

Utilization of Organic Waste Into Compost Fertilizer: A Wise Solution to Manage Waste in Gebanganom Village, Kendal Regency

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Abstract. Activity Studying Work This is real (KKN) aiming For increase understanding and application use fertilizer compost in society Village Compost chosen as focus main Because its potential in support agriculture sustainable and reduce dependence to fertilizer chemistry . Through socialization This time , the KKN Posko 3 team invited Service Agriculture and Food Kendal Regency for can give education about benefit fertilizer compost , its production , and techniques its use in practice agriculture everyday. The method used For ensure effective knowledge transfer covering consultation , demonstration live , and discussion group . The results of activity This expected can increase awareness public will importance management rubbish organic and application fertilizer compost , so that in the end contribute to improvement productivity agriculture and sustainability environment in the village Gebanganom.

Keywords: Compost fertilizer, education, sustainable environment.

1. INTRODUCTION

Garbage always leaves dirt consisting of 61% galactomannan, 26% mannose and causes an unpleasant odor if it is simply thrown away without further processing. (Nurjannah, Arfah, & Fitriani, 2018). There has been a lot of processing and utilization of organic waste that has been carried out and utilized for agricultural needs or as a source of biogas (Ekawadani & Alvianingsih, 2018). Organic waste is waste produced from biological materials that can be decomposed by microbes or are biodegradable and are often produced by households, markets, agriculture and industry (Setyaningsih, Astuti, & Astuti, 2017; Sumiadji, H, R, S, & W, 2021).

Composting is the process of decomposing organic waste that is controlled biologically in aerobic (oxygen-present) or anaerobic (oxygen-free) conditions (Adi H et al., 2018). The process of decomposing organic materials by utilizing the role or activity of organisms will be converted into compost that is rich in macro and micro nutrients that are very much needed by plants (Atkana, Siburian, & Alce, 2019). Compost is a solid organic fertilizer that is classified as a slow-release fertilizer (Hayati, Mahmud, & Fazil, 2012).

Compost is a complete source of macro and micro mineral nutrients even in relatively small amounts (N, P, K, Ca, Mg) (Atkana et al., 2019). Long-term compost administration can improve pH and increase crop yields. The use of compost can eliminate the use of chemical

fertilizers that have the potential to cause land degradation (Warsito, Sabang, & Mustapa, 2016).

So that the utilization of organic waste has a very big opportunity to support the village economy because of the large availability of raw materials in the environment (Ekawadani & Alvianingsih, 2018). One of the utilization rubbish organic is making fertilizer organic which is significant can increase management soil nutrients (Chew et al., 2019; Liu et al., 2019) .

So from That KKN MIT 18 UIN WALISONGO students POSKO 03 In the Village The cradle through community programs make an effort do prevention pollution environment to natural earth and increase fertility agriculture and plantations and also the prosperity of the farmers which is become A problematic farmers who are struggling For buy fertilizer because constrained economy and less his social assistance fertilizer from appropriate government needs of farmers village Then efforts made is a program that includes that is socialization with to plant education about method making fertilizer compost from rubbish organic .

2. METHOD

To avoid environmental pollution, it would be good if leftover plants, vegetables, household organic waste , and animal waste were used as Compost Fertilizer, in this waste management training delivered by the Kendal Regency Environmental Service (DLH) compost house team and its participants were attended by the village head and local village mothers who wanted to learn and gain knowledge about how to process waste wisely and intelligently. In this activity, mothers were taught how and the steps to process waste into compost fertilizer, with this socialization aimed to equip the surrounding community with knowledge and skills in making their own compost fertilizer, so that it can reduce organic waste and improve soil quality for agriculture.

3. RESULT AND DISCUSSION

Time and place

This wise socialization activity in managing waste was carried out at the Gebanganom Village Hall, Rowosari District, Kendal Regency, this activity was carried out on August 12, 2024 at 13.00 WIB until finished.

Tools and materials used

The tools and materials used in this activity are in the form of buckets or basins to hold organic waste that will be used for compost, then the materials are organic waste such as rotten

or unfit for consumption vegetables or fruits and also leaves that have fallen from trees and also starter to speed up the process of becoming compost.

Preparation Stage

At the stage This all over member KKN team post 3 Village The Gebanganom UIN Walisongo Semarang collaborates with with the Kendal City Environmental Agency . Therefore that, before implementation activity This The KKN team at post 03 of Walisongo State Islamic University, Semarang , carried out activity survey moreover previously aimed to know condition place activity with method analyze condition the place to be used, amount visitor invitations, and compile design activities to be implemented in a way smooth and conducive. Besides that, the KKN team at post 3 Village The Gebanganom of Walisongo State Islamic University, Semarang has prepare a number of necessary tools and materials use implementation activity this , as for tools and materials among others: used buckets , rubbish kitchen (vegetables) rotten), leaves dry and so on.

Execution Stage

In level execution This is stage training provided to mothers in the village Fertilizer Compost This made from the remains like vegetables, plants, coffee and tea grounds, dirt animals and so on. In activity the moms taught How ways and steps process rubbish become fertilizer compost , with existence socialization This aiming For equip public around with knowledge and skills in make fertilizer compost alone , so that can reduce rubbish organic and enhance quality land For agriculture . Ingredients used in training fertilizer compost This is leaf dry , remaining vegetables , and so on .

Composting process This involving a number of very step important For ensure optimal results , namely :

a. Waste sorting

Waste sorting in composting is a process of separating organic waste from inorganic waste. Organic waste such as food scraps, leaves, and agricultural waste, this waste is chosen because it can decompose naturally and become compost. Meanwhile, inorganic waste such as plastic, metal, and glass, cannot be decomposed and should be separated so as not to interfere with the composting process. This sorting is important to ensure that the composted material is one that can be decomposed by microorganisms into fertilizer that is useful for plants. Here in making compost we use materials from organic waste.

b. Raw Material Size Reduction

In this stage is the process of cutting or crushing the organic materials into small pieces. This process aims to accelerate decomposition, because the smaller size of the material will be easy for microorganisms to work. The reduction of this material is usually done in various ways, such as: chopping leaves, cutting leftover food or by grinding the organic material using certain alat.

c. Mixing Ingredients

This process is a combination of various types of organic materials, such as: leftover food/vegetables, dry leaves, animal waste, and so on. This mixing can be done manually, using a fork or shovel or can also use a shredder. The purpose of this process is to balance carbon and nitrogen and so on.

d. Starter watering

Starter watering is one way to ensure that the composting process runs quickly and efficiently, so that it can produce high-quality compost. Compost starters are usually solutions containing microbes or enzymes that help speed up the decomposition of organic matter. This process aims to speed up the decomposition process by adding active microorganisms to the compost pile.

e. Compost maturation

This stage is the last stage in making compost, at this stage the material that has been decomposed by microorganisms into a more stable form and is ready to be used as fertilizer. The compost is ready to be used as organic fertilizer which aims to improve plant structure, add nutrients to plants and increase soil fertility naturally.



Figure 1 Practice of making compost fertilizer

These are the stages of making compost or composting, other benefits of this compost are as soil enrichment, improving plant health, preventing erosion, and reducing waste. Making process compost This divided become two processes, namely among them:

First compost natural : manufacturing process compost that is made walk with itself , with A little mix hand human . In the process of making This man only gather materials and composition material for the composting process and composting in progress with itself . This process need 3 to 4 months time For become compost.

The second compost Artificial : a process that involves various controlled steps manually by humans such as : preparation materials , treatment to ingredients , mixing materials , settings materials , and settings humidity . All stage in this process need manual monitoring and management for produce quality compost . Usually this process is also assisted with activator decomposer material standard compost and usually prose compost artificial This need time 3 to 4 weeks .

Evaluation Stage

Activity socialization making fertilizer compost This aiming For utilise waste specifically waste House stairs , which are usually Lots wasted vain so group kkn post 3 Gebanganom stage activity making fertilizer compost from waste House stairs . Activities This invite DLH or Service Agriculture For become speakers , they No only explain in a way theory just but explain with practice related method make fertilizer good compost so that inhabitant The cradle can understand with Good stages make fertilizer good compost . With the holding of activity this , citizen Village The cradle seen very enthusiastic , they become know that waste House ladder like vegetables can utilized become compost so that they can also save money Because No emit cost For buy fertilizer .



Figure 2 Closing of the event

4. CONCLUSION

Based on results from training making fertilizer compost from waste households that have done by a group kkn post 3 Gebanganom can concluded that :

- a. Level of interest society, especially group Farming in the Village Gebanganom , against material counseling delivered very high . This can observed from amount questions asked by participants counseling .
- b. society with enthusiasm height and desire big tofu follow and be active participate in practice making fertilizer compost. Through activity this , it is expected they will capable make fertilizer compost home alone with use easy ingredients found and the process is relatively simple . Success rate in practice making fertilizer compost This reached 95%, although fertilizer the resulting compost Not yet own similar texture with fertilizer compost conventional Because time required in the process of decomposition Still limited.
- c. With apply practice agriculture organic in a way sustainable, society can reduce its dependence on the use of fertilizer inorganic or chemistry. Uses continously fertilizer chemistry in term long can have a negative impact on quality land and plants, which in turn can influence results harvest farmers. Besides that, farmers in the village Gebanganom can also reduce expenditure they in activity agriculture.

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