

# Assistance for the Patehan Village Community, Yogyakarta City, in Utilizing Yard Space through Pot Fruit Cultivation

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## ABSTRACT

The village of Patehan, located in the Keraton area of Yogyakarta City, has considerable potential in the yards of its residents to be used as a source of highly nutritious food with significant economic value. This research implements a community empowerment-based service programme focused on fruit cultivation in pots and related activities. This community service programme applies the concept of empowerment through three stages: awareness, capacity building, and empowerment. The community is assisted throughout the process, including the preparation of planting materials and organic fertilisers, the production of grafted seedlings, and planting in planting bags. Educational support covers plant care (pruning, climatology, and pest and disease control) as well as harvesting and post-harvest techniques. Pre-test results show that the community has limited knowledge of fruit cultivation and vegetative propagation. Post-test results show a significant increase in participants' understanding of fruit cultivation in pots practices and their ability to perform vegetative propagation.

## Introduction

As a cornerstone of sustainable national development (Wattimena & Hattu, 2021), family food security necessitates multi-stakeholder policies at both national and regional levels. A common strategy involves optimizing yard space for productive farming, thereby enabling families to meet their food needs (Isti & Uchyani, 2016).

The Patehan sub-district, Keraton district, Yogyakarta city, has a community characterized by diversity in occupational background, culture, and social status. The occupational landscape of Patehan Village features civil servants, traders, laborers, and employees. In contrast, RT.15, RW 03, is primarily home to retirees and homemakers.

A key asset of this community is the abundance of residents with expansive yards awaiting optimal use. These areas currently contribute neither to the household's economic well-being nor to meeting other household requirements. In terms of social life, RT.15, RW 03, Patehan Village, Keraton District, Yogyakarta City, already has several activities, including

community gatherings, neighborhood watches, and Family Welfare Movement. However, these activities are not productively oriented.

The implementation of community service was based on a prior situation analysis, which served as the foundation for developing a targeted and effective program. Based on research conducted by Sambodo et al (2024), the results of the community profile of RT03/RW05 in Patehan Village, Keraton District, Yogyakarta City are shown in Table 1.

Seventy two percent of the population falls within the 20-50 age range. High school education is the most prevalent level of education, at 51%, followed by bachelor's degree education at 36%. The highest employment rate is among people who are not working, at 38%, reflecting that they are housewives or retired. In terms of yard size, 50% of residents have yards larger than 20 m<sup>2</sup>, which the respondents attribute to privately owned land. 72% of yards are recorded as unused, and 77% of residents have no farming experience.

One problem residents face is the inability to meet their high food demands independently. Given the increasingly limited agricultural land, optimizing the use of yard land, including urban yard land, is one of the strategic options to increase household food supply. RT.15, RW 03, Patehan Village, Keraton District, Yogyakarta City has significant yardland potential that can be utilized as a source of nutritious, high-value food.

The utilization of yard land, idle land, and unproductive vacant land has the potential to produce food to meet household food and nutritional needs, while also being market-oriented to increase household income (Sari, 2020). Another issue is the community's limited understanding of urban backyard gardening and the processing of agricultural products into healthy food. Additionally, residents lack knowledge about planting media, fertilizers, quality planting materials, maintenance, and harvesting techniques. Based on research conducted by Sambodo et al (2024) on the analysis of vegetable Village Development Strategies in Patehan Village, Keraton District, Yogyakarta city, the results show that the needs of the community in developing vegetable village are dominated by the need for recognition with an average value of 3.47, which indicates a strong community desire for the yard land utilization program to be successful and can benefit the community. Another result of the study shows that the highest choice of strategy is assistance and counseling from educational institutions related to urban agricultural cultivation techniques, with a score of 5.91, which means that the UMBY Agrotechnology Study Program needs to provide assistance related to the provision of planting media, fertilizers, quality planting materials, care, and harvesting techniques in plant cultivation.

**Table 1. The Community Profile of RT03/RW05 in Patehan Village, Keraton District, Yogyakarta City**

<b>Parameter</b>	<b>Total</b>	<b>Percentage (%)</b>
<b>Age</b>		
20-30	4	10
31-40	14	36
41-50	10	26
>51	11	28
<b>Education</b>		
Junior High School	3	8
Senior High School	20	51
Bachelor's Degree	14	36
Master's Degree	2	5
<b>Occupation</b>		
Civil servant	5	13
Private employee	7	18
Entrepreneur	6	15
Freelancer	6	15
Unemployed	15	38
<b>Yard Ownership</b>		
<10m <sup>2</sup>	5	28
11-20m <sup>2</sup>	4	22
>20m <sup>2</sup>	9	50
<b>Yard utilization</b>		
Not yet utilized	13	72
Utilized for agriculture	2	11
Utilized for non-agricultural purposes	3	17
<b>Farming experience</b>		
Has farming experience	9	23
Does not have farming experience	30	77

Source: Sambodo, 2024

## Method

The community service was conducted in five stages, starting with:

1. Initial planning stage.

The initial planning stage began with a community needs assessment. This assessment aimed to accurately portray the community's social and economic conditions, potential, and most pressing problems and needs. The assessment was conducted through direct discussions with community leaders, village officials, and community representatives to gather comprehensive information on on-the-ground conditions. Through these discussions, the implementation team can gain an understanding of the community's general characteristics, the available resources, and its priority needs, which can serve as a basis for designing community welfare improvement programs (Avianti et al., 2024).

2. Formulation stage.

This stage was intended to design a program that precisely addressed community needs. Following the community needs assessment, the community service program was formulated. This stage was intended to design a program that precisely addressed community needs and aligned with local potential. The formulation process is carried out in a participatory manner between the service team and the beneficiary community. Through discussion forums and deliberations, both parties determined the activity design, objectives, implementation methods, and expected results. This collaborative approach is expected to foster a sense of belonging among the community towards the designed program, thereby encouraging the sustainability of activities after the community service program is completed (Rumawas et al., 2021).

3. Socialization stage.

The subsequent stage involved socialization and coordination for implementing the community service program in Patehan Village. Socialization activities aim to provide a clear understanding of the objectives, benefits, types of activities, and the roles of each party in the program's implementation.

At this stage, the service team provides detailed activity plans, including the implementation schedule, task allocation, and mechanisms for community engagement. Additionally, coordination is carried out with relevant parties, including the village government, community groups, and local institutions, to ensure support and synergy in the program's implementation. The socialization stage was intended to foster participants'

commitment to program activities, enabling community service activities to run effectively, participatively, and sustainably.

4. Implementation stage.

The next stage was the implementation of activities based on the concept of community empowerment through three stages, namely awareness, capacity building, and empowerment (Murdiyanto & Retnowati, 2020).

- a. The awareness stage aims to raise community awareness of their potential, problems, and opportunities to improve their welfare.
- b. The capacity-building stage is carried out through activities that increase knowledge, skills, and attitudes, enabling the community to manage resources independently.
- c. The empowerment stage is the process of applying learning outcomes through concrete actions, in which the community begins to play an active role in managing and developing local potential sustainably (Sambodo & Astriani, 2023).

Additionally, during the implementation stage, monitoring and evaluation (M&E) were conducted to assess the extent to which the activities have achieved the predetermined objectives. Monev activities include direct observation, interviews, and data collection related to the program's results and impacts. The results of this evaluation form the basis for making improvements and designing strategies to sustain the program in the future.

5. Final stage.

The final stage was reporting and follow-up. With the completion of the community service program, an empowered community will be created that is not dependent on the service team as facilitators.

## **Results and Discussion**

### ***Results***

Through discussions with local leaders, a needs assessment explored general conditions and strategies to improve welfare. Seven members of the public attended the discussion. Based on the assessment results, the following needs were identified: assistance from the university for training in vegetative propagation of fruit plants, training in fruit plant cultivation, and various agricultural equipment to support community activities. The socialization phase was carried out with the Patehan village community. The community service team conducted the socialization in conjunction with the ongoing community forum activities.

The Agrotechnology Study Program of Mercu Buana University, Yogyakarta, conducted a Community Service Program (PKM) in the Kraton District, Yogyakarta City, specifically in RT 15, RW 03. (Figure 1).



**Figure 1. Implementation of Community Service**

The community was invited to rejuvenate and propagate fruit plants in their yards (Figure 2). In the Kraton District community in Yogyakarta City, the community service program was launched by Ir. Reo Sambodo, S.P., M.M.A., as the PKM head. The PKM activity was intended to strengthen community capacity for urban agriculture. The university must consistently engage directly with the community to facilitate knowledge transfer, especially in agriculture.



**Figure 2. Explanation of Grafting**

The activity involved lecturers, students (HIMAGRO), and the alumni association of the UMBY Agrotechnology Study Program (IKAGRO). Through this collaboration, the Community Service Program will also serve as a learning tool for students, shaping their character to care for the agricultural community.

During the PKM activity, Ir. Wafit Dinarto, M.Si., MCE, presented material related to vegetative propagation methods for fruit plants as part of the community service team. Ir. Wafit Dinarto, M.Si., MCE, explained that fruit plants in yards can be rejuvenated or

propagated using various methods such as grafting, bud grafting, side grafting, and layering. With plant rejuvenation, fruit productivity is expected to increase.

Community members actively participated in the PKM program initiated by the UMBY Agrotechnology Study Program, demonstrating their interest in the program's activities. Accompanied by two alumni, Muhammad Dwi Prasetya, S.P., and Dana Fidianton, S.P., the community practiced avocado, sarikaya, and crystal guava grafting. In addition, they also performed side grafting. Mr. Rudy, as a community representative, expressed his gratitude to the Agrotechnology Study Program at UMBY for equipping the community with soft skills and hard skills related to vegetative fruit plant propagation. The acquired knowledge enables the community to manage backyard fruit plants more effectively, enhancing productivity for household use and future economic benefits.

The PKM concluded with the distribution of grafted alupkat seedlings and merchandise, marking the final phase of community engagement. The program's design reflected the Agrotechnology Study Program's emphasis on integrating agricultural capacity building with social responsiveness, a principle articulated by Ir. Reo Sambodo, S.P., M.M.A.

### **Discussion**

During the awareness stage, focus group discussions (FGDs) were held with the RT.15, RW 03, Patehan Village, Keraton District, Yogyakarta City community, with a team of lecturers serving as facilitators. The awareness stage was designed to provide the community with an understanding of their potential and what could be developed. The awareness stage served as the initial foundation for subsequent stages in the community empowerment process. In this stage, an initial test was also conducted to assess the community's understanding of yard space use in efforts to improve family food security and of vegetative propagation of fruit plants. Based on the results of the initial community understanding test, the following results were obtained:

**Table 2. Community Understanding Before and After the Program (Pre-Test)**

No.	Indicator of Understanding	Pre-Test (%)
1	Understanding of utilizing yard space to improve food security	35%
2	Understanding of the need to rejuvenate yard fruit plants to increase productivity	22%
3	Understanding of vegetative propagation techniques to increase fruit plant productivity	19%
4	Desire to improve soft skills and implement program results	

Based on the pre-test results, the target community demonstrated limited understanding of key concepts related to yard utilization and fruit plant productivity. Only 35% understood the concept of using yard space for food security, despite having implemented it on a small scale in their daily lives. Furthermore, only 22% recognized the need for plant rejuvenation, and merely 19% understood vegetative propagation techniques.

The subsequent stage of the community service program was the capacity-building stage, in which community skills were enhanced through counseling and technical assistance on the optimal use of yard space to improve household food security. Assistance included preparing planting materials (by providing organic fertilizer), preparing seedlings through grafting, planting in planter bags, and providing education on plant management from harvesting to post-harvest methods (including pruning, climatology, pest control, etc.). Capacity building can be achieved when the community is aware of its potential and the opportunities available (Sambodo, 2019). The activities were implemented by the community service team of the UMBY Agrotechnology Study Program, with support from the Agrotechnology Study Program Student Association during fieldwork. Student involvement is expected to provide an educational experience, allowing them to work with the community and gain insight into the realities of agriculture. This community service also collaborated with Gunung Kidul University, Yogyakarta, in the field implementation, requiring a large workforce to assist the community in cultivating fruit cultivation in pots. Collaboration with vocational schools aimed to expose students to real agricultural conditions and prepare them as the future workforce supporting national food security initiatives toward 2045. Once the capacity building stage is complete, the next stage is empowerment. The empowerment stage is the final stage of the community empowerment process (Sambodo et al., 2024).

The empowerment stage of the community service was achieved by encouraging active community participation in cultivating Fruit cultivation in pots. This process was expected to empower the community and enable residents to cultivate plants in their yards and process agricultural products into healthy food. The empowerment process was designed to reduce dependence on the UMBY community service team after this program is completed. The program demonstrated tangible outcomes, including the establishment of approximately 15 household yards cultivated with fruit cultivation in pots, the construction of one greenhouse demonstration plot, and increased community understanding of fruit cultivation in pots cultivation and seedling preparation through grafting. Based on the results of the evaluation

of community understanding after the program, the level of community understanding is as follows:

**Table 3. Comparison of Community Understanding Before and After the Program (Post-Test Results)**

No.	Indicator of Understanding	Post-Test (%)
1	Understanding of utilizing yard space to improve food security	90%
2	Understanding of the need to rejuvenate yard fruit plants to increase productivity	92%
3	Understanding of vegetative propagation techniques to increase fruit plant productivity	92%
4	Desire to improve soft skills and implement program results	92%*

After the program was implemented, a post-test was conducted to assess changes in people's understanding. The results showed a substantial improvement in all indicators. Based on the pre-test results (Table 2), the understanding of yard space utilization for food security increased to 90%, representing a 55% increase. Awareness of the need for plant rejuvenation increased to 92%, up 70%. Understanding of vegetative propagation techniques reached 92%, an increase of 73%. The average post-test score increased to 91.3%, reflecting an overall average improvement of 66%. In addition to increased knowledge, 92% of participants expressed a strong desire to improve their soft skills, indicating high motivation to apply the knowledge and skills acquired during the program. These findings indicate that community service programs are effective in significantly improving community understanding of fruit cultivation in pots cultivation, plant rejuvenation, and vegetative propagation techniques. The participants' high motivation further demonstrates the potential for sustainable implementation of the program's results.

## Conclusion

The Agrotechnology Study Program offers a community service concept based on community empowerment, entitled Community Assistance in Patehan Village, Yogyakarta City, through the Utilization of yard land for fruit plant cultivation in pots. The community service program is applied in three stages: awareness, capacity building, and empowerment.

Based on the pre-test results, community understanding of fruit cultivation in pots cultivation and vegetative propagation was limited. However, the post-test results indicated a significant improvement in the community's knowledge of the Fruit cultivation in pots cultivation system and their ability to perform vegetative propagation.

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