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Sustainable Agricultural Development through Community Service Programs in Gintung Village, Sukadiri District, Tangerang Regency

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ABSTRACT
This program was implemented in Gintung Village, Sukadiri District, Tangerang Regency, with the aim of developing a sustainable agricultural system to encourage local economic independence. Gintung Village, where the majority of residents are farmers, still practices conventional farming systems with a heavy reliance on chemical fertilizers and pesticides. This condition has the potential to reduce land fertility and negatively impact the environment. Using a participatory, education-based approach, this activity was carried out in the form of seminars and open discussions with farmers and community leaders. The seminars focused on increasing understanding of sustainable agricultural practices, the use of organic fertilizers, wise natural resource management, and community-based marketing strategies. The results of the activity showed an increase in farmer knowledge, the formation of organic farmer group initiatives, and the creation of direct distribution channels between farmers and local consumers. This program not only increases land productivity in an environmentally friendly manner but also strengthens the village economy through collaboration. Going forward, this activity model has the potential to be replicated in other areas with similar characteristics.

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INTRODUCTION

Gintung Village, located in Sukadiri District, Tangerang Regency, is an agricultural region on the north coast of Banten Province. This region is characterized by flat topography and is a lowland area with an average elevation of 0–5 meters above sea level. The village covers an area of approximately 435 hectares, most of which is used for agricultural activities, particularly rice fields and gardens. The humid tropical climate with sufficient rainfall throughout the year supports sustainable agriculture, although most of the village's irrigation systems are rudimentary and rely on natural water channels and small irrigation networks built independently by the community.

The majority of Gintung Village residents work as farmers, farm laborers, or run agricultural micro-enterprises. Based on recent village data, the population is approximately 3,800, spread across several neighborhood associations (RW) and neighborhood associations (RT). The village's social structure remains steeped in a culture of mutual cooperation and togetherness, which strengthens various community activities, including those in the agricultural sector. However, the agricultural sector, the

backbone of the village economy, currently faces serious challenges in terms of production, distribution, and the welfare of the farmers themselves.

Agriculture in Gintung Village is still dominated by conventional systems, with intensive use of chemical inputs such as urea fertilizer, SP-36, and synthetic pesticides. The excessive use of chemicals over the years has led to various environmental problems, ranging from decreased soil fertility and the loss of natural microorganisms to water pollution and chemical residues in plants. These agricultural practices also increase production costs, shrinking farmers' profit margins, especially when middlemen suppress the selling price of their crops.

Another common problem faced by farmers is limited access to information, appropriate technology, and profitable markets. In many cases, farmers sell their crops to middlemen at prices far below market prices due to the lack of alternative distribution channels. The lengthy and inefficient marketing process for agricultural products creates a disparity between the prices received by farmers and the selling price to end consumers. This demonstrates farmers' weak bargaining position in the agricultural supply chain and hinders efforts to improve their welfare.

Meanwhile, opportunities for developing sustainable agriculture in Gintung Village remain wide open. The relatively large agricultural land area and the openness of the farming community to innovation provide important social capital. Furthermore, local consumers in Tangerang Regency and the surrounding area are beginning to become more aware of the importance of healthy, chemical-free, and locally produced food. This presents a strategic momentum to drive the transformation of conventional agriculture towards a more sustainable, local market-oriented one.

Sustainable agriculture is an agricultural production system that maintains a balance between economic productivity, environmental sustainability, and social welfare (Kamakaula, 2024). In the context of Gintung Village, this system can be realized through the application of environmentally friendly cultivation techniques, such as the use of organic fertilizers, pesticide-free soil cultivation, the utilization of household organic waste, and crop diversification to avoid dependence on a single commodity.

To drive these changes, interventions in the form of education and capacity building for farmers are needed. Seminars and open discussions are the primary methods in community service because they are participatory and encourage two-way learning (Martin & MacDonald, 2020). Through seminars, farmers can gain new insights into the principles of sustainable agriculture, healthy soil management, and efficient and equitable distribution strategies (Athuman, 2023). Small group discussions are then used to explore field experiences, identify specific challenges faced by farmers, and formulate collaborative solutions contextually tailored to local conditions (Sutherland and Marchand, 2021).

This research is motivated by the need to develop an agricultural model that is not only economically productive but also equitable, ecologically sound, and based on local strengths. By prioritizing the principle of active community participation, this initiative is expected to strengthen farmers' decision-making capacity, manage natural resources wisely, and establish mutually beneficial economic relationships with consumers. Furthermore, this program aims to raise collective community awareness of the importance of maintaining environmental sustainability through an integrated agricultural system.

The main objectives of this research include improving the skills and knowledge of Gintung Village farmers in implementing environmentally friendly agriculture, encouraging local organic fertilizer production, and establishing a direct distribution mechanism between farmers and consumers. This program is also designed to support the achievement of sustainable development goals (SDGs), particularly in the aspects of poverty alleviation (SDG 1), food security (SDG 2), sustainable consumption and production (SDG 12), and action on climate change (SDG 13).

More broadly, this activity also aligns with the local government's program to promote integrated agriculture and village empowerment based on local potential. Through collaboration between universities, village governments, farmer groups, and the general public, it is hoped that a more independent, resilient, and sustainable agricultural ecosystem will be created. Gintung Village, with all its potential and challenges, is a strategic location for implementing a pilot model for village economic development through sustainable agriculture based on collaboration between farmers and consumers.

LITERATURE REVIEW

Sustainable agriculture is a production system that seeks to maintain harmony between economic aspects, environmental preservation, and social welfare (Sudarto*et al*, 2024). Its application involves ecologically supportive cultivation techniques, such as the use of natural fertilizers, land cultivation without synthetic chemicals, the use of organic household waste, and the application of diverse planting patterns to reduce dependence on one type of crop (Gulo*et al*, 2024). To ensure that this transformation is not merely technical, a strategy for empowering farmers and strengthening local institutions is needed as a foundation for structural change (Wulandari and Kurniati, 2025).

Beyond cultivation, strengthening the agricultural distribution chain plays a crucial role in promoting economic independence at the village level. This effort can be realized by establishing direct connections between farmers and local consumers, for example through farmers' markets or community-supported agriculture schemes (Sulistyowati*et al*, 2023). This type of distribution model allows for a more equitable distribution of profits between producers and buyers, while reducing dependence on intermediaries such as middlemen (Vasquez *et al*, 2017). In addition, this system encourages price transparency and strengthens trust relationships among actors in the local agricultural ecosystem (Djazuli and Hidayat, 2024).

RESEARCH METHOD

The community service activities in Gintung Village are implemented through a participatory approach that prioritizes education and active community involvement in every stage of the activity. This approach was chosen because it was deemed most relevant to the social characteristics of the village community, which is accustomed to working collectively and has direct experience in farming. The primary methods used in this program are seminars and open discussions, designed not only as a medium for conveying information but also as a forum for dialogue to explore local knowledge and build mutual understanding.

The activity began with a coordination phase with village officials, community leaders, and representatives of farmer groups. This coordination phase aimed to obtain permits for implementation, communicate the activity's objectives, and identify priority

issues faced by local farmers. This initial phase was also used to develop the activity schedule and determine the location and key participants for the seminar and discussion.

The seminar served as an introductory activity aimed to provide participants with a basic understanding of the concept of sustainable agriculture. The seminar covered topics such as agroecological principles, chemical-free soil management, organic fertilizer production, and community-based agricultural marketing strategies. The material was delivered interactively using visual presentations, real-life examples of sustainable agricultural practices in other areas, and educational videos. Participants included farmers, housewives, village youth, and representatives from village institutions.

Following the seminar, the event continued with a focus group discussion (FGD) session, divided into several smaller groups. Each group was facilitated by a member of the community service team who acted as moderator and note-taker. These discussions were used to identify specific issues faced by farmers, such as obstacles in using organic fertilizers, natural pest control, and problems selling crops directly to consumers. Furthermore, the discussions served as a platform for gathering ideas and input from the community regarding strategic steps that could be implemented collectively at the farmer group level.

The results of these seminars and discussions were then used as the basis for developing a follow-up plan. Several agreed-upon follow-up actions included technical training in the production of solid and liquid organic fertilizers, an introduction to botanical pesticides, and a simulation of direct distribution strategies to local consumers through village farmers' markets. In implementing these follow-up activities, farmers were actively involved, both as participants and as resource persons based on their local experiences. Thus, the activities were not one-way but rather a collaborative process that strengthened local knowledge and opened access to new innovations.

Throughout the entire series of activities, the principles of inclusivity and equality were strictly upheld. All participants were encouraged to express their opinions, including village women and youth. Their presence was deemed crucial because they have a potential role in supporting the sustainability of village agriculture, both as direct actors and as agents of information dissemination. Activities were systematically documented through field notes, photographs, and videos for evaluation and reporting purposes.

Overall, this activity's implementation method aims to build collective awareness, strengthen technical capacity, and create networks between farmers and consumers within a sustainable agriculture framework. The seminar and discussion approach has proven effective in encouraging mindset change, increasing community engagement, and fostering a shared commitment to a more equitable and ecological agricultural system.

RESULT AND DISCUSSION

The implementation of a community service program in Gintung Village has yielded significant results in supporting the transformation of conventional agriculture into sustainable agriculture. Through a participatory seminar and discussion approach, farmers' knowledge has increased, organic farmer group initiatives have been established, and agreement has been reached on building a community-based distribution system. Furthermore, this activity has successfully strengthened participation across community groups, from youth to housewives, thus transforming the development of sustainable agriculture into a collective movement. The success of this program demonstrates that

education coupled with open dialogue is more effective in building awareness, strengthening technical capacity, and fostering local innovation. The tangible impact can be seen in the increased motivation of farmers to try environmentally friendly cultivation techniques and the formation of new collaborations between local producers and consumers. These findings reinforce the argument that agricultural sustainability can only be achieved through synergy between technical, social, and institutional aspects.

Increasing Farmers' Knowledge and Awareness

a. Farmers understand the dangers of excessive use of chemical fertilizers and pesticides.
   Previously, farmers were accustomed to intensively using urea fertilizer, SP-36, and chemical pesticides because they were believed to accelerate plant growth. However, they lacked understanding of the side effects, such as soil degradation, loss of natural microorganisms, and water pollution. Through seminars, farmers began to realize that dependence on chemicals only yields short-term results but is detrimental in the long term.
b. Farmers know the benefits of organic fertilizer for soil fertility.
   After receiving the material, farmers understand that organic fertilizer can maintain soil fertility, improve soil structure, and increase water retention. Furthermore, organic fertilizer is more environmentally friendly and can be produced at low cost. This knowledge opens farmers' minds to self-reliance in providing agricultural inputs.
c. There is interest in trying compost, liquid fertilizer, and plant-based pesticides.
   This new awareness has encouraged farmers to not only understand the theory but also to take the initiative to try making compost from agricultural waste, liquid fertilizer from fermented natural ingredients, and botanical pesticides from local plants like soursop leaves or lemongrass. This demonstrates a positive behavioral change that can strengthen sustainable agricultural practices.
d. Open discussions raise awareness about environmentally friendly farming.
   During the discussion sessions, farmers actively shared their experiences and addressed the challenges they face. This interaction enriched knowledge and created a collective awareness that sustainable agriculture is not simply an individual choice, but a shared necessity for the sustainability of agricultural land and the well-being of future generations.

The results are presented in detail in the following table:

Table 1. Comparison of Farmers' Knowledge Before and After the Seminar

Aspects of Knowledge	Before	After	Increase (%)
understanding the dangers of chemical fertilizers	30%	80%	+50%
organic fertilizer knowledge	25%	75%	+50%
interested in trying organic fertilizer	20%	70%	+50%
Understanding marketing strategies	15%	65%	+50%

Sources : Authors (2025)

The table above shows a significant increase in farmers' knowledge after attending the seminar. Prior to the event, the majority of farmers were unaware of the dangers of chemical fertilizers and were uninterested in trying organic fertilizers. However, after the seminar, understanding and interest increased by over 50%, indicating the success of the participatory education method used in the program.

Obstacles in activities

During the implementation of this community service activity, several obstacles were encountered that posed challenges during the planning, implementation, and follow-up stages. These obstacles can be divided into technical, social, and structural aspects.

a. Lack of Initial Understanding of Farmers
   Many farmers don't yet understand the concept of sustainable agriculture. Most consider organic systems difficult to implement because they don't offer quick returns. Therefore, the material must be presented in simple language and provided with concrete examples to facilitate understanding.
b. Dependence on Chemical Fertilizers and Pesticides
   Years of dependency have become a major obstacle. Farmers believe yields will decline without chemical fertilizers. This has led to hesitation in switching to organic methods, despite training.
c. Limited Facilities and Infrastructure
   The lack of compost shredders, demonstration plots, and organic product storage facilities hampers large-scale trials. The lack of facilities has limited farmer interest in developing organic farming, necessitating support from village governments and partner institutions.
d. Unequal Social Participation
   Some communities, especially older farmers, remain passive in discussions and reluctant to try new methods. Conversely, active participation is more prevalent among village youth and women, who are more open to change.
e. Absence of Village Regulations
   The absence of village policies supporting sustainable agriculture means the program lacks a clear legal basis or funding allocation. Change efforts still rely on community spirit, risking weakening without formal support.

Overall, these obstacles are significant, but they can be overcome through a phased approach, open dialogue, and cross-sector collaboration. These obstacles also provide important input for developing further strategies that are more adaptive and tailored to local conditions.

Follow-up Plan

Based on the results of community service activities involving seminars, discussions, and initial practices of sustainable agriculture in Gintung Village, several follow-up plans were formulated to strengthen the program's impact and ensure its sustainability in the medium to long term. These follow-up plans were developed based on input from participants, field evaluations, and the potential of the farmer groups and the village community in general.

a. Continue regular technical training on organic fertilizer production, both solid and liquid. This training will focus on improving fertilizer product quality, production efficiency, and utilizing local organic waste as the primary raw

material. Involving village youth in these activities is a priority to ensure knowledge regeneration and long-term engagement in sustainable agricultural activities.

b. Establishment of structured organic farming groups with clear roles, such as those responsible for production, distribution, and education. These groups will be the driving force in expanding environmentally friendly farming practices to other farmers who were not directly involved in the initial phase. Furthermore, these groups will be facilitated in establishing partnerships with local consumers through direct marketing models such as weekly farmers markets or subscription-based produce delivery systems.

To strengthen agricultural product networks and marketing, plans are also underway to establish simple digital information platforms, such as WhatsApp groups or Google Forms-based online product catalogs and village social media platforms. These platforms will serve as communication channels between farmers and consumers, promote harvests, and communicate product distribution schedules. It is hoped that this system will shorten the lengthy distribution channels and create more transparent and equitable economic relationships.

c. Regular monitoring and evaluation of pilot plots that have begun implementing sustainable agricultural practices. This evaluation will cover aspects of crop productivity, soil conditions, production cost efficiency, and market response to the resulting products. The evaluation results will form the basis for developing local policies at the village level and serve as a reference for implementing similar programs in other villages within the Sukadiri District.

In an effort to expand its impact, the community service team will also initiate cross-sector collaborations, such as with the Department of Agriculture, village cooperatives, local schools, and religious institutions, to support sustainable education, economic empowerment, and the integration of values of independence and sustainability into the community's daily lives.

Through this series of follow-up plans, it is hoped that community service activities will not stop at the initial intervention stage, but will continue to develop into a collective movement that strengthens food sovereignty, environmental sustainability, and the economic independence of the Gintung Village community in a sustainable manner.

CONCLUSION

The follow-up plan for the community service program in Gintung Village emphasizes the importance of continuity of activities through technical training, the formation of organic farmer groups, strengthening digital marketing networks, regular monitoring and evaluation, and cross-sector collaboration. These steps not only strengthen farmers' technical capabilities but also encourage the creation of a more independent, efficient, and environmentally friendly sustainable agricultural system. With the active involvement of youth, institutional support, and the use of digital technology, this program is expected to develop into a collective movement that strengthens food sovereignty, environmental sustainability, and the economic independence of the Gintung Village community in a sustainable manner.

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REFERENCES

Authored Book

Djazuli, R. A., & Hidayat, S. I. (2024). Manajemen Agribisnis Modern. Gresik : *UMG Press*.

Journal Articles

Athuman, J. J. (2023). Fostering sustainable agriculture through integrated agricultural science education: General overview and lessons from studies. *Research and Reviews in Agriculture Science Volume I*, *1*.

Gulo, N. O., Lase, S. W. A., Laoli, D. S. T., Gulo, M., & Lase, N. K. (2024). Pemanfaatan Lahan Dengan Sistem Pengolahan Yang Baik Dan Penggunaan Pupuk Organik Untuk Menerapkan Sistem Pertanian Berkelanjutan. *Jurnal Ilmu Pertanian dan Perikanan*, *1*(2), 30-39.

Kamakaula, Y. (2024). Sustainable agriculture practices: Economic, ecological, and social approaches to enhance farmer welfare and environmental sustainability. *West Science Nature and Technology*, *2*(02), 47-54.

Martin, C., & MacDonald, B. H. (2020). Using interpersonal communication strategies to encourage science conversations on social media. *PLoS One*, *15*(11), e0241972.

Sulistyowati, C. A., Afiff, S. A., Baiquni, M., & Siscawati, M. (2023). Potensi Pertanian Berbasis Dukungan Komunitas Sebagai Solusi Persoalan Petani Kecil Di Indonesia. *Analisis Kebijakan Pertanian*, *21*(2), 241-261.

Vasquez, A., Sherwood, N. E., Larson, N., & Story, M. (2017). Community-supported agriculture as a dietary and health improvement strategy: A narrative review. *Journal of the Academy of Nutrition and Dietetics*, *117*(1), 83-94.

Wulandari, E., & Kurniati, E. (2025). Karakteristik Pertanian Di Indonesia: Antara Tradisi, Tantangan Struktural, Dan Peluang Transformasi. *Jurnal Ekonomi*

Sudarto, S., Wijayanti, Y., Pramesti, C. S., & Agustina, D. D. (2024). Pengelolaan Pertanian Berkelanjutan Berbasis Eco-spirituality dalam Tradisi Komunitas Adat Dan Implikasinya Terhadap Ketahanan Cultural Socio-Ecological System (Studi Pada Tradisi Komunitas Adat Di Tajakembang–Cilacap). *Jurnal Ketahanan Nasional*, 30 (3), 367-390.

Sutherland, L. A., & Marchand, F. (2021). On-farm demonstration: enabling peer-to-peer learning. *The Journal of Agricultural Education and Extension*, *27*(5), 573-590.