

# Production of Manure Using Waste

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**Abstract-** The project “Production of Manure Using Waste” focuses on converting domestic organic waste into nutrient-rich manure through a simple and eco-friendly process. The primary aim is to reduce household waste such as fruit and vegetable peels, spoiled dairy products, and dry leaves, while simultaneously producing an effective organic fertilizer. The methodology involves collecting biodegradable waste and decomposing it in a layered container system over a period of 35–40 days.

The prepared manure was tested on selected plants, including tomato and flower saplings, and its performance was compared with chemical fertilizers and normal watering conditions over a span of 21 days. The results indicated that while chemical fertilizers showed slightly faster growth in some cases, the organic manure provided sustainable and healthy plant development. Additionally, the use of manure improves soil fertility, moisture retention, and microbial activity.

This project demonstrates an efficient way to manage domestic waste and promote sustainable agricultural practices by reducing reliance on chemical fertilizers and encouraging environmentally friendly alternatives.

**Keywords:** Organic waste, Manure production, Composting, Domestic waste management, Organic fertilizer, Soil fertility, Biodegradation, Sustainable agriculture, Plant growth, Waste recycling

## I. INTRODUCTION

In recent years, the increasing generation of domestic waste has become a major environmental concern. A significant portion of this waste consists of biodegradable materials such as fruit and vegetable peels, leftover food, and dry leaves. Improper disposal of such waste leads to pollution, foul odor, and health hazards. Therefore, effective waste management practices are essential for maintaining a clean and sustainable environment...

## II. LITERATURE REVIEW

Various studies have highlighted the potential of converting domestic organic waste into useful products such

as manure and biogas. Zhang et al. (2021) reviewed the process of anaerobic digestion of food waste, emphasizing its effectiveness in producing nutrient-rich digestate. This digestate contains essential nutrients like nitrogen and phosphorus, making it suitable for use as an organic fertilizer. The study also discusses the importance of maintaining process stability to achieve efficient waste conversion.

Similarly, Al Seadi et al. (2013), in *The Biogas Handbook: Science, Production and Applications*, explained how domestic kitchen waste and organic residues can be treated through anaerobic digestion. The by-product obtained, known as digestate, can be effectively used as manure due to its high nutrient content and soil-enhancing properties.

In addition to anaerobic digestion, composting is another widely used method for converting organic waste into manure. It involves the natural decomposition of organic matter by microorganisms under controlled conditions. Composting improves soil structure, increases water retention capacity, and enhances microbial activity, thereby supporting sustainable agriculture.

These studies collectively support the idea that domestic waste can be efficiently recycled into valuable organic manure, reducing environmental pollution while promoting eco-friendly farming practices.

## III. METHODOLOGY

The production of manure from domestic waste was carried out using a simple composting method. The process involved the following steps:

### 1. Collection of Materials

Biodegradable waste materials such as fruit peels, vegetable waste, spoiled milk or buttermilk, and dry leaves were collected. A suitable container or compost bin was also arranged for the process.

### 2. Preparation of the Container

A container with proper ventilation and drainage was selected to allow air circulation and prevent water

accumulation. Small holes were made in the container if necessary.

### 3. Layering Process

The waste materials were arranged in layers inside the container:

- A base layer of dry leaves or soil was added.
- A layer of wet waste (fruit and vegetable peels) was placed above it.
- A small amount of soil or old compost was added to introduce microorganisms.
- This layering process was repeated until the container was filled.

### 4. Decomposition Process

The container was kept in a shaded area and the contents were allowed to decompose naturally. The mixture was occasionally turned to provide oxygen and maintain proper aeration. Moisture was maintained by sprinkling water when required.

### 5. Duration

The decomposition process was carried out for approximately 35–40 days until the waste turned into dark, crumbly, and odorless manure.

### 6. Testing on Plants

The prepared manure was applied to selected plants such as tomato and flower saplings. Their growth was observed and compared with plants treated with chemical fertilizers and those grown under normal watering conditions.

## IV. RESULT

### 1) Tomato plant growth

Condition	Day 1 Height (cm)	Day 21/30 Height (cm)
Using Manure	22	31
Using Chemical Fertilizer	22	34
Normal (Watering)	21	27

### 2) Flower plant growth

Condition	Day 1 Height (cm)	Day 21 Height (cm)
Using Manure	15	24
Using Chemical Fertilizer	14	27
Normal (Watering)	16	22

## V. CONCLUSION

The project “Production of Manure Using Waste” successfully demonstrated that domestic organic waste can be effectively converted into nutrient-rich manure through a simple composting process. The study showed that materials such as fruit and vegetable peels, dry leaves, and spoiled dairy products can be reused instead of being discarded, thereby reducing environmental pollution.

From the experimental results, it was observed that while chemical fertilizers may provide slightly faster plant growth, the organic manure produced offers sustainable and eco-friendly benefits. It improves soil fertility, enhances moisture retention, and supports healthy plant development without causing harm to the environment.

Overall, this project highlights the importance of waste management and promotes the use of organic manure as a cost-effective and environmentally responsible alternative to chemical fertilizers. It encourages individuals to adopt composting practices in daily life for a cleaner and greener future.

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