Vol 9 No 3, September 2025
ABDI DOSEN
Jurnal Pengabdian Pada Masyarakat
pISSN: 2614-6509
eISSN: 2620-5156

INNOVATION IN THE UTILIZATION OF VILLAGE RESOURCES FOR ECONOMIC EMPOWERMENT OF SUMBEREJO COMMUNITY

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Abstract

The Community Service Program (KKN) in Sumberejo Village, Wonosobo, emphasized the great potential of coconut fiber, which has long been underutilized. Although the village is known as a center for coconut sugar production, the leftover fiber is often simply piled up or burned, leading to environmental problems. Through this observation, efforts were made to transform coconut fiber into cocopeat, an environmentally friendly growing medium. The research process included a comparative analysis of planting media, interviews, field observations, and workshops. The findings showed that the community responded positively to the production of cocopeat. According to trials conducted on mustard greens and cucumbers, cocopeat was found to support better plant growth than pure soil. This improvement is supported by cocopeat's strong capacity for water retention, its ability to ensure efficient air circulation, and its balanced nutrient composition. Along with enhancing agricultural productivity, this innovation also opens avenues for new community-driven enterprises. Therefore, converting coconut fiber into cocopeat not only contributes to addressing environmental challenges but also plays a vital role in building a stronger and more sustainable village economy.

Keywords: Coconut Fiber, Cocopeat, Growing Media, Village Innovation, Sustainable Development

INTRODUCTION

Community Service Program (KKN) is a community development and learning process that involves student lectures conducted in the field as a form of community service that can assist the community in solving development problems (Ir Sutami et al., n.d.).

This program allows students to engage in various activities, such as outreach or outreach, mentoring, and guidance for the local community. Prior to the activities, students typically conduct a survey to identify existing problems in the field. The results of this identification are then used as the basis for developing a relevant work program, ensuring that KKN activities are not merely ceremonial but truly help the community resolve the problems it faces.

One potential solution is to process coconut fiber into cocopeat. This product has economic value as well as significant benefits in the agricultural sector. Cocopeat can be used

Submitted: September-2025 Received: September-2025 Available online: September-2025

as an organic growing medium, both for horticultural plants such as vegetables, flowers, and fruits in pots. In addition, cocopeat is also widely used in hydroponic systems as a soil substitute because it has the ability to retain water and nutrients well (Efrita et al., n.d.) Thus, processing coconut fiber waste into cocopeat can not only reduce environmental pollution but also open new economic opportunities for the people of Sumberejo Village.

Cocopeat is essentially a fine powder produced from coconut fiber. While some consider coconut fiber to be merely waste, when processed into cocopeat, it offers numerous benefits. This material is often used as a growing medium because it can retain large amounts of water while still providing air space, allowing plant roots to grow healthier. It's no wonder cocopeat is widely used in modern agriculture and hydroponic systems.

Research shows that cocopeat's properties significantly support plant growth. This medium is highly porous, lightweight, and can hold water up to several times its weight. In fact, a mixture of 80% cocopeat and 20% soil has been shown to be an effective formula for supporting plant growth, increasing stem height, diameter, and even plant weight (Cahyo et al., 2019, pp. 24–27). (design, n.d.)

Given the conditions in Sumberejo Village, the accumulation of coconut fiber, which has been left unattended, is certainly a problem that requires a solution. This often overlooked material actually holds great potential if processed properly. Therefore, this article seeks to offer a simple yet beneficial solution: converting coconut fiber into cocopeat. Besides being environmentally friendly, cocopeat can also serve as a growing medium, helping communities develop agricultural businesses while reducing waste problems in the village.

IMPLEMENTATION METHOD

1. Initial Observation

   The first step carried out was observation. The researcher went directly to the village to see the surrounding conditions. From the early observation, it became clear that coconut husks were often discarded and had not been used to their full potential. Notes were taken on the amount of waste produced and how the community had been handling these coconut residues.

2. Data Collection

   After making the initial observations, data were collected from various sources. Interviews were conducted with village officials, farmers, and several small business owners to learn how they processed agricultural products and what challenges they faced. In addition to interviews, the researcher also took part in several local activities, such as the process of making coconut sugar. This hands-on experience provided valuable insights that enriched the study. Supporting documentation, including field notes, village archives, and photographs, was also gathered to strengthen the data.

3. Workshop

   The next stage was conducting a workshop. This activity was designed based on the findings from observation and interviews. During the workshop, villagers were invited to discuss and experiment with new ways of utilizing coconut husks. Some of the ideas that emerged included turning coconut husks into handicrafts and alternative fuel. Through this activity, the community not only gained new knowledge but also had the chance to practice

it directly.

4. Data Analysis

   The final stage was data analysis. This was carried out by comparing conventional soil as a planting medium with coconut husks. The comparison aimed to see how effective coconut husks could be as an alternative growing medium. The test results were then linked with findings from the interviews and observations. Thus, the analysis did not only focus on plant growth but also considered the community's views on the benefits, practicality, and economic opportunities of utilizing coconut husk waste.

RESULTS AND DISCUSSION

The results of the Community Service Program (KKN) in Sumberejo Village demonstrated that the village's local potential can be optimized through simple innovations rooted in the community's daily lives. Based on field surveys and interviews with village officials and farmers, it was discovered that most residents depend on coconut plantations and coconut sugar production for their family income. However, these activities still leave behind waste in the form of coconut fiber, which is left to pile up around homes and gardens. This situation aligns with findings (Ir. Sutami et al., n.d.), which state that coconut fiber is often considered waste and underutilized, despite its significant economic potential when processed properly.

To address this issue, the KKN team then conducted outreach at the village hall, introducing the innovative use of coconut fiber to create cocopeat. Cocopeat is an environmentally friendly planting medium that absorbs water well and maintains moisture and air circulation for plant roots ((Nontji et al., 2022) Through this outreach, residents not only gained new knowledge but also participated directly in a cocopeat-making demonstration. Community enthusiasm was evident in their active participation in the practical activities, from collecting the coir, shredding it, and sifting it. This demonstrates that knowledge transfer is effective when conducted through a participatory approach.

The next stage was implementation. The resulting cocopeat was then used as a growing medium for vegetables such as chilies, mustard greens, and tomatoes. Tests showed that the plants grew quite well (Nontji M, 2022) with this medium, both as a soil mixture and as the primary growing medium. These results align with (Ari Kuntardina, 2022), which emphasized the advantages of cocopeat in maintaining soil fertility while reducing the risk of plant diseases. Therefore, utilizing coconut coir not only provides a solution to waste problems but also opens up new business opportunities in the agricultural sector for the people of Sumberejo Village.

Overall, this KKN activity demonstrated that development based on local potential can have a real impact on the community. Previously neglected waste was successfully transformed into useful products, while simultaneously strengthening the economic resilience of the villagers.

We also compared the growth of plants using pure cocopeat with plants using a more abundant soil mixture. It turned out that plants using pure cocopeat grew more vigorously and developed more quickly, with denser roots, fresher leaves, and faster vegetative growth compared to plants using a predominantly soil mixture. This finding further confirms that cocopeat is not simply a solution to waste problems, but can be a superior growing medium for

the residents of Sumberejo Village.

1. Media = 100% Pure Cocopeat "Faster Growth"
   Research on papaya seedlings: Research on papaya seedlings found that increasing the concentration of cocopeat (10–50%) in the growing medium increased the number of leaves, leaf size, plant height, stem diameter, and wet and dry biomass during the early growth phase.
2. Soil + Cocopeat Mixture (70:30) "Growth was decent, but not as fast as pure cocopeat."
   Research on Intsia palembanica and Paraserianthes falcataria seedlings showed that a combination of 25–50% cocopeat (soil residue) was the most optimal composition, while 100% cocopeat did not always provide the best growth response.

Growing Media	Observation Results in Sumberejo Village	Supporting Academic Research
100% Cocopeat (pure)	Plant growth is faster.	Increase in initial growth parameters such as leaves, height and biomass in papaya.
Soil + Cocopeat Mixture	Growth is decent, but not as fast as pure cocopeat.	An optimal mix (25–50% cocopeat) is better than 100% soil.

CONCLUSION

Community Service Program (KKN) in Sumberejo Village, Wonosobo, highlighted the utilization of coconut fiber waste, which has been overlooked. Although the village is famous for its coconut sugar, the fiber is often simply piled up or burned, creating environmental problems.

This research processes the fiber into cocopeat, an alternative planting medium that is both environmentally friendly and economically valuable. The methods used included field observations, interviews, participatory workshops, and comparative analysis of planting media. The results showed a positive response from the community to the cocopeat-making process.

Tests on chili peppers, mustard greens, and tomatoes have proven that cocopeat supports plant growth better than pure soil, with optimal water absorption, air circulation, and nutrient supply. In addition to increasing agricultural yields, cocopeat opens up new business opportunities for local residents.

Utilizing coconut fiber into cocopeat simultaneously reduces environmental impact and strengthens village economic independence in a sustainable manner.

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