

Composting wood chips

Adaptability of the technology

This technology is useful in the passive composting of manure piles in small-scale farming. Manure from dairy, swine, and poultry will not decompose well unless it is properly managed. Proper management includes making sure that the mixture is porous enough to allow air to penetrate. The pile must be periodically turned and mixed, to rebuild its porosity. The passive method of composting is essentially windrow composting, but the compost is turned less often. This method demands minimal labor and equipment.

The technology

Preparation

The composting materials are prepared, using 50% wood chips and 50% poultry or other manure (on a per volume basis).

If this large quantity of wood chips (as a bulking material) is used, the air within the pile moves more easily through the composting materials. Therefore, during the active composting period, the temperature inside the pile does not fall even without frequent turning or aeration.

Advantages

Wood chips are a good bulking agent when handling animal wastes with a high moisture content. The wood chips increase microbial activity by supplying oxygen to the composting pile. An active composting pile containing wood chips generates considerable heat, and a large amount of vapor is released into the air. Therefore, composting reduces both the volume and mass of the raw materials within a short period of time. Aerobic composting does not generate evil-smelling gasses, as anaerobic processes tend to do. The main source of odors from compost heaps are usually



Fig.1. Compost pile containing wood chips and swine waste is easily decomposed without any system of aeration .

Cooperating agency for this topic:

ammonia lost from highly nitrogenous materials, and anaerobic conditions within windrows and piles. Anaerobic conditions can be minimized by proper management. Pungent ammonia odors can be controlled by including wood chips in the mixture.

Application of wood chip compost can reduce disease incidence in plants, since it can enhance soil microbial activity. This is particularly important in areas where vegetable crops are grown continuously.

Mulch made from wood chip compost reduces the number of weeds in field crops. The mulch suppresses weed germination and growth by covering the soil surface. Also, the phytotoxic compounds produced during the composting process seem to be an unfavorable environment for weed germination and growth.

Using wood chips in composting also gives farmers an extra supply of organic material for their crop lands.

Important remarks

- ❑ Compost containing wood chips, which are a high carbon source, must be composted for at least six months. The large particle size (1-2 cm³) of the chips means that they are slow to decompose.
- ❑ The compost producer must keep an eye on the moisture content of the compost pile, and add more water when this is needed. A sufficient moisture content is needed for active composting. A compost pile containing more than 30% wood chips as a composting material may dry out more easily than a pile containing sawdust.
- ❑ Chips derived from wood which has been treated with preservatives or painted should not be used.
- ❑ The machinery used to shred timber into chips is expensive. The compost producer may also need to pay the cost of transporting wood from distant forested areas.



Fig.2. For composting to be economical, the raw materials obtained from outside sources must be inexpensive.