

Preparing Compost in Bin From Household Wastes

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Abstract. Composting is the recycling of organic matter which is used to improve soil structure and fertility. Composting has been done by man from many years ago. Compost process has received attention in recent years due to the environmental concerns. Instead of disposing organic matter in dumping yards, we can use it in compost making process. Composting aims to stabilize wastes and is one of the cheap and best methods for disposal of organic wastes and its conversion into a worthy product. After decomposition of organic matter, final product can be used as fertilizer in backyards and gardens.

Keywords- bin composting, household wastes, environmental engineering

I. INTRODUCTION

Composting is a simple, rewarding way to recycle yard trimming and food scraps at home while creating compost, a valuable soil amendment for gardens and lawns.

Nearly anyone can practice composting—it is not just for gardeners. In fact, you do not need to use compost yourself to benefit from composting. As long as you have food scraps or yard trimmings, and you enjoy recycling, you will find composting rewarding. Furthermore composting can be done in small spaces, as small as the corner of an apartment patio. Here are some com-posting ideas for people who don't have a garden or large area for composting.

Community participation has been a vital component in most successful integrated solid waste management (ISWM) programmes. Home composting encourages the community involvement on waste management activities and it facilitates easy transferring of source separation concepts to the people. Home based composting compared to the compost produced from mixed waste is of high quality as the waste does not get contaminated with hazardous materials. The separated inorganic materials need less effort for cleaning before recycling. Therefore, household composting has been identified as an option to enhance the economic conditions of urban poor people through home-gardening and selling of compost and/or recyclables. There are various technical options available as household level composting systems that vary from simple pit /heap methods to complex bin or rotating drum designs. Traditional composting methods (pit, heap) have been common practices in many rural/urban areas with different kinds of organic matters. Most urban dwellers prefer bin composting system due to its convenience and as it has less impact an aestheticism with their very limited space.

II. Why Make Compost?

Read this guide and you will learn how to save money, grow healthy plants, help clean up the environment, reduce pollution and protect endangered peat land habitats. How? Simply by recycling garden debris and kitchen scraps to make compost. Compost makes your garden grow Compost, a rich soil-like material, works wonders around the garden

- A. lightens heavy soils
- B. helps light soils hold more water
- C. feeds plants

Compost saves you money Home-made compost, helps cut down on buying garden products;

- A. soil improvers
- B. fertilisers
- C. mulches

Compost helps reduce pollution Making compost contributes towards a cleaner environment; cuts down on waste going to landfill and less need for manufactured and packaged products Compost saves wildlife The use of peat is causing the destruction of fragile peat land habitats, and the rare plants and animals that live there. Ninety-four per cent of the UK's lowland peatbogs have been damaged or destroyed. Composted kitchen and garden waste can be used in place of peat - giving the remaining peat land wildlife a better chance of survival.

III. Bin Composting Methodology

Materials to include

Vegetables/kitchen refuses, Garden trimmings, grass clippings

Leaves, dry leaves (straw) Twigs and shredded branches, Food refuse- bread, buns, Egg shells

Farm animal manure (e.g. Cow, Sheep, Goat, Poultry), Fruit refuses, Wood ash.

Materials to exclude

Non-biodegradable waste: polythene, plastics, glass, metal etc. Human faeces, pet manure (e.g. dog, cat)

Dairy Products Diseased plants Fish meat scraps and bones Slow degradable materials like coconut shells, coconut husk etc.

Fats/cooking oils Hazardous material like batteries, bulbs electronic components, chemicals.



IV. Process

- A. Fill the bin with household organic waste as alternative layers of kitchen waste and dried garden waste. Do not add inorganic (polythene, plastic, glass, metal) or slow degradable materials like coconut husk, coconuts shells, banana stalk etc.
- B. branches can be shredded into smaller pieces so that it accelerate the composting process.
- C. Do not add any problematic materials like meat scraps, fish, dairy products and oily products to the bin (this attract pest). Smaller quantities of above waste can bury in the centre of bin to minimise pest attraction and malfunctions. Further, good monitoring mechanisms are needed to optimise the composting process.
- D. A minimum volume of material is required to activate composting and therefore, the compost bin must be at least $\frac{3}{4}$ full for the process to work well.
- E. Composting cannot occur without moisture and therefore, spray some water to moist the dry materials in a bin. Too much moisture creates anaerobic conditions that can create unpleasant odours (moist but should not squeeze out water from the bin).
- F. Balance substrate is required for optimum growth of the micro-organisms. One material alone is sometimes not good substrate for composting and it can overcome by mixing different substrate which is rich in different components (e.g. dry garden waste with kitchen waste). Kitchen waste alone provides good substrate for fly breeding and it can minimize by covering a thin layer of dry garden waste.
- G. Mixing or 'turning' the composting material from time to time will aerate and help composting material break down faster (and also prevent unpleasant odour). The compost must be turned at least once a week.
- H. Microorganisms in active composting stages produce lot of heat. Therefore, temperature can reach over 60°C in the centre of a bin. This heat is desirable, as it helps to kill weed seeds, pathogens and to break down the materials. Placing the compost bin in a sunny location will also help the compost inside to heat up and decompose faster. The lid of the composting bin has to be secured to prevent pests getting in. When pests such as ants and cockroaches enter the bin will also indicate that the material in the bin is too dry.

V. Conclusion

From this research analysis programme, it is clear that by bin composting in homes, household and garden wastes are reduced to beneficial end product, which can be used as nutrient to soil for growing healthy plants or crops .required amount of compost can be used within home, otherwise extra compost can be marketed.

Many people are unaware of bin composting in homes. Awareness should be spreaded to reduce waste within their own homes. This helps in less pollution of nearby environment and avoids mass storage on dumping grounds.

VI. References

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