



Education and Implementation of Household Composting System to Reduce Waste Generation in Kedungsuren Village, Kaliwungu Selatan, Kendal.

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Abstract: The program "Education and Implementation of Household Composting System to Reduce Waste Generation in Kedungsuren Village" aims to increase community knowledge and skills in managing organic waste through composting. This activity was held on August 4, 2024, attended by 25 participants from PKK cadres. Through interactive counseling, compost demonstration, and distribution of educational brochures, participants showed a significant increase in understanding of the importance of organic waste management and the composting process. The program results showed that 85% of the participants felt more confident to implement composting practices in their homes, with 17 out of 25 participants understanding the correct way to make compost. Despite the success of this program, challenges such as limited composting tools and the need for more intensive mentoring still need to be addressed. Therefore, suggestions for increased availability of composting tools, continuous mentoring, further training, policy support, and program replication in other areas are needed to ensure the sustainability and long-term success of this program in reducing waste generation in Kedungsuren Village.

1. INTRODUCTION

Waste is the residue of processes that have a harmful impact on the environment and health. Waste is an environmental problem that requires serious attention¹. Humans are waste producers from birth and continue to produce waste throughout their lives. The presence of scattered waste can damage the environment which results in environmental pollution. Waste management is one of the major challenges faced by many villages in Indonesia, including Kedungsuren Village. Waste generation that is not managed properly can cause various negative impacts, such as environmental pollution, increased health risks, and a decrease in the

¹ Devi Angeliana K, "Meningkatkan Pemahaman Masyarakat Melalui Sosialisasi Persampahan Dan Rumah Sehat Di Permukiman Tempat," *Jurnal Abdimas 2*, no. 2 (2016): 12–17.

quality of life of the community.

Waste can be broadly divided into two types: organic waste and inorganic waste. Organic waste is waste that comes from biology, such as dead leaves, food scraps, and livestock manure, and decomposes faster than inorganic waste. Meanwhile, inorganic waste is waste that is not easily decomposed because it is made of synthetic materials such as plastic or glass. One type of waste that dominates is organic waste or household waste, which if allowed to accumulate, can cause odor problems and become a source of disease.

Household waste is waste generated from food processing activities, as well as waste from plants around the house. Household waste is one of the largest contributors to the environment. Household waste is one of the main sources that contribute significantly to environmental pollution. Waste management can start from the household scale by separating organic and inorganic waste. Household waste such as vegetable and fruit scraps, rotten food, and others can be utilized very wisely. Which can be processed into compost.

Composting is one of the effective solutions to manage organic waste. Compost is an alternative to processing organic waste into a new form that can be reused by humans, providing a positive impact on the environment². In addition, the process of making compost fertilizer is relatively simple and can be done independently on a household scale. Through the composting process, organic waste can be turned into compost, which is an organic material that is rich in nutrients and can be used as a natural fertilizer. Managing waste with the composting method or turning it into fertilizer is one of the best alternatives³. In addition to fulfilling the need for nutrients in plants, by making this organic compost, we will reduce the amount of waste that is already too much. Proper waste management will make the living environment look cleaner, and well- managed waste will produce compost that can be used to fertilize the soil so that the environment becomes more beautiful.⁴ However, the lack of knowledge and skills in composting is one of the main obstacles in implementing this system at the household level.

Therefore, through this Community Service Program (KKN), an activity themed

² Purwati Kuswarini Suprpto, Aji Riyanto, and Egi Nuryadin, "Wimba Learning Strategy with PjBL Model: How the Effect Student in Excretory System Concept?," *Biosfer* 13, no. 2 (2020): 292–306, <https://doi.org/10.21009/biosferjpb.v13n2.292-306>.

³ Ranty Sapitri, "MOTIVASI PENYULUH DALAM MELAKSANAKAN PENYULUHAN PERKEBUNAN KARET DI KECAMATAN KUANTAN TENGAH KABUPATEN KUANTAN SINGINGI," *JOM Fisip Vol. 3 No. 2 – Oktober 2016* 3, no. 2 (2016): 1–9, <https://jom.unri.ac.id/index.php/JOMFSIP/article/view/10663>.

⁴ Susilawati Susilawati et al., "Pengelolaan Sampah Rumah Tangga Menjadi Pupuk Organik Menggunakan Komposter Di Lingkungan Desa Montong Baan Selatan, Kecamatan Sikur, Kabupaten Lombok Timur," *Jurnal Pengabdian Magister Pendidikan IPA* 2, no. 1 (2019), <https://doi.org/10.29303/jpmp.v1i2.259>.

"Education and Implementation of Household Composting System to Reduce Waste Generation in Kedungsuren Village" is proposed. This program aims to educate the community about the importance of organic waste management and implement a household composting system as a concrete step in reducing waste generation. Thus, it is hoped that the people of Kedungsuren Village can be more independent in managing their waste, thus creating a cleaner and healthier environment.

2. HEORETICAL STUDY

Managing kitchen waste is one of the steps to prevent environmental pollution. Improper waste management can cause negative impacts on ecosystems and human health, as well as increased gas emissions and environmental pollution (Dadan Suwandana et al., 2022). There is research on kitchen waste made into compost such as according to (Amiruddin & Adam, 2018) compost can be made from a variety of materials, such as vegetable scraps, leaves that fall from trees, fruit bought at the market, organic waste from home, etc

3. METHODS

To achieve the program objectives of "Education and Implementation of Household Composting System to Reduce Waste Generation in Kedungsuren Village," several strategic steps have been designed and will be implemented in a structured manner. The methods used in this activity include:

1. Material Delivery and Counseling

- The activity will begin with a session on the basic concepts and importance of composting. This counseling will be delivered in the form of an interactive presentation, focusing on practical ways to make compost from household organic waste.
- Educational brochures on the benefits of composting and practical steps will be distributed to participants. The brochure is designed to be a guide that is easy to understand and implement at home.

2. Demonstration of Compost Results

- After the counseling material, there will be a demonstration session showing the results of the compost that has been made before. These results will be shown to PKK cadres as a real example of the success of the composting process. This demonstration is expected to increase participants' motivation

to start composting practices in their own homes.

3. Dissemination of Results and Program Replication

- The results of this program will be socialized to PKK cadres, with an emphasis on the positive impacts that have been achieved, such as reduced waste generation and increased environmental awareness.
- To ensure program sustainability, PKK cadres will be encouraged to support and facilitate the replication of this program to all households in Kedungsuren Village. This can be done through the establishment of local policies, provision of composting tools, or further training for PKK cadres and other residents. Through these methods, it is hoped that the program can run effectively and have a significant impact on reducing waste generation in Kedungsuren Village

4. RESULTS AND DISCUSSION

The activity was held on August 4, 2024, at the PKK meeting hall in Kedungsuren village, attended by 25 participants. The activity was opened by the coordinator of the Entrepreneurship Division of KKN UIN WALISONGO Semarang to convey the aims and objectives of the activity and provide direction regarding the preparation of materials and media for counseling (Figure1).



Figure 1: The Coordinator of the Entrepreneurship Division of KKN UIN WALISONGO opens the counseling activity.

The counseling participants followed the presentation with great enthusiasm (Figure 2). This can be seen from the many questions asked about composting during the discussion and question and answer session (Figure 3). One of the main successes of this program was the increase in participants' knowledge about organic waste management through composting. Before the program started, most participants had a limited understanding of composting and

its benefits. Through counseling sessions and presentations, participants gained more in-depth information on practical ways to make compost from household organic waste, including the types of materials that can be composted, the stages of the composting process, and how to maintain the compost.

The brochures distributed also played an important role in strengthening participants' understanding (Figure 4). The brochure was designed with simple language and illustrative pictures, making it easy to understand for participants with various educational backgrounds. Results from a survey conducted after the program showed that 85% of participants felt more confident to start composting practices in their own homes.



The counseling participants were very enthusiastic in obtaining the material



Participants ask some questions in the Q&A session

BUAT KOMPOS DARI SAMPAH DAPUR: MUDAH DAN BERMANFAAT

APA ITU KOMPOS?
Kompos adalah pupuk alami yang dibuat dari sisa makanan dan bahan organik lainnya. Kompos sangat baik untuk tanaman dan lingkungan kita.

MENGAPA HARUS MEMBUAT KOMPOS?

1. Kurangi Sampah: Mengubah sampah dapur jadi kompos mengurangi sampah yang kita buang.
2. Baik untuk Tanaman: Kompos memberikan nutrisi yang dibutuhkan tanaman untuk tumbuh subur.
3. Ramah Lingkungan: Menurangi polusi dan membantu menjaga bumi tetap sehat.

HUBUNGI KAMI UNTUK INFORMASI LEBIH LANJUT

- 📞 HARI MIT 18 POSKO 104
- 📧 kmm118_kedungsari04
- 📧 kmm118_kedungsari04
- 📞 0856 8809 5678 (Wan Dora)

APA SAJA YANG BISA DIKOMPOSKAN?

- 🍌 **SISA SAYUR DAN BUAH**
Petersis, kulit, dan sisa buah atau sayur.
- ☕ **AMPAS Kopi DAN TEH:**
Ampas kopi dan daun teh.
- 🍳 **CANGKANG TELUR:**
Hancurkan dulu supaya cepat terurai.
- 🍲 **SISA MAKANAN**
Rerik, nasi, dan pasta tanpa saus atau minyak.

APA YANG TIDAK BISA DIKOMPOSKAN?

- 🐾 **BAGING DAN TULANG**
Bisa menarik hewan dan berbau.
- 🥛 **PRODUK SUSU**
Susu fermentasi dan bisa berbau.
- 🧴 **MINYAK DAN LEMAK**
Tidak bagus untuk proses kompos.
- 🗑️ **PLASTIK DAN LOGAM**
Tidak bisa terurai.

MANFAAT KOMPOS UNTUK TANAMAN

- 🌱 **TANAMAN LEBIH SUBUR:**
Kompos membantu tanah menahan air dan udara lebih baik.
- 🌿 **NUTRISI ALAMI**
Kompos menyediakan nutrisi yang dibutuhkan tanaman.
- 🌱 **KURANGI PUPUK KIMIA:**
Tanaman tumbuh subur tanpa perlu banyak pupuk buatan.

AYO MULAI MEMBUAT KOMPOS!!!

BANTU LINGKUNGAN
Dengan membuat kompos, kita membantu mengurangi sampah dan menjaga bumi.

TANAMAN LEBIH SEHAT
Beri tanaman kita makanan alami yang mereka butuhkan.

CARA MEMBUAT KOMPOS DARI SAMPAH DAPUR

1. Siapkan Wadah Kompos: Gunakan ember atau wadah khusus untuk kompos.
2. Kumpulkan Sampah Dapur: Pisahkan sampah yang bisa di komposkan dan masukkan ke wadah.
3. Campur dan Atur Lapisan: Masukkan sampah dapur dan campur dengan bahan kering seperti daun kering.
4. Aduk dan Jaga Kelembaban: Aduk kompos setiap minggu dan tambahkan air jika terlihat kering.
5. Panen Kompos: Setelah 2-3 bulan, kompos siap digunakan. Kompos yang matang berwarna coklat dan berbau tanah.

Dengan membuat kompos, kita bisa membuat bumi lebih bersih dan tanaman lebih sehat.
Yuk, mulai sekarang!

SCAN UNTUK MENONTON VIDEO INSTRUKSI MEMBUAT KOMPOS

Brochures distributed

The results showed that most of the counseling participants (12 people) had often heard information that household waste can be composted. However, only a few (9 people) of the extension participants have ever known about it. Even as many as (4 people) of the extension participants did not know that compost can be used as organic fertilizer for plants.

The counseling has improved the knowledge and skills of 25 extension participants on how to make compost. In addition, as many as 17 extension participants can know how to make compost correctly because they participated in the extension program. While only a few extension participants did not understand how to make compost properly (8 people). The extension workers also motivated the participants so that they would reduce the quantity of household waste and thus reduce the frequency of household waste disposal activities. However, there are still some participants who have not been motivated to do so. These results show that the motivation of extension participants still needs to be improved. Therefore, counseling activities need to be maintained and improved for the better, so that the benefits of counseling can be felt by the wider community⁶. This extension activity which is a community service is considered successful. This is shown by the fact that after attending this counseling as many as 25 participants plan to make compost someday. Therefore, the lack of public knowledge about waste management to become something useful requires continuous socialization⁵.

The demonstration of the pre-made compost also had a significant impact in increasing participants' motivation. The compost results shown to PKK cadres not only attracted their

⁵ Bertha Ollin Paga' and Risma U. Situngkir, "Pelatihan Pembuatan POC Dari Limbah Rumah Tangga," *IGKOJEI: Jurnal Pengabdian Masyarakat* 3, no. 3 (2022): 17–23, <https://doi.org/10.46549/igkojei.v3i3.323>.

attention, but also provided a real example of how organic waste can be turned into useful fertilizer.⁶

Participants were impressed with the quality of the compost produced, which showed a good texture and no pungent smell, unlike the waste they usually dispose of (Figure 5). Some participants even expressed interest in trying to use the compost in their own gardens or plant pots. This shows that hands-on demonstration can increase participants' confidence in applying their newly acquired knowledge.



The result of compost that has been planted with seeds that have been made previously

The results achieved from this program show that education and implementation of composting systems at the household level can be an effective solution in reducing waste generation, especially organic waste, in Kedungsuren Village. The active participation of PKK cadres as agents of change in the community plays an important role in the success of this program. They not only successfully adopted the composting system in their respective homes, but were also able to become examples and motivators for other households in the village. The program also provided insight into the importance of a community-based approach in addressing environmental issues. The involvement of PKK cadres, who have a strong influence in the social life of the village, allows the socialization and replication of the program to run more effectively. With the support of the village government, the sustainability of this program is expected to be improved, so that all households in Kedungsuren Village can implement the composting system.

⁶ Lia Cundari et al., "PELATIHAN DAN PENDAMPINGAN PENGOLAHAN SAMPAH ORGANIK MENJADI PUPUK KOMPOS DI DESA BURAI" 25, no. 1 (2019): 5–12.

Although the program was overall successful, there were some challenges faced during implementation. One of them was the limited time to ensure that all participants really mastered the composting techniques taught. Although the materials were well presented, some participants still felt hesitant in applying the knowledge at home, especially related to the selection of the right materials and compost maintenance. Another challenge faced was the willingness of some participants to spend time and effort in maintaining the compost. As we know, composting requires regular attention, especially in terms of maintaining moisture and stirring the compost regularly. Not all participants have the spare time or patience to do this, potentially hindering the success of composting in their homes.

However, some challenges were also identified during program implementation. One of them is the limited composting tools available, which limits the number of households that can directly implement composting. In addition, there are still some participants who need more intensive assistance to ensure the composting process goes well in their homes. Therefore, further efforts are needed to provide additional composting tools and conduct follow-up training sessions for PKK women and other village communities. The availability of organic waste raw materials around us encourages us to process waste into more useful products⁸.

Overall, this program has had a positive impact on organic waste management in Kedungsuren Village and shows great potential to be replicated in other areas. Continued support from the village government and community capacity building will be key in the long-term success of this program.

4. CONCLUSIONS

The "Education and Implementation of Household Composting System to Reduce Waste Generation in Kedungsuren Village" program successfully achieved its main objective, which was to increase the knowledge and skills of the community, especially PKK cadres, in managing organic waste through composting. Through extension activities, compost demonstrations, and brochure distribution, program participants showed a significant increase in understanding of the importance of organic waste management and how composting can be a practical solution to reduce waste generation at the household level.

The results of this program also highlighted the important role of PKK cadres as agents of change in the community, who not only adopted the composting system in their respective

homes, but also encouraged the replication of the program throughout the village.⁷ Their active participation in this activity shows that community-based approaches are highly effective in addressing environmental issues. The demonstration of quality compost results successfully motivated participants to start composting practices in their own homes, and this is an indicator of the success of this program.

However, challenges such as limited composting equipment and the need for more intensive mentoring for some participants still need to be addressed. While the program has been successful in many ways, sustainability and long-term success will largely depend on continued support from the village government and increased community capacity to continue composting practices.

5. RECOMMENDATIONS

- **Increased Availability of Composting Tools:** To ensure that more households can participate in the composting program, village governments need to consider providing additional composting tools. This could be done through subsidies or a targeted tool assistance program for interested households, especially those that do not yet have composting tools.
- **Continuous Mentoring:** While initial counseling and demonstrations have been successful in increasing knowledge, ongoing mentoring is needed to ensure that participants can effectively apply the knowledge they have gained. More experienced PKK cadres can be engaged as mentors for other households, and periodic visits from the KKN team or village government can assist in monitoring and guidance.
- **Follow-up Training and Community Strengthening:** To address the technical challenges faced by some participants, follow-up trainings should be held periodically. In addition, network and community strengthening among PKK cadres and villagers is essential to ensure program sustainability. Regular meetings, discussion groups, and experience-sharing activities can strengthen participants' commitment and motivation.
- **Policy Support and Incentives:** Village governments need to consider local policies that support household-based waste management, such as providing incentives for residents who successfully manage their waste through composting. This could

⁷ Nikman Azmin et al., "Pelatihan Pembuatan Pupuk Kompos Dari Sampah Organik Di Desa Woko Kabupaten Dompu," *Jompa Abdi: Jurnal Pengabdian Masyarakat* 1, no. 3 (2022): 137–42, <https://doi.org/10.57218/jompaabdi.v1i3.266>.

include reducing waste disposal fees or rewarding households that consistently compost.

- Program Replication in Other Areas: Given the success of the program in Kedungsuren Village, it is recommended that similar programs be replicated in other villages in the region. With appropriate adaptations, this program can be an effective model for organic waste management in other rural areas, which also face similar problems. With these steps, it is expected that the composting program in Kedungsuren Village will not only be sustainable, but also make a wider contribution to environmental management and improving the quality of life of the community.

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