NATURAL RESOURCES CONSERVATION SERVICE
CARIBBEAN AREA

OPERATION AND MAINTENANCE GUIDELINES FOR COMPOSTING FACILITY

(Code 317)

Composting Facility: Structure to process raw manure, organic matter or raw organic by-products into biologically stable organic material. A properly operated and maintained composting structure is an asset to your farming operation. The composting facility is designed and installed for the composting of organic material or by-products such as: pruned vegetative materials, crop by products, or animal wastes. A good operation and maintenance program will assure a better product and stewardship of the natural resources.

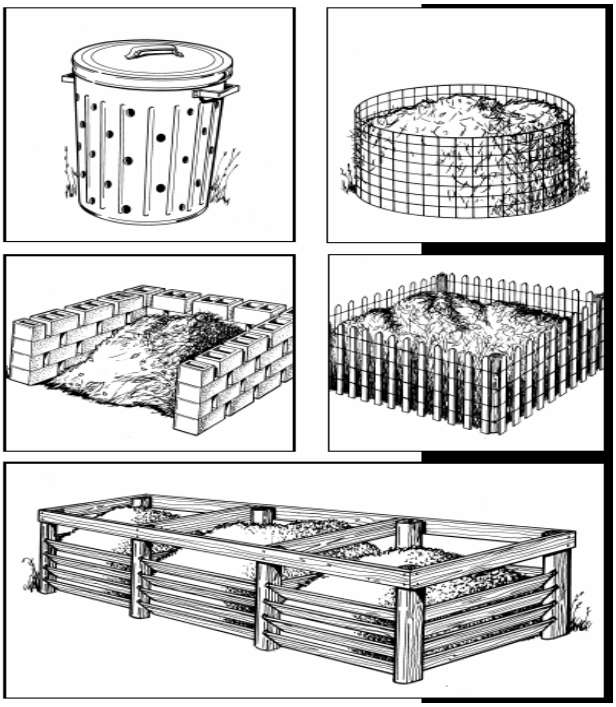

Figure 1. Some structures for composting.

- ✓ **To reduce the pollution potential of organic agricultural wastes to surface and ground water.**
- ✓ **For nutrient sequestering or breaking down.**

An O&M plan shall include the following elements:

General

- The practice(s) to which a particular plan applies.
- Brief description of the practice.
- A list of anticipated O&M activities.
- An estimate of average annual O&M costs.
- The duration of the O&M requirements (i.e. practice lifespan).

Operations Plan

- The details for each purpose for which a practice is installed (i.e. process raw manure, organic matter or raw organic by-products into biologically stable organic material to reduce the pollution potential of organic agricultural wastes to surface and ground water, timing and method for clean-out of facilities, etc.).
- Any additional operating requirements imposed on a practice as a result of federal, state, and local laws and regulations, such as wetlands protection laws.

Performing O&M

- A listing of the elements of the practice that require routine maintenance and a description of the O&M activities for each element.
- A list of known environmental and cultural resource concerns that shall be considered during O&M.
- A statement that all maintenance is to be performed in accordance with all relevant federal, state, and local laws and regulations.
- Provisions for follow-up to ensure that all concerned individuals, sponsors, or agencies are continuously aware of their responsibilities.

Inspections

- A schedule for conducting inspections.
- Types of inspection – informal observation, special, annual, formal (see 500.51 of the National Operation and Maintenance Manual.
- A list of critical items that must be examined during annual and special inspections.

Records

- The types of documents the sponsor/land user needs to retain and when to provide them to NRCS.
- The name of the practice.
- The practice component worked on.
- The cost of performing maintenance.
- The date the work was completed.

Hazard Concerns

- A description of the hazard potential and adverse effects of the practice.
- A schedule for periodic reviews of any emergency action plan (EAP) developed for the practice.

General Considerations

1. As composting is a biological process, it requires some expertise and the following of certain methodology. The operation may need to undergo some trial and error in the start-up of a new composting facility.
2. The system must be operated in such a way to minimize odors and air drift.
3. The structure shall be above the seasonal high water table and on soils with an acceptable permeability that does not allow materials to contaminate the ground water.
4. Divert surface runoff from the compost facility.
5. Moisture content must be between 40 to 65 percent. Microbial activity will slow down below 40 percent and, moisture content over 65 will produce anaerobic conditions that will slow down the decomposition process.
6. The optimum compost temperature range is between 145° F to 165° F. Compost temperature should reach a minimum of 130° F to kill pathogens and at least 140° F to kill fly larvae and most harmful bacteria and viruses.
7. When the compost temperature begins to drop, the compost must be turned for aeration that allows to another heating cycle. Generally weekly to bi-weekly turnings are recommended.
8. Composting time may range from 6 weeks to 90 days depending on the material composted and moisture. Composting made of vegetative material will take less time than compost made from dead animals.
9. If the temperature exceeds 185° F turn the compost material to expose the decomposing material to air. This will lower the temperature and help to prevent a fire from starting. A calibrated thermometer shall be used to measure that temperature levels stay within the range specified in the Conservation Practice Standard, Code 317. To avoid spontaneous combustion, DO NOT store composted material next or on top of material to be composted.
10. The composting structure shall always be covered.
11. Take safety precautions such as post signs, fences or other use exclusion device to reduce danger and avoid animal or personal damages.
12. Maintain diversions clean.
13. The compost structure should be inspected at least twice each year when the facility is empty. Deteriorated wooden parts or hardware should be replaced. Concrete floors and curbs should be patched as necessary to assure water tightness. Roof structures should be examined for structural integrity and repaired as needed. Exposed metal components should be inspected for corrosion. Corroded metal should be wire brushed and painted as necessary.
14. Access road to the composting area should be maintained as an all-weather road for use during adverse weather periods.
15. Monitoring is advisable after heavy rains or storms or vandalism.