

Vermicomposting is a process in which the earthworms convert the organic waste into manure rich in high nutritional content.

Vermicomposting comprises two methods:

- **Bed Method:** This is an easy method in which beds of organic matter are prepared.
- **Pit Method:** In this method, the organic matter is collected in cemented pits. However, this method is not prominent as it involves problems of poor aeration and waterlogging.

Principle

This process is mainly required to add nutrients to the soil. Compost is a natural fertilizer that allows an easy flow of water to the growing plants. The earthworms are mainly used in this process as they eat the organic matter and produce castings through their digestive systems.

The nutrients profile of vermicomposts are:

- 1.6 per cent of Nitrogen.
- 0.7 per cent of Phosphorus.
- 0.8 per cent of Potassium.
- 0.5 per cent of Calcium.
- 0.2 per cent of Magnesium.
- 175 ppm of Iron.
- 96.5 ppm of Manganese.
- 24.5 ppm of Zinc.

Materials Required

- Water.
- Cow dung.
- Thatch Roof.
- Soil or Sand.
- Gunny bags.
- Earthworms.
- Weed biomass
- A large bin (plastic or cemented tank).
- Dry straw and leaves collected from paddy fields.
- Biodegradable wastes collected from fields and kitchen.

Procedure

1. To prepare compost, either a plastic or a concrete tank can be used. The size of the tank depends upon the availability of raw materials.
2. Collect the biomass and place it under the sun for about 8-12 days. Now chop it to the required size using the cutter.

3. Prepare a cow dung slurry and sprinkle it on the heap for quick decomposition.
4. Add a layer (2 – 3 inch) of soil or sand at the bottom of the tank.
5. Now prepare fine bedding by adding partially decomposed cow dung, dried leaves and other biodegradable wastes collected from fields and kitchen. Distribute them evenly on the sand layer.
6. Continue adding both the chopped bio-waste and partially decomposed cow dung layer-wise into the tank up to a depth of 0.5-1.0 ft.
7. After adding all the bio-wastes, After 45 days release the earthworm species over the mixture and cover the compost mixture with dry straw or gunny bags. The number of worms will depend on the size of your container.
8. Sprinkle water on a regular basis to maintain the moisture content of the compost.
9. Cover the tank with a thatch roof to prevent the entry of ants, lizards, mouse, snakes, etc. and protect the compost from rainwater and direct sunshine.
10. Have a frequent check to avoid the compost from overheating. Maintain proper moisture and temperature.

After the 30th day of release the worm, around 4000 to 5000 new worms are introduced and the entire raw material is turned into the vermicompost.

The major benefits of vermicomposting are:

1. Develops roots of the plants.
2. Improves the physical structure of the soil.
3. Vermicomposting increases the fertility and water-resistance of the soil.
4. Helps in germination, plant growth, and crop yield.
5. Nurtures soil with plant growth hormones such as auxins, gibberellic acid, etc.

