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Utilization of Household Farming with Verticulture Vegetable Cultivation Techniques for the Implementation of a Vegetable Village in Payak Tengah Hamlet, Piyungan, Bantul Regency

Nadia Nadia[1*], Della Nanda Luthfiana[2], Andy Ilham H[3], Hernanda Nur R[4], Mutia Febriani S.P[5], Igo Kristian[6], Agung Pandia[7], Rike Nur S.G[8], Dian Nur P[9], Nur Afif F[10], Wisnu Hariadi[11], Fadil Rozaqi[12], Revan Suwito[13]
[3,4,5,6]Program Studi Hukum, Universitas Janabadra Yogyakarta
[7.8]Program Studi Teknik Informatika, Universitas Janabadra Yogyakarta
[1,2]Program Studi Manajemen, Universitas Janabadra Yogyakarta
[9,10,11]Program Studi Teknik Sipil, Universitas Janabadra Yogyakarta
[12,13]Program Studi teknik Mesin, Universitas Janabadra Yogyakarta
Corresponding Author: Nadia Nadia nadia@janabadra.ac.id

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A B S T R A C T

This empowerment aims to optimize the function of residents' home yards by using horticulture vegetable cultivation techniques to produce a vegetable village. To achieve this, an initial understanding of the importance of home farming, which will enable residents to use yard land, is needed. In this Real Work Lecture-Thematic or KKN-T, the implementation method is carried out through education and socialization to residents to maximize empowerment results. articipating in activities, showing the enthusiasm of residents utilizing yard land, and the existence of a vegetable cultivation pilot project using home yards to grow vegetables with viticulture techniques for vegetable village cultivation can be achieved.

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INTRODUCTION

The Community Empowerment Program is very beneficial for the community. One of them is the Thematic Real Work Lecture (KKN-T). In this KKN-T, students interact with residents and then discuss with their supervisor. With this, Community Development is getting stronger because of the planned agent of change, namely community empowerment. Community Empowerment is an effort to increase community independence and welfare by increasing knowledge, skills, abilities, and awareness and utilizing resources through establishing policies, programs, activities and assistance following the essence of the problems and priority needs of village communities. This concept of community empowerment is very suitable to be applied when people need help to empower themselves. In implementing KKN-T in Central Payak Hamlet, this condition was one of the factors considered.

Payak Tengah Hamlet is one of the hamlets in the Piyungan sub-district, Bantul Regency, Special Region of Yogyakarta. Padukuhan Payak Tengah, in the north, borders Payak Cilik hamlet; in the west, it borders Bintaran Wetan Hamlet; in the south, it borders Padukuhan Krabegan; and in the east, it borders Padukuhan Payak Wetan. Central Payak Padukuhan has an area of 42.06 with a percentage of 8.4%. This area is used as agricultural land and residential land. The land in Central Payak Hamlet is owned by the hamlet, individuals and the government. Padukuhan Payak Tengah is 1.7 km from Kapanewon Piyungan, the distance from Bantul Regency is 20 km and from Yogyakarta City it is 13 km. Judging from the demographic and employment aspects, Payak Tengah village has 300 resident families.

The problem faced by the residents of Padukuhan Payak Tengah is that fruit and vegetable plants are rarely cultivated by the local community, so people have to buy them to meet their own vegetable needs. Apart from that, there are problems regarding the community's inability to meet their own vegetable needs, the lack of land for gardening and the potential of home gardens, which are underutilized by the community, and the lack of understanding and concept of ideas regarding vegetable villages. The activities, which lasted for 47 days in Padukuhan Payak Tengah, Kapanewon Piyungan, Bantul Regency, DIY carried out by the Janabadra University KKN-T were greatly felt by the residents of Padukuhan Payak Tengah.

Increasing capacity, support, and assistance in land use through organic vegetable horticulture is a solution that will solve the problems in the Padukuhan Payak Tengah Community with increased capacity(Mathewos et al., 2018). This is done to avoid damage to the environment's health, increase biodiversity conservation, make maintenance easy, and maintain ecosystem balance. Verticulture is a process of increasing biological resources, in this case, vegetables in the plantation sector, which uses soil as a medium without chemical fertilizers and pesticides to prevent predator attacks and accelerate plant growth(Dinham, 2003). Because of the great opportunities, vegetable cultivation is often used as a side business for families to reap large profits (Dwiratna et al., 2016). Apart from that, organic vegetables are usually more expensive than inorganic vegetables. Because it does not use chemical pesticides, which can release harmful gases

during the cultivation process, organic farming can also help prevent global warming. This technique can be applied to various types of containers, such as used bottles, used gallons, pots, polybags, paralon, or other containers, depending on creativity (Liferdi & Cahyo Saparinto, 2016). Currently, home farming is becoming popular. However, society's views regarding knowledge, place and time make household farming difficult. Although this practice is a form of poverty alleviation.

Organic farming, which avoids the use of harmful synthetic additives, has been shown to improve vegetable quality, with organic vegetables often having better nutritive, sensory, and storage attributes(Soni et al., 2022). This practice is also associated with numerous health benefits, making it increasingly popular(Soni et al., 2022). Organic farming is considered a sustainable agricultural practice, as it reduces the use of nonrenewable natural resources and prevents pollution(Ampim et al., 2022). However, it is important to note that organic vegetables are usually more expensive than inorganic vegetables due to the higher costs associated with organic (Fernández et al., 2022).

IMPLEMENTATION AND METHODS

To maximize the results of the vegetable village empowerment program, the vertical garden method is used in residents' yards and training in vegetable plant management. Planned activities include education and cultivation management training by reducing household food costs.

Apart from the problems above, KKN-T includes a program for utilizing yard land. This program is aimed at residents of RT 3 and 4 Pedukuhan Payak Tengah. This is done to ensure that household food is always safe, high quality and nutritious. Methods that are easy and cheap to manage are a means of overcoming family food shortages. Apart from that, the types of vegetable plants used, such as tomatoes, chillies, celery, and spice plants, can also be cultivated.
The planting medium used is fermented goat kohl or organic fertilizer with a soil mixture in a ratio of 2:1. This cultivation has many advantages: the first is efficiency in land use, the second is easy to maintain, the third saves money on fertilizer use, the fourth controls the growth of grass or weeds practically and easily, the fifth can be moved easily, the sixth is harvested vegetable plants healthier and fresher, seventh saves water and adds aesthetics.

This service program consists of preparation, counselling, training and mentoring stages. The activities carried out are as follows:

1. **Preperation**

   Preparations were carried out through direct observation of the vegetable village empowerment location through a presurvey. This was carried out by conducting direct observations at the place with Mr Dukuh Padukuhan Payak Tengah. The forms of preparation carried out were developing ideas and concepts for vegetable villages, creating designs for vegetable villages, and creating educational images about vegetable villages (murals)—requirements for materials and tools, training and counselling materials. At the implementation stage, preparation continues with socialization and implementation.

2. **Implementation of Counseling and Training**

   75% of Rt 03 and 04 Padukuhan Payak Tengah residents received counselling and training regarding plant management and the goat fermentation process. This training directly puts into practice the process of making the suitable planting medium, from planting seeds to caring for plants with simple planting media or polybags using horticulture techniques.

3. **Mentoring**

   This activity was carried out as part of a program which aims to help residents of RT 03 and 04 Payak Tengah and ensure that the vegetable village program is implemented and runs according to plan. Assistance also functions to overcome difficulties that may occur for RT 03 and 04 Payak Tengah residents in carrying out activities and applying material obtained from counselling and training. The leaflet describes using Home Farming (Home Yard) with horticulture techniques to grow vegetables.

RESULTS AND DISCUSSION

The outreach was carried out to inform residents of RT 03 and 04 Payak Tengah that potential can be developed, both in terms of natural and human resources. Apart from that, to overcome the problems in Padukuhan Payak Tengah, one of which is the need for more public interest in using their home gardens. This outreach includes the creation of horticulture for cultivating target vegetable crops.

Figure 1. Outreach and Education Regarding Correct Plant Management to PKK Women

Training The main community empowerment program requires training to achieve psychomotor goals through direct practice. The movement brought in external resource persons and students implementing KKN-T R-13 from several faculties, namely law, management economics, informatics engineering, mechanical engineering and civil engineering. With the help of external presenters, namely the head of the KWT from Banyuraden District and students from the R-13 KKN-T group from various faculties, training will be given to mothers. The training includes making horticulture for cultivating vegetables, making planting media, the process of fermenting goat kohl, and the process of planting cucumber seeds.

Figure 2. Training in making the correct planting media with proper comparison

Figure 3. The materials used to ferment goat kohe as organic fertilizer consist of goat kohe, em4, water and molasses

Making Planting Media and Planting Seeds To make planting media, the soil to be used is filtered to separate coarse soil from fine soil. After obtaining fine soil, then add manure. The purpose of adding manure is to increase the nutrient content in the planting medium. The next activity is to carry out seedlings after preparing the planting media. Seedlings are planted using trays or trays with seeding media in the form of fine sand. After that, the seeds are sown and covered with soil 1-2 cm thick. After 5-6 days, the seeds can be planted directly in the planting media provided.

Figure 4. Seeds resulting from planting seeds during training

Figure 5. making and painting verticulture from using used bottles

Mentoring is provided by KKN students in managing vegetable crops in polybags for 47 days or as long as the KKN activity takes place. After that, residents of RT 03 and 04 Payak Tengah can do it independently. The results of the implementation: Achievement of the Implementation of the Utilization of Household Agriculture (Home Yard) Using Verticulture Vegetable Cultivation Techniques for the Implementation of Vegetable Villages in Central Payak Hamlet, Piyungan, Bantul Regency, Vegetable Village Program. The achievements of this activity show changes in residents' views regarding the use of home gardens using Verticulture vegetable cultivation techniques, as shown by the enthusiasm of residents in participating in counselling, training and mentoring activities for residents of RT 03 and 04 Payak Tengah involved in transforming unproductive land into productive land. Harvest Results: Vegetable plants such as eggplant, leeks, chillies, spinach and others are harvested when they are 25-30 days after planting.

Figure 6. Maintenance

CONCLUSIONS AND RECOMMENDATIONS

From the series of implementation of home yard utilization activities, there are several indications that the home yard utilization program is successful. Among these are positive changes in residents' attitudes, namely increasing residents' awareness of the importance of using yards for growing vegetable plants vertically. Increased enthusiasm of residents and raised awareness about the use of yard land. Apart from that, producing crop harvest products from this program shows that using home gardens to improve community welfare and the efficiency of household needs can meet food needs.

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