservation and community empowerment. Thus, processing agricultural produce into value-added products not only contributes to increased income but also creates a more inclusive and sustainable agricultural system, supported by proper branding and marketing strategies.

In the digital era, branding and marketing are key factors in determining a product's success (Gielens & Steenkamp, 2019). A strong brand image not only influences consumer perceptions of product quality but also plays a crucial role in the purchasing decision-making process (Sharma et al., 2023). A brand that creates a consistent visual and emotional identity is more easily remembered by consumers and offers added value compared to competitors. In this context, strengthening brand image is a strategic step that must be taken by businesses, including MSMEs, as they adapt to the dynamics of the digital market. Furthermore, packaging design plays a crucial role in creating a positive consumer experience.

Research by Confetto et al. (2023) shows that user-centric packaging design, which addresses the needs, preferences, and convenience of consumers, can significantly increase brand loyalty. Packaging not only protects the product but also communicates the brand's values and identity to consumers. Therefore, developing innovative and aesthetically pleasing packaging can create emotional appeal that encourages repeat purchases.

Digital marketing through social media and marketplaces opens up significant opportunities for MSMEs to expand their market reach without geographical boundaries. Sharma et al. (2023) emphasized that using the right digital marketing strategy can increase product visibility, accelerate interaction with consumers, and streamline promotional costs. Therefore, the combination of product quality, attractive packaging, and an integrated digital marketing strategy is key to business success in this modern, competitive era.

Economic independence is one of the primary outcomes of successfully and sustainably implemented entrepreneurial activities (Hastuti et al., 2022). Through entrepreneurial activities, individuals and communities can create new business opportunities, increase income, and strengthen the foundations of local economies (Haris & Burhan, 2023). The resulting economic independence encompasses not only financial aspects but also empowers communities to make independent economic decisions without relying on external parties. Thus, entrepreneurship acts as a catalyst in driving inclusive and equitable economic growth.

The concept of social entrepreneurship has developed as an innovative approach to addressing social and environmental issues in a sustainable manner. This form of entrepreneurship is oriented not only toward financial gain but also toward creating social value for the community, especially marginalized groups (Morisson & Panetti, 2020). Through initiatives such as skills training, local resource

management, and job creation, social entrepreneurship can provide concrete solutions to the various issues of poverty and economic inequality still faced in many regions.

Entrepreneurship based on local potential is a crucial factor in community economic recovery efforts. The pandemic has demonstrated the importance of local economic independence based on the community's own resources and creativity (Susilawati et al., 2020). An entrepreneurial-led economic development model allows for a more equitable redistribution of wealth by providing opportunities for all social strata to actively participate in economic activities (Nasrudin et al., 2023). Therefore, strengthening local entrepreneurship can be an effective strategy for building sustainable and equitable economic resilience.

2. METHODS

The community service program, scheduled for 2025 in Semanu Village, Gunungkidul, Yogyakarta Special Region, is designed to enhance local women's entrepreneurial and technical capacities through practical training and participatory learning. The preparation stage started on June 16, 2025, followed by the main training on July 15, 2025, at the Semanu Village Hall. The program specifically targets 30 members of the Lestari Women's Farmers Group (KWT Lestari), who are primarily engaged in melon cultivation and agricultural activities. In addition to the main participants, the program also involves indirect beneficiaries such as local farming families, the village government, and other community stakeholders who contribute to creating a supportive ecosystem for sustainable rural development.

The community service program is implemented systematically over a twelve-month period to ensure effective capacity building and sustainable impact for KWT Lestari. Each activity is arranged sequentially, starting from careful planning and preparation, followed by technical training, entrepreneurship strengthening, mentoring, evaluation, and final reporting. This structured timeline ensures that every stage of the program is interconnected and contributes to achieving the overall objective of enhancing green entrepreneurial capacity based on melon product diversification. Below is a brief description of each activity stage:

Table 1. Time schedule program

Activities	Time (Month)
Activity Planning	January
Preparation of Tools, Materials, and Modules	February
Implementation of Melon Processing Training	March
Green Entrepreneurship Training	April
Digital Marketing Mentoring	May
Evaluation	June
Output Preparation	July
Reporting and Presentation	August

To achieve its objectives effectively, the program is structured into five systematic stages: preparation, training implementation, mentoring, evaluation, and sustainability planning. Each stage is designed to progressively develop participants' skills, from identifying local potential and developing products to applying green entrepreneurship principles and digital marketing strategies. This structured approach ensures that the program's outcomes extend beyond short-term skill improvement, fostering long-term empowerment, innovation, and economic resilience within the community.

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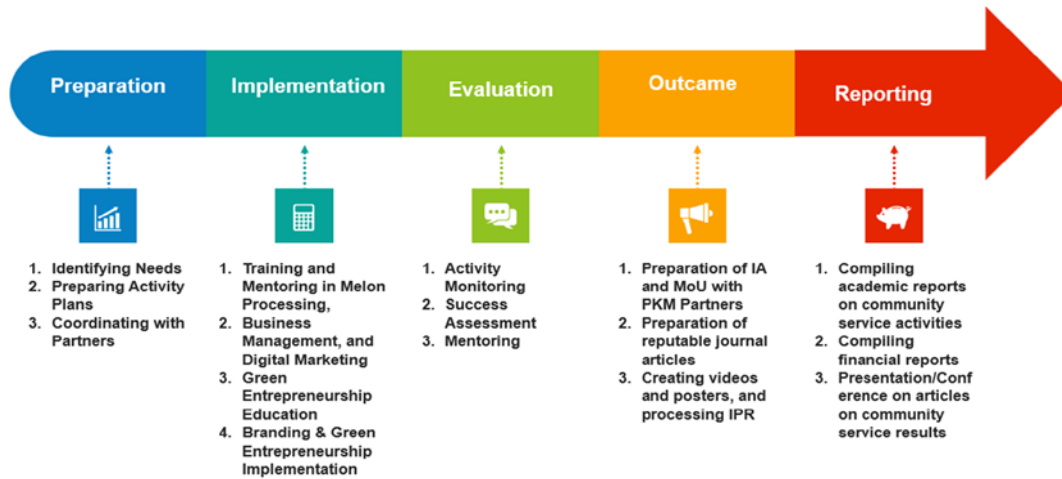


Figure 1. Stages of implementing PKM activities

The community service program was implemented through four systematic stages: preparation, implementation, monitoring and evaluation, and output development.

Preparation Stage

The preparation began with a needs assessment conducted through surveys and in-depth interviews with members of the Lestari Women's Farmers Group (KWT Lestari). The findings were used as the basis for coordination meetings with KWT Lestari management and the Semanu Village Government to design relevant activity plans and training materials. This stage also determined the types of melon-based processed products to be developed, including melon jam, melon syrup, and melon cake as potential flagship products. The preparation meeting was held on June 16, 2025, attended by representatives of KWT Lestari and the Semanu Village Government, Gunungkidul. The main outcome of this stage was a structured and agreed-upon implementation plan.

Implementation Stage

The implementation stage focused on three main aspects: production and processing, business management, and marketing. In the production and processing aspect, participants received technical training in producing various melon-based processed products through demonstrations and hands-on small group practice sessions. Green entrepreneurship principles were integrated into the training by emphasizing waste management, resource efficiency, and environmentally friendly production practices, including smart water usage. In the business management aspect, participants were trained in production planning, cost calculation, pricing strategies, and the preparation of short- and long-term business plans. Simple financial bookkeeping training was also provided to strengthen business governance and accountability. In the marketing aspect, training emphasized digital marketing strategies using social media and online marketplaces. Workshops on branding were conducted, covering logo creation, packaging design, and product storytelling. Participants were also assisted in developing attractive promotional content aligned with their target market. The main training activities were conducted on July 15, 2025, with 30 participants, the majority of whom were women members of KWT Lestari, Semanu.

Monitoring and Evaluation Stage

Monitoring and evaluation were carried out to ensure the achievement of program objectives. Monitoring was conducted through direct observation of participant engagement and activity implementation. Evaluation involved measuring participants' knowledge improvement through pre-tests and post-tests, as well as assessing their practical skills in processing and business applications. Post-training mentoring was provided to support participants in applying the acquired knowledge independently. This follow-up assistance was conducted online, with intensive coordination and communication optimized through a WhatsApp Group to ensure continuous guidance and problem-solving support.

Output Development Stage

The final stage focused on documenting and disseminating the program outcomes. Outputs included the preparation of formal partnership documents such as an Instrument Agreement (IA) and a Memorandum of Understanding (MoU) with partners, documentation of activities in the form of videos, photographs, posters, and the development of scientific journal articles for publication. This stage ensures sustainability, accountability, and broader dissemination of the program's impact.

The success of this community service program is evaluated using measurable, outcome-oriented indicators that reflect improvements in knowledge, skills, and business sustainability. Each aspect of the program, ranging from training effectiveness to long-term sustainability, is assessed through specific targets and observable outcomes. These indicators ensure that the program not only delivers short-term capacity building but also promotes sustainable entrepreneurial development among members of KWT Lestari. The detailed indicators of program success are presented in Table 2 below.

Table 2. Indicator Program

Aspect	Target	Indicator
Training	80 percent attendance rate	Attendance rate and understanding improvement ≥ 75 percent
Production	3 new products	80 percent of participants are able to make products independently
Green Entrepreneurship	75 percent comprehension rate	Documented waste management practices
Management	80 percent comprehension rate	Financial recording and stock management are implemented
Marketing	Digital marketing	Active social media account and at least 1 online transaction
Sustainability	70 percent active rate	Minimum 2 mentoring sessions and a business road-map prepared

The results of the program implementation show positive achievements in various aspects of the activities. The attendance rate of participants in the training reached more than 80 percent, accompanied by an increase in understanding of the material by up to 75 percent as targeted. In terms of production, three new products were successfully developed, and around 80 percent of participants were able to produce independently. The application of green entrepreneurship principles also showed progress, marked by an increase in understanding of up to 75 percent and the existence of documented waste

management practices. From a management perspective, participants understood the importance of financial recording and stock management, with a level of understanding reaching 80 percent. The marketing aspect has also developed through the implementation of effective digital marketing strategies, as evidenced by active social media accounts and the achievement of the first online transaction. For program sustainability, around 70 percent of participants actively participated in at least two mentoring sessions and have developed a business roadmap as a step towards sustainable business independence.

3. RESULTS AND DISCUSSION

Results

The preparation stage of the activity was carried out on June 16th 2025, at the Semanu Village Hall, involving the KWT Lestari management, the implementation team, and village officials. The discussion forum resulted in an agreement to develop three main processed products: melon jam, melon syrup, and melon-based cakes and desserts. The training was scheduled for July 15th 2025, with a target of 30 participants. This stage is crucial because participatory planning increases participants' sense of ownership and readiness to participate in the training. Research by Baroroh et al. (2025) shows that locally needed training and the active participation of farmer group members can increase program sustainability and the adoption of local product innovations. This underscores the importance of active community involvement from the activity planning stage.



Figure 2. Implementation of community program

During the implementation stage of the activity, which took place on July 15, 2025, the participant attendance rate reached 90 percent. The activity began with an opening, remarks, the signing of the MoU, and continued with product-making practices in three groups: melon jam, melon syrup, and melon

cake and dessert. Evaluation results showed that 85 percent of participants successfully produced good-quality products and 82 percent were able to operate simple production equipment correctly. These findings align with research [Nuswantoro et al. \(2024\)](#) showing that hands-on training can improve the technical skills of MSME participants by up to 80 percent compared to purely theoretical training. Thus, the practice-based training method is effective in improving participants' production capabilities at the village level.

In addition to technical training, participants also received green entrepreneurship education and business management mentoring. The green entrepreneurship material was delivered by Dr. Andik Asmara, M.Pd., covering the concept of environmentally friendly businesses, production waste management, resource efficiency, and smart water management. Evaluations showed that 75 percent of participants understood and began implementing green business principles in the production process. Management and marketing materials covered branding strategies, packaging design, digital marketing, and simple financial record keeping. Results showed that 72 percent of participants understood financial record keeping, 61 percent implemented stock management, and 63 percent actively promoted products online. These results are consistent with research by [Irianto et al. \(2023\)](#) that found that community-based digital marketing training can increase the promotional and sales capabilities of MSMEs by up to 60 percent.

The community service program implemented in Semanu Village aims to strengthen the entrepreneurial capacity, technical skills, and environmental awareness of the members of KWT Lestari. This activity emphasizes participatory planning and practical learning to ensure that the training is relevant to local needs and promotes sustainable outcomes. The preparation stage, held on June 16, 2025, involved collaboration between KWT Lestari management, the implementation team, and village officials, resulting in an agreement to develop three main processed melon products: jam, syrup, and cakes or desserts.

The training, conducted on July 15th, 2025, brought together 30 participants from the Lestari Women's Farmers Group (KWT Lestari) to engage in a series of integrated learning sessions. The program combined technical production training with green entrepreneurship education and business management mentoring. Participants were divided into groups to practice making three main melon-based products: jam, syrup, and cakes or desserts. This hands-on approach enabled participants to directly apply the knowledge gained during the training, fostering greater understanding and skill mastery. Moreover, the sessions were facilitated by experts in agribusiness and sustainable entrepreneurship, ensuring that the learning experience was both practical and aligned with current industry standards.

Beyond improving technical capabilities, the training emphasized the importance of sustainable and ethical business practices. Participants were introduced to the concept of green entrepreneurship, which promotes environmentally friendly production methods and responsible resource management. They also learned about digital marketing strategies, branding, packaging, and financial record keeping to strengthen their business competitiveness. As a result, participants not only enhanced their production and marketing abilities but also developed a deeper awareness of sustainability principles. This holistic learning experience is expected to support the long-term resilience and independence of community-based enterprises in Semanu Village.

To determine the success of the local potential-based entrepreneurship training and mentoring program at KWT Lestari, several key aspects were evaluated: training activities, green entrepreneurship implementation, business management, product marketing, and program sustainability. The results were compared with previously established targets. The evaluation was conducted by comparing the targets with actual achievements presented in Figure 3.

Table 2. Schedule of implementation

Date	Activity	Output
June 16 th 2025	Preparation Stage – Conducted at the Semanu Village Hall involving KWT Lestari management, the implementation team, and village officials. The discussion forum resulted in an agreement to develop three main processed products: melon jam, melon syrup, and melon-based cakes and desserts.	Agreement on product focus (melon jam, syrup, cakes/desserts); training plan finalized; 30 participants targeted; enhanced participant readiness and ownership.
July 15 th 2025	Implementation Stage – Opening session, welcoming remarks, and signing of the MoU. Followed by hands-on production training divided into three groups: melon jam, melon syrup, and melon cake/dessert.	90 percent participant attendance; 85 percent successfully produced quality products; 82 percent operated production tools correctly.
July 15 th 2025	Green Entrepreneurship Training – Delivered by teams, focusing on eco-friendly business concepts, waste management, resource efficiency, and smart water use.	75 percent of participants understood and started applying green entrepreneurship principles.
July 15 th 2025	Business Management and Digital Marketing Mentoring – Covered branding, packaging design, online marketing, and financial record keeping.	72 percent understood financial record keeping; 61 percent applied stock management; 63 percent promoted products online through active social media.

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Figure 3. Evaluation of community service implementation

Discussion

The following graph illustrates the comparison between activity targets and the actual achievement levels achieved during the training and mentoring process. Overall, the activity outcomes showed positive results, with all indicators exceeding the planned targets. This demonstrates that the training and mentoring activities significantly improved participants' technical skills, entrepreneurial knowledge, and environmental awareness. The evaluation of the KWT Lestari training activities showed

that all achievement indicators exceeded the previously set targets. In terms of training implementation, achievement reached 88 percent, exceeding the target of 80 percent. These results demonstrate the high level of participant participation and enthusiasm for the training program. This success was attributed to the hands-on, hands-on training method (learning by doing), which has proven to be more effective than lectures. Research by [Nuswantoro et al. \(2024\)](#) shows that practice-based training can improve the technical skills of MSME participants by up to 80 percent because it provides real-world experience and direct involvement in the production process.

In terms of green entrepreneurship implementation, the achievement reached 83 percent of the target of 80 percent, indicating increased participant awareness of the importance of environmentally friendly businesses. Participants began to apply the principles of efficient water use, organic waste management, and chemical reduction in production processes. These results demonstrate that green entrepreneurship education has a positive impact on sustainable business behavior. This finding is supported by research [Sulastiningsih et al. \(2023\)](#), which explains that green entrepreneurship education has a significant effect on increasing environmental awareness and sustainability orientation among small business owners in Indonesia. Similarly, the study [Anghel & Anghel \(2022\)](#) confirms that a social entrepreneurship approach can be an effective solution in creating a balance between economic goals and environmental responsibility.

Meanwhile, the business management aspect showed a 75 percent achievement, higher than the 70 percent target. This increase reflects the participants' ability to perform simple financial records, manage raw material inventory, and plan product distribution more systematically. [Setyawan et al. \(2023\)](#) found that community-based entrepreneurship training was able to improve participants' managerial skills by up to 40 percent through the practice of financial recording and targeted business planning. Furthermore, the product marketing aspect also increased by 65 percent, exceeding the 60 percent target. Participants began implementing digital promotion strategies through social media such as WhatsApp, Facebook, and Instagram. The study [Junaidi et al. \(2023\)](#) confirmed that community-based digital marketing training can increase MSMEs' promotional and sales capabilities by up to 60 percent, in line with the increasingly strong trend of digital transformation in the micro-business sector.

The final aspect, program sustainability, achieved 72 percent of the 70 percent target. This demonstrates the participants' commitment to continuing independent product production and marketing activities. This success demonstrates that the training not only improves technical skills but also fosters a sustainable entrepreneurial spirit at the local level. The study [Jumasrah et al. \(2025\)](#) explains that the sustainability of the training program is strongly influenced by social support, post-training mentoring, and strengthening networks among group members. Thus, the overall achievement indicates that the KWT Lestari training has successfully increased the capacity of participants in production, management, marketing, and business sustainability, thus becoming an effective and sustainable model for empowering rural women's economic development.

The green-entrepreneurship approach implemented in this activity, such as utilizing fruit waste into animal feed or compost, has proven to provide added value to the sustainability of community businesses. The 83 percent achievement in the application of green entrepreneurship principles indicates that the concept is well-received by the target community. This achievement illustrates the transformation of economic value towards environmental sustainability, which strengthens the sustainable business ecosystem at the local level. This is in line with the findings [Skordoulis et al. \(2022\)](#), which explain that green entrepreneurship not only creates economic value but also has a positive ecological impact through waste reduction and resource efficiency. Participants' awareness of waste management and energy efficiency indicates a shift in mindset from conventional production patterns to sustainable

production. These findings are reinforced by research [Nasrudin et al. \(2023\)](#), which confirms that green entrepreneurship education significantly increases sustainability orientation and environmental responsibility among small business owners in Indonesia.

In terms of business management and marketing, participants showed positive progress, although still at a basic level. With a 75 percent achievement in simple financial record keeping, participants began to understand the importance of financial management in maintaining business continuity. Financial literacy has proven to be a key factor in the success of MSMEs, as explained by [Setyoningrum & Nindita \(2020\)](#) the finding that the ability to plan and record finances has a significant influence on the profitability and stability of small businesses. Meanwhile, in terms of marketing, the 65 percent achievement indicates that participants have begun to utilize social media as a means of product promotion. However, the effectiveness of digital marketing strategies still needs to be improved through further mentoring. This finding is consistent with research by [Prayogo et al. \(2023\)](#) showing that viral marketing and brand awareness have a positive influence on consumer purchasing interest, especially in the local product sector.

Furthermore, the development of product packaging, design and branding is a crucial aspect that needs to be continuously improved to strengthen market competitiveness. Research by [Thamrin \(2025\)](#) shows that attractive and user-centric packaging design can improve consumer perceptions of product quality and foster brand loyalty. Therefore, improving design and packaging skills is a key strategy for the sustainability of KWT Lestari's products, enabling them to compete in the competitive digital marketplace.

In terms of sustainability and economic impact, the formation of three small business groups after the training with a sustainability rate of 72 percent demonstrates that this activity does not stop at the training level, but continues to actual actions that have an economic impact. This success demonstrates increased capacity and economic independence at the community level, particularly in the context of empowering rural women. This aligns with the concept of social entrepreneurship, which emphasizes the ability of communities to overcome social and economic challenges through innovation and collaboration ([Wulandari, 2021](#)). The diversification of processed melon products developed after the training also shows significant economic potential, as it can increase income and reduce dependence on fresh fruit sales. These findings align with research ([Saboori et al., 2023](#)) explaining that agricultural product diversification can increase economic resilience and expand markets for rural communities.

Overall, the implementation of green entrepreneurship-based training, business management strengthening, and product innovation and digital marketing have had a significant impact on increasing participants' economic capacity and environmental awareness. This integrated approach serves as an effective model for developing sustainable entrepreneurship at the village level, oriented not only toward financial gain but also toward social and ecological sustainability.

4. CONCLUSION AND RECOMMENDATIONS

The melon product processing and green entrepreneurship training program for the Lestari Women's Group (KWT Lestari) in Semanu Village successfully improved the participants' technical skills, environmental awareness, and economic independence. Through a hands-on approach, participants were able to develop value-added processed products, implement environmentally friendly waste management, and begin managing their businesses more professionally with simple financial records and digital marketing. This success was demonstrated by the formation of independent small business groups, demonstrating the effectiveness of locally-based training in encouraging village women's empowerment, strengthening family economies, and sustainable economic development at the community level

To ensure the sustainability and wider impact of this program, it is recommended that continuous mentoring and capacity-building activities be implemented for the Lestari Women's Group (KWT Lestari). Strengthening collaboration between local governments, educational institutions, and business partners will be essential in providing access to capital, broader markets, and ongoing technical assistance. Future programs should also focus on product innovation, certification, and branding to enhance competitiveness in both local and online markets. In addition, periodic evaluation and follow-up activities should be conducted to monitor the progress of participants' businesses and to identify new challenges that may arise. Expanding the program's reach to other women's farmer groups or neighboring villages could also amplify its social and economic impact. By maintaining consistent support, fostering innovation, and ensuring environmental responsibility, this initiative can serve as a sustainable model for rural women's empowerment and local economic resilience.

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