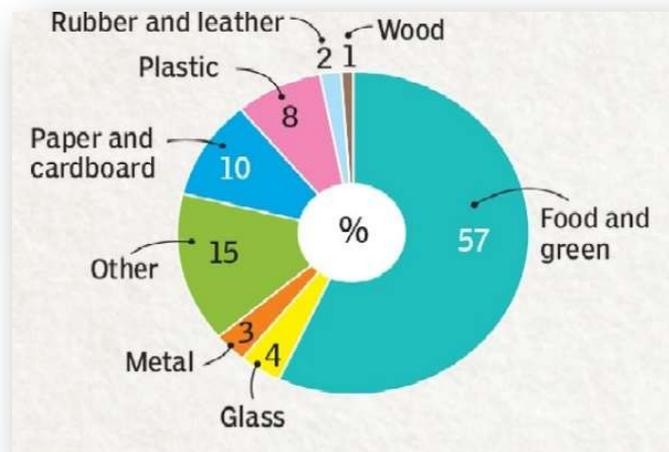


## **Bacta Cult - Composting**

### **Technical literature**

#### **What is Municipal Solid Waste.**

Municipal solid waste is generated from Households and Industry. It consists of Organic, inert and other types of waste. Organic waste is a biodegradable waste containing food waste, wood, poultry, slaughter house waste, industrial organic waste etc. Which can be treated to form useful products like compost, biogas or fuel. In most of the Municipalities in India 50-60 % is organic waste. Hence if it is managed smartly then it will be a huge contribution for clean cities and Swachh Bharat Abhiyan.



#### **Why Municipal Solid waste management is necessary.**

Major part of waste generated in Municipal corporation goes to Dump yard and remains untreated which affects Health, Safety and Environment of the society hence solid waste management is need of hour. The waste generated in municipalities is in very huge quantity hence the selection of process for waste treatment should be accordingly. Windrow Composting would be best suitable technique at municipal level.

#### **The problems faced by landfills of solid waste**

- Effect on public health like spread of contagious diseases
- The landfill may convert to toxic environment
- The whole area would be facing BAD smell issue.
- Storage, Handling of waste would be costly and time intensive.
- It would pollute public water bodies.

## What is Composting.

Composting is procedure in which organic waste is converted to a compost in presence of air, water and microbes. which can be used as fertilizer or manure.



Organic matter containing carbohydrates proteins fats and other organic molecules  
Microorganism – Saprophytic bacteria, Thermophilic Mesophilic etc.

## Phases of Composting.

1. **Mesophilic Phase** – Spraying of Bacterial culture start of bacterial activation at 15-45 °C the phase lasts for few days.
2. **Thermophilic Phase** – Maximum Bacterial activity takes place in this phase at 45-70°C Maintenance of proper air circulation and moisture are necessary in this phase
3. **Second Mesophilic Phase** – In this phase steam will come while turning Temp in this phase vary depending upon the environmental conditions it may be high to medium range.
4. **Cooling Phase** – Bacterial Activity Decrease by 50 % Natural complex compounds like Cellulose lignin degrades here
5. **Maturation Phase** – Degradation of most resistant compounds takes place here lignocellulose and other recalcitrant compounds

## B O M O

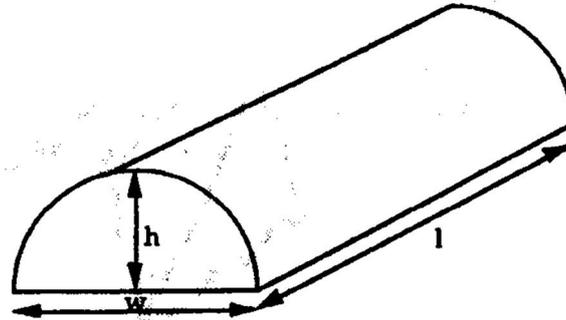
**B- Bacteria (Bacta Cult)**- One kg is sufficient for 1000kg of organic waste.

**O- Organic Matter (Waste to be managed)** Organic materials found in municipal solid waste include food, paper, wood, sewage sludge, and yard waste. Ideal for composting is to maintain carbon to nitrogen ratio from 25:1 to 35:1. Shredding of waste into smaller pieces will increase the composting process by increasing the surface area.

**M- Moisture:** - It is important to help the degradation process. Moisture should always be ranging from 45 to 50%.

**O- Oxygen-** This can be given by turning and mixing the windrows once in 10 days.

## **Windrow Composting.**



Arrangement of pile for windrow composting

Windrow composting is simple process of solid organic waste degradation where no special equipment and designing required. For large quantity waste degradation like municipality windrow composting is best technique.

## **Standard procedure for Windrow Composting.**

1. Make windrows of waste to be degraded. Height and width of windrows should not be more than 3 feet. Length will depend upon the amount of waste to be composted.
2. Make a pile of 6-inch Mix bacta cult with water and then spray over the entire waste.
3. Repeat step 2 until the height of 3 feet of windrows.
4. Turning and mixing of waste is very important after a gap of 10 days.
5. Total duration will be 1 month or more. Compost quality depends on time hence maximum the time better will be quality of compost.

## **Operational Parameters of Composting.**

- **Carbon- Nitrogen Ratio** - Organisms that decompose organic matter use Carbon as energy source and nitrogen for building cell structure hence carbon nitrogen content plays important role in composting. The ideal C:N ratio should be in range of **25:1 – 35:1**.
- **Particle size** - For use of organic waste in composting minimum the particle size maximum will be the degradation and minimum will be time taken to form a compost. If particle size is minimum, surface area for bacterial decomposition will be Maximum
- **Porosity** - Availability of pores in the composting pile is important for better air circulation and degradation hence 35% porosity should be maintained
- **Moisture content** - Water is necessary for bacterial activity hence 45-60% moisture should be maintained
- **pH** - pH which decides Acidity or Basicity of organic compounds. It should be maintained in the range of 6.0- 7.5 for maximum microbial activity.

## **What is Bacta Cult – Composting**



*Bacta Cult (Composting) consists of a wide variety naturally selected bacteria composition to make compost in shortest possible time. Bacta Cult (Composting) helps to release bound and tied up nutrients required for normal plant development increasing the bio-availability of inorganic nutrients such as phosphates and trace elements required for plant growth. It also converts nitrogen into amino acids and proteins forms and releases vitamins and growth factors in the compost. Regular watering during Bacta Cult usage allows the microbial proliferation establishing a rich natural flora in the compost.*

## **How Bacta Cult Composting Works**

1. 1Kg of Bacta - Cult composting is required for one ton of organic waste (exact quantity of dosage may change depending upon the nature of solid waste.)
2. We have to dissolve the powdered culture into desired quantity of tap water (water quantity depends on the organic waste moisture content standard (45-55%))
3. Have to spray the culture once in a week.

## **Why to use Bacta Cult- Composting.**

- Bacta Cult will Increase Beneficial Microbial activity as it contains healthy Bacteria's which are acclimatized for solid organic waste degradation.
- As the microbial activity increases the higher amount of waste is converted to compost in less time hence effectively degrades waste in less time
- Reduces Odour from Waste Pile – Odour coming from waste pile is because of partial degradation of organic matter. Partially degraded molecules spread in the environment which is main cause of odour
- Converts Organic Waste into high quality compost that doubles up as an excellent soil conditioner.
- Great for flower and vegetable gardens, fortifying lawns, landscaping, mulches, and more
- Increase Soil Fertility
- Effective Under most environment conditions

## Properties of 'Bacta Cult – Composting'

### PHYSICAL PROPERTIES

❖ Appearance:	Off-white colour
❖ Physical State:	Powdered form.
❖ Odour:	Odourless
❖ Moisture content:	7-8%
❖ Mesh Size	0.5mm

### PERFORMANCE PROPERTIES

❖ Best before:	2 years.
❖ Temperature range:	5-45 ° C
❖ Reactivation rate: -	98% on addition to water
❖ Concentration: -	Highly concentrated