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OPTIMIZING HOUSE YARDS WITH VEGETABLE CULTIVATION AS AN ALTERNATIVE FOOD IN RURAL AREAS

OPTIMALISASI PEKARANGAN RUMAH DENGAN BUDIDAYA
SAYURAN SEBAGAI ALTERNATIF PANGAN DI PEDESAAN

Scope:
Social Economic

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ABSTRACT

Background: Food security and economic empowerment of rural communities are significant challenges for sustainable development. Using the yard for vegetable cultivation can increase food availability, reduce dependence on external food sources, and improve the economic welfare of the community. **Objective:** This community service activity aims to enhance participants' skills in food production, family income, and both technical (hard skills) and social (soft skills) aspects through the use of house yards. **Method:** The study was conducted in Sumber Village, Sumber District, Rembang Regency, in August 2024 - February 2025. The methods include socialization, training, mentoring, and evaluation. Data were collected through observation, interviews, and pre-tests and post-tests of program participants. **Results:** The program's implementation showed a 40% increase in vegetable production over six months. The pre-test and post-test evaluations indicated a significant increase in hard skills (cultivation techniques and use of organic fertilizers) by 35%, and soft skills (communication and cooperation) by 30%. **Conclusion:** This program has proven to improve food security, family income, and community skills. This model can be replicated in other areas with a similar approach, and advanced strategies for program sustainability are needed.

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ABSTRAK

Latar belakang: Ketahanan pangan dan pemberdayaan ekonomi masyarakat desa merupakan tantangan utama dalam pembangunan berkelanjutan. Pemanfaatan pekarangan rumah untuk budidaya sayuran dapat meningkatkan ketersediaan pangan, mengurangi ketergantungan terhadap bahan pangan eksternal, serta meningkatkan kesejahteraan ekonomi masyarakat. **Tujuan:** Kegiatan pengabdian masyarakat ini bertujuan untuk meningkatkan keterampilan masyarakat dalam produksi pangan, pendapatan keluarga, serta keterampilan teknis (hardskill) dan sosial (softskill) peserta melalui pemanfaatan pekarangan rumah. **Metode:** Studi dilakukan di Desa Sumber, Kecamatan Sumber, Kabupaten Rembang, pada Agustus 2024 – Februari 2025. Metode meliputi sosialisasi, pelatihan, pendampingan, dan evaluasi. Data dikumpulkan melalui observasi, wawancara, serta pre-test dan post-test terhadap peserta program. **Hasil:** Implementasi program menunjukkan peningkatan produksi sayuran sebesar 40% dalam enam bulan. Evaluasi pre-test dan post-test menunjukkan peningkatan signifikan pada hardskill (teknik budidaya dan pemanfaatan pupuk organik) sebesar 35% dan softskill (komunikasi dan kerja sama) sebesar 30%. **Kesimpulan:** Program ini terbukti meningkatkan ketahanan pangan, pendapatan keluarga, serta keterampilan masyarakat. Model ini dapat direplikasi di daerah lain dengan pendekatan serupa dan perlu adanya strategi lanjutan untuk keberlanjutan program.

Kata kunci:
Budidaya Sayuran; Pekarangan
Rumah; Ketahanan Pangan;
Ekonomi Lokal

BACKGROUND

The utilization of house yards for gardening has increasingly gained attention as a solution to food security and community economic empowerment. Vegetable cultivation in house yards is a strategic step that can improve food independence while also providing additional income for local communities. According to (Kaiwai et al., 2022), the use of house yards can enhance family food security, reduce living costs, and contribute to environmental sustainability. Additionally, this small-scale farming practice supports food diversification, which is essential in preventing dependency on specific food types and improving the nutritional intake of the community. Given the various benefits it offers, the optimization of house yards for vegetable cultivation needs to be supported by policies that favor household farmers, along with the provision of adequate agricultural infrastructure. The implementation of sustainable programs will largely depend on the synergy between the government, local communities, and the private sector (Pedercini et al., 2019).

The issue of global food security continues to be an ongoing challenge. According to (Paudel et al., 2023), more than 800 million people worldwide suffer from hunger, and the food crisis is further exacerbated by climate change, land degradation, and geopolitical conflicts. In Indonesia, the country faces food security challenges that require serious attention. Data from the Central Statistics Agency (Badan Pusat Statistik, 2024) shows that in 2023, approximately 9.3% of households in Indonesia experienced food insecurity at various levels. One of the primary causes of this situation is the limited access to fresh and healthy food. Moreover, the imbalance in food distribution across regions worsens food security, particularly in areas with limited access to markets and logistical infrastructure. Another contributing factor is agricultural land degradation caused by urbanization, along with climate change that increasingly impacts overall agricultural productivity (Imran Khan et al., 2019). Therefore, the utilization of house yards for growing vegetables can serve as a concrete solution to improve access to healthy food sustainably, particularly for households in rural areas. This strategy also aligns with sustainable development goals aimed at reducing hunger and improving the well-being of communities (Bizikova et al., 2020).

Sumber Village, located in Sumber District, Rembang Regency, is one of the areas with great potential for the development of vegetable cultivation in house yards. Despite its fertile

land, the local community still faces challenges in optimizing yard land as an alternative food source. The primary issue faced by the community is the lack of knowledge regarding efficient cultivation techniques, as well as limited access to quality seeds and fertilizers. Previous research has shown that the optimal utilization of house yards can contribute to food security and enhance family economic well-being (Korpelainen, 2023). Therefore, this community service program aims to improve the skills of local residents in house-yard-based vegetable cultivation to increase food production, economic welfare, and community awareness of the importance of food security.

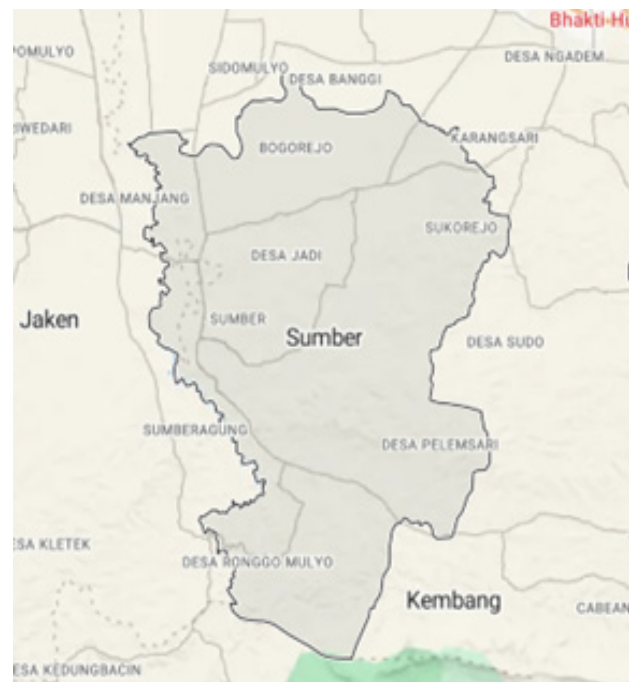


Figure 1. The Location of Sumber Village, Sumber District, Rembang Regency



Figure 2. People and Their House Yards in Sumber Village, Sumber District, Rembang Regency (part 1)



Figure 3. People and Their House Yards in Sumber Village, Sumber District, Rembang Regency (part 2)

METHOD

This community service was conducted in Sumber Village, Sumber District, Rembang Regency, from August 2024 to February 2025. The program was carried out in Sumber Village, involving 80 participants from various community groups. The partners involved include smallholder farmers, housewives, and local youth groups. The activities included socialization, training, and mentoring with a participatory approach. The instruments used in the training included organic farming modules, simple hydroponic techniques, and digital marketing strategies to enhance product competitiveness. The methods used included the following stages:

1. Coordination and Socialization
 - a. Discussions with village officials and farmer groups to gain support and ensure active community participation.
 - b. Socialization of the benefits of vegetable cultivation using organic and hydroponic farming approaches, which are more efficient in land and water usage.
 - c. Identification of the main challenges faced by the community in utilizing house yards for agriculture.
 - d. Initial data collection on the condition of the house yards to be used in the training and mentoring program.
2. Training and Mentoring
 - a. Techniques for vegetable cultivation using organic and simple hydroponic methods that can be applied on limited land.
 - b. Utilization of household waste as organic fertilizer to improve soil fertility and reduce dependency on chemical fertilizers.
 - c. Marketing strategies for harvested products, including using digital platforms to reach a

broader market.

- d. Training on organic pest control to improve productivity without harming the environmental ecosystem.
3. Implementation and Evaluation

Program effectiveness is evaluated using pre-tests and post-tests related to farming skills and in-depth interviews regarding changes in consumption patterns and economic well-being of the participants.

 - a. Mentoring in the implementation of farming techniques on house yards to ensure the methods used are appropriate for local conditions.
 - b. Monitoring and evaluation of harvest results and challenges faced by the community during the farming process.
 - c. Preparation of reports and policy recommendations based on the program's implementation results.
 - d. Development of long-term strategies to ensure the sustainability of the house yard farming program.

RESULT AND DISCUSSION

1. The Implementation Result of Vegetable Cultivation in House Yards

The implementation of the program shows that 85% of participating households successfully planted and harvested vegetables, with an average increase in production of 40%. Pre-test and post-test data show that before the program, only 44% of participants applied organic farming techniques, while after the program, this number increased to 75%. This activity not only contributes to the provision of healthy and fresh food for families but also opens up new business opportunities for the community. Through this community service program, various benefits have been experienced by the residents, including improved cultivation skills, diversification of food sources, and the potential to market harvested products to local markets.

2. An Increase in Vegetable Production and Quality

Monitoring results conducted over six months after the program's implementation show that 85% of participating households successfully planted and harvested various types of vegetables such as spinach, water spinach, chili, tomatoes, and eggplant. The average harvest reached 4-5 kg per house yard per planting cycle. Additionally, the harvest quality was better compared to vegetables purchased from the market, primarily due to the use of organic fertilizers, which improved soil fertility and plant nutrition content.

Table 1 shows the monitoring results after the community service, indicating a 40% increase in vegetable production over six months after the program was implemented. The average production per house yard increased from 4 kg to 5.6 kg per planting cycle. This data shows that the applied farming methods can significantly increase production output.

Table 1. Increase in Vegetable Production Before and After the Community Service Activity

Period	Average Production per House Yard (Kg)	Increase (%)
Before	4.0	-
After	5.6	40.0

Source: Data processed, 2025

Research by Pagiu et al. (2022) indicates that utilizing house yards for vegetable cultivation can increase household productivity by 20-30%. The higher quality of the harvest also contributes

Table 2. Percentage of Participants Using Organic Farming Methods

Period	Number of Participants	Number Using Organic Farming Methods	Percentage (%)
Before	80	35	44
After	80	60	75

Source: Data processed, 2025

Further research by Selvakumar et al. (2018) supports these findings, where the use of organic fertilizers significantly improves soil quality, reduces erosion, and increases harvests by 30% compared to conventional farming systems that excessively use chemical fertilizers.

4. An Increase in Nutritional Awareness and Food Security

Interviews with participants showed that 90% of them felt more aware of the importance of consuming fresh vegetables and maintaining a balanced diet. Additionally, household food security increased because they were no longer entirely dependent on market-supplied vegetables. This program also contributed to an increase in participants' nutritional awareness. Before the program, only 50% of participants consumed vegetables daily, while after the program, this number increased to 80%. This data indicates a change in consumption patterns towards healthier and more sustainable practices.

to improving household consumption patterns, leading to healthier eating. The increase in production also contributes to food security and household economic resilience. The average vegetable consumption per family increased from 4 kg to 5.6 kg per planting cycle, indicating that the program not only impacted production but also changed the community's consumption pattern towards healthier eating habits.

3. The Application of Organic Farming Technology

Seventy-five percent of participants applied organic farming methods by utilizing household waste as compost. This reflects an increased awareness of sustainable farming and a reduction in dependency on chemical fertilizers. The use of organic fertilizers not only improved soil fertility but also reduced the negative environmental impact.

Table 2 shows that the percentage of participants using organic farming methods increased from before the community service. This has had a positive impact on the community, aligning with the findings of Yang Gao et al. (2022).

Table 3. Awareness of the Importance of Vegetables and a Balanced Diet

Period	Number of Participants	Participants Who Are Aware
Before	80	65
After	80	72

Source: Data processed, 2025

Studies by Baliki et al. (2019) and Baliki et al. (2022) found that households with access to independent food sources, such as home gardens, tend to have healthier consumption patterns and better nutritional adequacy compared to households that rely entirely on market supplies.

5. Challenges and Sustainability Strategies

While this program has shown success, there are still several challenges faced by the community in developing vegetable cultivation in house yards:

a. Lack of Knowledge and Skills

Some participants still face challenges in farming techniques, especially in organic pest control and efficient irrigation systems. Therefore, further training on making natural pesticides and more effective plant management techniques is needed.

b. Weather and Seasonal Challenges

Extreme weather changes have led to suboptimal plant growth for some crops. To address this, the use of simple hydroponic methods and vertical farming systems is recommended, as these methods are more adaptable to environmental conditions.

c. Limited Market Access

Some participants still face challenges in selling their harvests to a wider market. Therefore, community-based marketing strategies and the use of digital platforms can be a solution to increase product sales. Additionally, collaboration with restaurants, eateries, and government programs related to food security could help expand market reach.

d. Resource Availability

Some households have limited access to quality seeds and the necessary farming tools. Thus, a seed subsidy program and mentoring from the government and agricultural organizations are necessary to ensure the sustainability of the program.

CONCLUSION AND SUGGESTION

This community service program has proven to increase vegetable production, cultivation skills, and the economic welfare of participants. The 40% increase in vegetable production and improvements in both technical and social skills demonstrate the program's effectiveness in enhancing food security and economic independence at the household level. Furthermore, participants' awareness of healthy consumption patterns has also significantly improved. To ensure the sustainability of the program, it is recommended to provide follow-up training, periodic mentoring, and the development of digital-based marketing strategies so that the harvested products can be sold to a wider market. Collaboration with local government and the private sector is also necessary to provide access to quality seeds and more efficient agricultural technologies.

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