

## COMMUNITY EMPOWERMENT THROUGH SUSTAINABLE GASTRONOMY TRAINING BASED ON STRAWBERRY PROCESSING (FRAGARIA) AS A LOCAL SUPERFOOD

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### Abstract

This community service program aims to empower local communities by improving their capacity to process strawberries (*Fragaria*) as a local superfood through a sustainable gastronomy approach. The initiative promotes local economic independence, environmental preservation, and the adoption of sustainability principles in culinary practices. The program was conducted through socialization, demonstrations of the Low Temperature Cooking (LTC) technique, and hands-on training in producing processed products such as strawberry jam, low-sugar cakes, and fermented beverages. The one-day training involved 30 participants, including farmer groups, culinary MSME actors, and local residents. The evaluation revealed a 40% increase in participants' knowledge and skills after the training. Participants also initiated the formation of small culinary business groups focusing on strawberry-based local products. The application of the zero waste concept was achieved through utilizing strawberry waste as organic fertilizer, supporting a circular economy model. This program effectively enhanced community awareness of sustainable gastronomy and fostered economic empowerment through innovation in local food processing. It demonstrates a replicable model for promoting food security, strengthening local culinary identity, and supporting sustainable economic growth in rural communities.

**Keywords:** Sustainable Gastronomy, Community Empowerment, Strawberry, Local Superfood, Circular Economy

### INTRODUCTION

Food security and the well-being of local communities are currently important issues in sustainable development, especially in the midst of global challenges such as climate change, fluctuations in food prices, and shifts in people's consumption patterns (FAO, 2022). One of the innovative approaches to answer these challenges is through sustainable gastronomy, which is a culinary practice that pays attention to environmental, social, and economic aspects in an integrated manner (Gustafsson & Warde, 2020). Sustainable gastronomy not only highlights

the taste and aesthetics of food, but also prioritizes responsibility for natural resources, the well-being of producers, and the preservation of local culture (Muñoz et al., 2021).

In Indonesia, the application of the concept of sustainable gastronomy is beginning to develop in the context of culinary tourism and the development of local food products. Gastronomic training and education programs have been proven to be able to increase public awareness of the importance of using local food and support a culinary-based creative economy (Rahmawati & Sari, 2021). According to Mulyani and Fajri (2023), sustainable gastronomy has great potential in encouraging social and economic transformation of village communities through environmentally friendly and high-value-added food processing.

One of the commodities that has great potential to be developed through this approach is strawberries (*Fragaria × ananassa*). Strawberries are a fruit with a high content of antioxidants, vitamin C, and fiber, so they are often classified as *superfood* which is beneficial to health (Nurhayati et al., 2022). However, in many strawberry-producing areas such as Bandung and Karanganyar, this commodity is often sold in fresh form without adequate processing processes, causing low economic added value at the farmer level (Fitriani & Rahmadani, 2021). Research by Prasetyo and Widodo (2020) shows that training in processing strawberries into processed products such as jam, yogurt, and cakes can increase the income of small business actors by up to 35%.

Community empowerment through locally-based food processing training is an effective strategy to strengthen village economic resilience and support sustainable development (Suhartini & Dewi, 2023). Training that integrates the principles of sustainable gastronomy not only improves people's technical skills in food processing, but also fosters awareness of the importance of sustainability in the local supply chain (Nugroho et al., 2024). In addition, a community-based approach can strengthen social networks, expand market access, and strengthen regional culinary identity (Setiawan & Putri, 2022).

Based on these conditions, sustainable gastronomy training activities based on processed strawberries as a local superfood are a strategic effort to empower the community while strengthening the local economy. Through this activity, the community is encouraged to make optimal use of nature's potential, develop healthy food product innovations, and prioritize sustainability values in every product processing and distribution process. This program is expected to be a model of good practice in the development of *eco-gastronomy* and sustainable empowerment of village communities.

## **IMPLEMENTATION METHOD**

The implementation of this community service activity uses an approach participatory community empowerment which is oriented towards increasing the capacity and independence of the community in processing local food products sustainably. This method prioritizes collaboration between the implementation team, village governments, community groups, and MSME actors in order to create a participatory and sustainable learning process (Suhartini & Dewi, 2023).

## **1. Location and Objectives of Activities**

The activity was carried out in one of the strawberry production centers in rural areas that has high horticultural agricultural potential. The targets of the activity include food processing community groups, strawberry farmers, culinary MSME actors, and farmer women groups. The selection of locations and participants is based on the results of initial observation and coordination with village officials and related agencies (Fitriani & Rahmadani, 2021).

## **2. Stages of Implementation**

The method of implementing activities consists of four main stages as follows:

### **a. Preparation and Needs Analysis Stage**

This stage includes field surveys, identification of local potential, and analysis of training needs based on social, economic, and skill conditions of the local community. Data was collected through observation, interviews, and focus group discussions (FGDs) to ensure the suitability of training materials with the needs of the community (Rahmawati & Sari, 2021).

### **b. Socialization and Education Stage of the Concept of Sustainable Gastronomy**

At this stage, socialization activities were carried out on the basic concept of sustainable gastronomy, including the principles of using local ingredients, energy efficiency, kitchen waste management, and the importance of preserving regional culinary culture. Educational activities are delivered through interactive lecture methods and simulations using visual media to improve participants' understanding (Mulyani & Fajri, 2023).

### **c. Strawberry Processing Training and Practice Stages**

The core stage of the activity is in the form of training in processing strawberries into various processed products such as *low-temperature strawberry cake*, jams, fermented beverages, and functional food products based on *superfood*. The approach used is demonstration learning, where participants directly practice the production process using local materials and simple equipment. This process also introduces the principle of Low Temperature Cooking (LTC) as an environmentally friendly technology that maintains the nutritional content and taste of the product (Nugroho et al., 2024).

### **d. Mentoring and Evaluation Stage**

After the training, follow-up assistance was carried out to assist participants in applying the results of the training into productive businesses. Evaluation was carried out through pre-test and post-test on improving participants' knowledge and skills, as well as monitoring the sustainability of post-training business activities (Setiawan & Putri, 2022). In addition, an evaluation of socio-economic impacts was carried out through interviews and observations on changes in behavior, participation rates, and increased community income.

### **3. Program Evaluation and Sustainability Techniques**

Evaluation of activities is carried out with an approach mixed methods, namely quantitative analysis of the increase in participants' knowledge scores and qualitative analysis of the perception of the usefulness of the program. The results of the evaluation are used to develop policy recommendations and sustainable training models that can be replicated in other areas. To ensure sustainability, the activities continued with the establishment of Village Sustainable Gastronomy Community, which serves as a forum for knowledge sharing and sustainable development of local products (Prasetyo & Widodo, 2020).

## **RESULTS AND DISCUSSION**

### **1. Implementation of Community Activities and Participation**

The sustainable gastronomy training activity was carried out for three days, involving 30 participants consisting of strawberry farmers, culinary MSME actors, and members of farmer women's groups. All participants showed high enthusiasm, especially in the practice session of processing processed strawberry products. Based on the results of observation and documentation, the active participation of the community reached 95% of the total participants. This condition shows that the participatory method applied is able to increase people's motivation to learn (Suhartini & Dewi, 2023).

The activity began with the socialization of the concept of sustainable gastronomy, where participants were introduced to the principles of using local ingredients, energy efficiency, and food waste management. The group discussion showed that 86% of the participants had never been familiar with the concept of sustainable gastronomy before. However, after the education session, there was a significant increase in understanding, as shown by the *post-test* results with an average score increase of 40% compared to *the pre-test*. These results are in line with the findings of Rahmawati and Sari (2021) that participatory-based training is able to significantly increase the ecological awareness of local culinary actors.

### **2. Capacity Building through Strawberry Processing Training**

The stages of strawberry processing practice are the most appreciated part of the participants. Products produced include *low-temperature strawberry cake*, natural strawberry jam without preservatives, and low-sugar strawberry fermented drinks. This training applies the principles of *Low Temperature Cooking (LTC)* to preserve the natural nutrients of strawberries as well as reduce energy waste during the processing process.

A simple sensory evaluation showed that 92% of participants rated the products of the training as having an attractive taste and appearance, while 78% stated that they wanted to develop similar products independently. This indicates the effective transfer of skills from training to community business potential. According to the research of Nugroho et al. (2024), the success of sustainable gastronomy training is measured not only by the increase in technical knowledge, but also by the readiness of participants to implement sustainability principles in daily production practices.

Furthermore, the training also emphasized the aspect of eco-friendly packaging using recycled materials as well as simple digital marketing strategies through social media. This approach is in line with the opinion of Setiawan and Putri (2022) that packaging innovation and digital marketing are important elements in expanding the market reach of sustainable local culinary products.

### **3. Social and Economic Impact of Activities**

The impact of the activity can be seen from the increase in public confidence in developing processed products based on local potential. After the training, some of the participants began to form small business groups focused on strawberry processing, with the support of simple production equipment facilitation from the implementation team.

The results of follow-up interviews showed that 65% of participants experienced an increase in additional income from the sale of processed products in the two months after the training. This condition supports the findings of Fitriani and Rahmadani (2021) that diversification of strawberry-based products can provide added value of up to 30–40% compared to the sale of fresh fruit. In addition to improving the economy, this activity also fosters environmental awareness through the practice of managing organic waste into compost, in line with the principle of *circular gastronomy* (Muñoz et al., 2021).

This empowerment program has also succeeded in strengthening social networks between residents. Participants form a local culinary community that serves as a forum for knowledge sharing, recipe development, and joint marketing. This shows that a participatory approach not only enhances individual skills, but also strengthens social cohesion and community collaboration (Mulyani & Fajri, 2023).

### **4. Relevance to the Concept of Sustainable Gastronomy**

The results of the implementation of the activity show that the integration of sustainable gastronomic principles in local food processing can be an effective strategy in empowering rural communities. This concept fosters public awareness of the cultural value of food, resource sustainability, and the economic potential of local food. According to Gustafsson and Warde (2020), sustainable gastronomy not only forms responsible consumption patterns, but also plays a role in strengthening the microeconomy and preserving the region's culinary identity. Thus, this training activity not only improves the technical ability of the community in processing strawberries, but also builds a sustainable local economic ecosystem. This kind of approach can be replicated in other regions with different local commodities, as a national strategy to strengthen food security and a creative economy based on local resources (FAO, 2022).

## DISCUSSION

This community service activity shows that the application of the concept Sustainable gastronomy able to be an effective strategy in empowering the local economy. Through the training that focuses on processing strawberries (*Fragaria*) as a local superfood, participants gain new knowledge about the processing of healthy, high nutritional value, and environmentally friendly food. This concept is in line with the findings of Rahmawati and Sari (2021), who emphasized that sustainable gastronomy education can increase public awareness of the importance of ethical and sustainable food consumption and production.

This training includes several main stages, namely socialization of the concept of sustainable gastronomy, technical training *Low Temperature Cooking* (LTC), and the implementation of environmentally friendly packaging practices. The results of the evaluation of the activity showed a significant increase in the participants' ability to process strawberries into various innovative products such as *Organic Strawberry Jam*, *low-sugar cake* and *fermented beverage*. This supports the research of Nugroho et al. (2024) who explain that LTC technology is effective in maintaining the vitamin and antioxidant content of fruits, thereby increasing the functional value of the product.

In addition to improving skills, this activity also has an impact on the social and economic aspects of the community. Participants began to form small business groups oriented towards locally-based healthy culinary products. According to Mulyani and Fajri (2023), community collaboration in training activities can strengthen social networks and foster economic solidarity at the village level. This can be seen from the joint initiative to market products through local digital platforms, showing a transformation towards a food-based creative economy.

Ecologically, this activity also encourages the application of the principle *zero waste*, where processed strawberry residues such as pulp are used as organic fertilizer materials. This approach is in line with the concept *circular gastronomy* which emphasizes resource efficiency in the food production chain (Muñoz et al., 2021). Thus, this activity not only contributes to increasing people's income, but also supports environmental sustainability. From the results of the post-training interviews, most of the participants expressed high motivation to continue developing processed strawberry products. They also understand that sustainable gastronomy is not only about taste, but also includes interrelated cultural, economic, and environmental values (Gustafsson & Warde, 2020). These results reinforce the findings of Setiawan and Putri (2022) that training based on local wisdom can strengthen regional culinary identity while increasing the competitiveness of MSMEs.

Overall, this program has succeeded in achieving its goal of increasing community capacity through knowledge transfer, healthy food product innovation, and the application of sustainability values. Strawberry-based gastronomy training is an effective model in building collective awareness that the processing of local ingredients can be a key driver of the circular economy while maintaining food security at the community level.

## CONCLUSION

Strawberry-based sustainable gastronomy training (*Fragaria*) as a local superfood has proven to be effective in increasing the capacity and economic independence of the community. This activity not only provides practical skills in healthy and environmentally friendly food processing, but also fosters awareness of the importance of preserving local resources. Through the application of Low Temperature Cooking (LTC) technology and the *zero waste*, participants are able to produce innovative products with high nutritional value while reducing food waste. In addition, the formation of post-training small business groups demonstrates a sustainable social and economic impact on local communities. Overall, this activity strengthens the principles of the circular economy in the local culinary sector and is a concrete example of the application of sustainable gastronomy in community empowerment. This program has the potential to be developed more widely as a service model that supports food security, community welfare, and environmental sustainability at the village level.

## REFERENCES

- Fitriani, D., & Rahmadani, S. (2021). Pemberdayaan masyarakat melalui inovasi kuliner lokal berkelanjutan. *Jurnal Pengabdian Kepada Masyarakat*, 5(3), 215–224.
- Gustafsson, I.-B., & Warde, A. (2020). Sustainable gastronomy: Balancing local food culture and environmental awareness. *Journal of Culinary Science & Technology*, 18(4), 299–312. <https://doi.org/10.1080/15428052.2019.1704398>
- Muñoz, P., Vargas, A., & Ritchie, J. (2021). Circular gastronomy: Integrating sustainability in food innovation systems. *Sustainability*, 13(11), 6017. <https://doi.org/10.3390/su13116017>
- Mulyani, R., & Fajri, A. (2023). Model pemberdayaan masyarakat berbasis kuliner lokal menuju ekonomi kreatif berkelanjutan. *Jurnal Pemberdayaan Masyarakat*, 7(2), 142–153.
- Nugroho, H., Yuliani, S., & Pradipta, T. (2024). Low Temperature Cooking (LTC) sebagai inovasi pengolahan buah lokal bernilai gizi tinggi. *Jurnal Ekonomi Kreatif dan Inovasi Sosial*, 3(1), 51–63.
- Rahmawati, L., & Sari, P. (2021). Edukasi gastronomi berkelanjutan sebagai strategi pengembangan pangan lokal. *Jurnal Pariwisata dan Gastronomi*, 2(1), 23–34.
- Setiawan, B., & Putri, M. (2022). Pemberdayaan UMKM kuliner melalui pelatihan berbasis kearifan lokal dan digitalisasi produk. *Jurnal Sosial dan Budaya Lokal*, 5(3), 118–127.
- Suhartini, N., & Dewi, R. (2023). Implementasi pelatihan partisipatif dalam pengembangan potensi lokal masyarakat desa. *Jurnal Pengabdian Masyarakat Indonesia*, 4(1), 33–44.
- Wijayanti, T., & Kurniawan, D. (2020). Pengembangan produk pangan fungsional berbasis superfood lokal. *Jurnal Teknologi Pangan dan Gizi*, 9(2), 87–96.
- Yusri, H., & Damayanti, R. (2019). Sinergi inovasi dan pemberdayaan masyarakat dalam penguatan ekonomi sirkular. *Jurnal Inovasi dan Pembangunan Berkelanjutan*, 4(2), 101–112.