



## BACK STOPPING: CULTIVATION OF HEALTHY VEGETABLES BY USING OF THE ORGANIC WASTE IN URBAN AREAS

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### *Abstract*

*As part of the community that has household activities, this element of society also produces waste in the form of very much waste. Daily food waste and tree leaves are the most dominating among the community, posing a severe problem. One way to minimize the negative impact caused by domestic organic waste is to process the waste by involving the community. Waste management is a systematic, thorough and sustainable activity that includes waste reduction and handling. Waste management needs to be done comprehensively and integrated from upstream to downstream to provide economic benefits, be healthy for the community, and safe for the environment, and change people's behavior. One way to minimize the abundant amount of waste is to use organic waste to make compost. This method of community service implementation uses the participatory society method and the persuasive approach method. As a result of this activity, the community is very enthusiastic about managing organic waste into compost. In addition, people can cultivate vegetable crops at home by using homemade compost media. The community gets a positive value from this activity, namely a clean and healthy environment, and can be an economic value from processing organic waste into compost.*

**Keywords:** Organic Waste, Compost, Urban Farming

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### IMPLEMENTATION BACKGROUND

City people, in general, throw away organic waste for nothing without processing it. As part of a community with household activities, this community element also produces a lot of trash in the form of waste. Garbage leftover from daily food and tree leaves is the most dominant among the people, so this causes serious problems. So far, people have not used the waste they produce to turn it into valuable goods.

One way to minimize the negative impacts caused by domestic organic waste is to process the waste by involving the community. Community-based waste management is an effort to involve the community in processing waste from the collection stage to the final processing (Harlis et al., 2019). Community-based waste management efforts that are independent (not dependent on the government) need to be carried out.

Waste management is a systematic, comprehensive, and sustainable activity that includes waste reduction and handling. Waste management needs to be carried out thoroughly and integrated from upstream to downstream to provide economic benefits, be healthy for the community and safe for the environment, and change people's behavior. One way to minimize the amount of waste is by utilizing organic waste to make compost. The composting process is a biological process that uses microorganisms (decay bacteria) to convert organic materials such as animal manure, leaf, and vegetable waste into compost (Suparyati, 2022).

In addition, composting can also be interpreted as a process of decomposition of compounds contained in the remaining organic material with special treatment. The goal is to make it easier for plants to use. The use of compost in the long term can improve the soil's physical, chemical, and

biological properties. Compost is easy to make, and the technology is simple. Materials for making compost are straightforward to obtain because they are available around us, and making it is effortless. Everyone can make it both on a large scale and for their yard. However, there is still a lack of knowledge and skills about making compost made from local resources, making people reluctant to make it. Therefore it is necessary to have training in making compost. In assisting the transfer of technology for processing organic waste, it is hoped that the community will become aware of the environment and their health. In addition, people can cultivate their plants using the media from organic waste.

## IMPLEMENTATION METHOD

Surabaya city's Kupang Hamlet is home to several community service projects. This service activity uses two methods: first, the *participatory community method*. Members of the branch as partners (community) can gain insight and skills in organic waste processing through training in making compost. The target of the activity is members of PKK women. Mentoring and training were carried out by lecturers of the Faculty of Agriculture, Wijaya Kusuma University, Surabaya. Second, the persuasive approach method is through the Socialization of the use of organic waste to generate motivation for branch members to recycle organic waste into valuable new products such as compost. Third, *urban farming* assistance through plant cultivation in urban areas after the compost made has been finished. The materials used in this training are organic waste consisting of vegetable residues, fruits, dry leaves, onion skins, garlic, and EM-4 solution as a bio activator. The tool used is a compost box (iron frame and sack). In more detail, the implementation of community service activities is described in table 1 below:

Table 1. Activities and Methods

No.	Activity	Method	Tools/materials
1	Presentation on material	Lectures, discussions, Q&A	PowerPoint slides, laptop, and in focus
2	Introduction to composting materials and tools	Lectures, discussions, Q&A	Laptop, demonstration plot, and in focus
3	Composting training	Demonstration, practice, and Q&A	Composting materials and tools
4	Assistance with vegetable cultivation	Demonstration, practice, and Q&A	Materials and tools for vegetable cultivation

## IMPLEMENTATION AND DISCUSSION

In this community service, the community will give an initial understanding of the use of household waste. After that, the presentation of the material was carried out through a slide presentation containing the composition of compost. In this activity, the counseling participants showed enthusiasm for participating in the socialization event about how the Dukuh Kupang community minimizes household organic waste. This Socialization is indicated by the variety of questions asked by the extension participants ranging from what is waste to inquiries related to efficient and effective waste management patterns. According to the Republic of Indonesia Law No. 18 of 2008 concerning Waste Management, Article 1 paragraph 1 of waste is the residue of daily human activities and the rest of natural processes in solid form. Article 1 paragraph 4 reads that a waste generator is any person due to biological processes that generate waste. Article 1 paragraph 5, waste management is a systematic, comprehensive, and sustainable activity that includes waste reduction and handling. Waste management at the source level is carried out by sorting waste according to its class, inorganic and organic (plastic and others), collecting waste according to its style, and handling waste according to the group (Valentine, 2022).

### **1. Implementation Results**

The results of community service activities, namely assistance in making compost as a solution for waste management in Dukuh Kupang, Surabaya city, are as follows:

- a. Community service activities realized three times according to the initial plan. The first visit was to guide and practice composting, while the second was to see the finished compost and conduct an evaluation. On the third visit, the practice of vegetable cultivation in urban areas.
- b. The number of training participants who attended was 14 people (members of PKK women).
- c. All participants had a high response and enthusiasm to gain knowledge and apply composting techniques.
- d. From the questions and answers conducted before the training, it turns out that most people in the Dukuh Kupang area have a habit of not sorting their household waste before it is disposed of to the TPS. They also do not know that this waste can process into compost which is very beneficial for soil fertility and reduces the amount of garbage.
- e. Increased knowledge, understanding, and awareness of the Kupang hamlet community on the importance of sorting waste before disposing of destruction in its place. The participants were aware of preserving the environment by doing proper waste management, namely by sorting so that the types of organic waste can process into compost.
- f. After 14 days, a second visit is carried out to see the compost results. It was ready to be used by the community, while the Kupang hamlet community could reuse the equipment for composting on a household scale.

In the form of training on household waste management with the composting method, this community service program needs to be continuously pursued considering the increasing production of household waste. Suparyati et al. (2022) stated that the low awareness of the 3Rs triggered this situation, namely *reuse* (reusing used goods that can still be used), *reduce* (try to minimize waste), and *recycle* (recycle waste so that it can use).

This Socialization explained an overview of organic waste, including the types of organic waste, the definition and types of compost, and the stages of processing organic waste into compost. The tools and materials used for making compost were also presented at this outreach activity. At this stage of making compost, the community is enthusiastic about practicing it.



Image 1. Composting Tools and Materials

Using a composter, we demonstrated generating compost from fallen leaves and tree limbs. Next, put the dry leaves and spray the EM-4 bio activator solution into the composter. The next step is to close the composter tightly and leave it for 14 days for composting to occur. After 14 days, the ripe compost is harvested (decomposition).



Figure 2. Compost Harvesting

In this compost harvest, the community packs the compost in airtight sacks. This activity is so that the compost does not dry out and microorganisms do not die in the compost. At the time of packaging, it will be divided into 2, namely the first with packaging for sale of compost and the second for cultivation in the environment around Dukuh Kupang.



Figure 3. Growing Vegetables with Compost Media

The composting results will follow up in agricultural cultivation in urban areas. In this case, PKK women are enthusiastic about growing vegetables using their media. The vegetables grown by the people of Dukuh Kupang use the seeds of kale, red spinach, and mustard greens so that this plant can also be used for household activities in daily cooking.

## 2. Discussion

Organic waste has high water content, so it is easy to decompose. The organic waste produced comes from rotting fruits that fall to the ground, such as guava, leaves, tree branches, vegetable scraps, and spices. The waste has not been utilized and processed by members of the department. Garbage is only left to pile up on the land and thrown in the trash, which often causes a bad smell. The stench of organic waste can cause environmental pollution and cause disease outbreaks (Ekawandani & Kusuma, 2018).

The impact of the odor caused can interfere with breathing due to the presence of ammonia

compounds in organic waste. Liquids from organic waste can also contaminate groundwater and damage soil structure and nutrients (Cundari et al., 2019). It is vital to take steps to treat trash to alleviate the effects of pollution on the ecosystem.

Composting is one method of digesting organic waste (Shitophyta et al., 2021).

Transfer of technology for making fertilizers provides benefits, namely an increase in knowledge about the benefits of organic waste residue as raw material for making fertilizers. It is hoped that residents can make their fertilizer from organic materials around them in the future. A composter is a tool used to process all organic waste into compost that can be used as fertilizer. However, not all people understand and know this (Jamaluddin et al., 2021).

It also achieves community independence to take advantage of the potential that is around as raw material for fertilizers to support creating a waste-free environment and increase economic resilience. Making fertilizer means you can reduce spending on buying fertilizer for agriculture. It can also use to make fertilizers. Increase income by making fertilizer for sale (Yuningsih et al., 2020).

## CONCLUSIONS AND RECOMMENDATIONS

From the results of this Community Service activity, several conclusions can draw, including:

- 1) The public can understand the importance of a polluted environment due to much waste.
- 2) Encouraging people to be more concerned about the surrounding environment, that organic waste can be managed as compost. This activity supports one of the government programs, namely urban farming. Besides that, compost can be an economic value for the surrounding community.
- 3) It hopes the community can apply the knowledge that has been given in the training to make compost as a society that cares about the environment.
- 4) By assisting in cultivating vegetable crops using the media produced by the compost product, it can provide positive things, namely caring for the environment, health, and economic value.

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