

H2E 10-Step Guide to Composting in Healthcare Facilities



1) What is composting, and why should we do it?

Compost is created from the decomposition of yard and food wastes. In a finished product, it is a dark, crumbly and earthy-smelling material that appears similar to soil. Composting provides institutions with a method to dispose of a large portion of these waste streams in a way that benefits their bottom line and the environment. By composting, an institution avoids high per ton incineration or landfill disposal costs for these dense and heavy materials. For some institutions that use an industrial food disposal system, composting avoids sludge issues at the wastewater treatment plant and added costs of water discharges. Using compost on-site can save the grounds department money by reducing their need to buy mulch, fertilizer, and pesticides, since compost improves soils water retention, aeration, and adds lost nutrients.

2) How can we justify the establishment of a composting program?

Healthcare facilities management and administration are often persuaded to implement a program based on the long-term cost savings associated with composting. These cost savings include avoided disposal costs and reduced costs of purchasing mulch, fertilizer, pesticides and water. Special concerns about infection control can be addressed with a carefully planned program and should not be a barrier to implementation. Composting is also another program to celebrate the improvements in your environmental performance!

3) How can compost be used?

You can use compost as mulch around shrubs, trees, or flowers, and on paths; as a soil amendment to break up clay-type soils or to add substance and water retention to sandy soils; or as a top-dressing for lawns or indoor plants. Compost used as a soil amendment provides plant nutrients, supports beneficial soil life, reduces soil diseases, increases water retention in sandy soil, adds drainage to clay soils, and promotes weed and erosion control. Many landscapers use compost instead of chemical fertilizers to provide nutrients to their plants. It is also commonly thought that using compost can reduce or eliminate the need for chemical pesticides because healthy plants resist pests better.

4) What can be composted?

This depends on which composting method is used. The following organic materials are compostable with most methods: grass, leaves, tree limbs, shrub waste, non-hazardous herbivorous animal lab waste, hand towels, paper plates, napkins, wax and paper cups, wax and non-wax cardboard, pre and post-consumer food waste such as fruits and vegetables, coffee grounds and filters, tea bags, egg shells, breads and cereals, and grains and pastas.

Non-compostable materials usually include oils, weeds, diseased plants, meat, bones, cat, dog, or human waste, hazardous materials, plastic, glass, metal, treated wood, and very large items like large tree limbs or stumps.

5) What are the different composting methods?

Some composting methods are fast, some are slow; some are active, some passive. Only a few methods are appropriate for most institutions. Here is a quick overview of the different composting methods with the most applicable systems listed at the end.

Grasscycling: When grass clippings are left in-place on the lawn it is called grasscycling. The cut material simply decomposes on-site adding beneficial organic matter to the soil reducing the need for fertilizer and reducing water evaporation.

Passive Piles: Compostable materials are piled up and left alone. This method can often take a year or more to create any compost.

Active Piles: Compostable materials are piled up, paying special attention to the mix of carbon materials, like leaves or wood chips, and nitrogen materials, like food waste or fresh grass. The pile is then turned regularly and kept moist. This method can take up to six months or a year to create compost.

Aerated Piles are made the same way as active piles, except these have a system to let more air in. The system can be as simple as a pallet under the bin or as elaborate as PVC tubing with forced air inserted into the pile. More air generally helps the system work faster.

Windrows: Compostables are mixed and placed in long, narrow piles at least 4-ft high. This method is usually done in rural areas as it requires a lot of space and heavy machinery such as a front-end loader and/or windrow turner. Windrows can be covered or not. This method is often used for large institutions or for cities and counties.

Drum Systems or Tumblers are units that rotate and tumble the compostable materials. These systems thoroughly mix and aerate the materials resulting in a fairly rapid composting process.

In-vessel composting systems can compost anywhere from a few pounds to over 60 tons a day. Compostable materials are placed in the container and mixed, shredded, and aerated by the system. Some in-vessel systems are fully automated with sensors to monitor temperature, oxygen and moisture. They use biofilters to reduce or eliminate odors. This is a good method for institutions with large amounts of compostable materials and limited space.

Vermicomposting uses red wiggler (*eisenia foetida*) worms and microorganisms to do the work of composting. Food waste is broken down and consumed, leaving behind worm castings, a highly valued fertilizer. These systems are also available in a variety of sizes ranging from a 10-gallon (2lb/day) system up to a continuous flow system that could handle all of an institutions food waste (over 60 tons/day).

6) **Should we do the composting ourselves or try to find someone off-site to handle it?**

This depends on many factors, including what you choose to compost, local regulations and politics, space, funding, and available labor. Having someone haul off your compostable waste may often be cheaper in the short-term, but on-site composting, despite higher start-up costs, is usually cheaper in the long run. First, find out how much you currently spend to manage your food waste and come up with a list of reasons your facility would benefit from a composting program. Find out what compost programs are available in your community. Note that city and county governments often have composting programs already in place (especially for yard waste) and utilizing such programs may be far cheaper than developing your own program. You will need to weigh the costs and the feasibility of the different options available to you in order to make the best decision as to whether it is best to compost materials yourself or have someone else do it for you.

You may also want to consider food waste disposal alternatives before you assess your composting opportunities. Your local food bank may accept donations of food for the hungry. You should also talk to local farms as they have been known to accept food waste as feedstock – sometimes feed brokers can help locate a farm interested in your food waste.

7) How does my institution get started composting?

If you want to compost food waste and animal lab waste, find out how the waste is currently handled and determine how much waste you have. Determine whether you are going to take just pre-consumer food waste or both pre and post-consumer food waste. Determine what type of animal lab waste you can take; be sure that you are only collecting non-hazardous herbivorous animal lab waste. Familiarize yourself with any regulations concerning the disposal of this type of waste. You will need to discuss the collection process in depth with the operations and facilities managers. Check with local and regional governments and non-profit organizations to see what assistance they might be able to provide.

8) How do we collect and transport compostable material?

Compostable yard waste is often fairly simple to collect, as most grounds crews are already collecting it. You may just be able to have the grounds crew continue their current collection practices and drop the materials off in a different place.

Food waste collection takes a little more work to set up. Select sturdy bins that have lids and wheels and are compatible with the logistics of transporting them to the waste dock. Food waste can be very heavy, so choose an appropriate sized bin. Label and/or color-code the bins. Place the bins in food preparation or clean-up areas where food scraps are generated with the least amount of contamination. It often helps reduce contamination to always place a regular garbage can next to each food waste collection bin. The food waste bins should be emptied and rinsed daily to avoid odors. Some facilities line the bins with plastic bags, but this creates another waste stream.

9) What about odors and pests?

As long as the compost bins are emptied and cleaned daily, there should be no more odor than collecting the food waste in regular trash containers. The compost process produces little odor as long as the system is properly aerated and materials are properly mixed. Many systems are equipped with air purification / filtration components. In-vessel systems, including most vermicomposting systems, provide the highest protection against rodents and other animals. These systems are usually fully enclosed and are often lockable.

10) Should education be a part of the program?

Absolutely! Employees will need to be educated via trainings, signs, announcements and supervisor examples. The public will also need to be educated if you are accepting post-consumer waste. There are many good educational techniques readily available that will aid you in doing this, see the resources below. Composting is a continuous quality improvement process.

Resources:

<http://www.epa.gov/msw/compost.htm>

<http://www.mastercomposter.com/>

<http://www.earth911.org/master.asp?s=lib&a=organics/organics.asp>

<http://compostingcouncil.org/index.cfm>

<http://aggie-horticulture.tamu.edu/sustainable/slidesets/kidscompost/cover.html>

http://compost.css.cornell.edu/Composting_homepage.html

<http://www.musc.edu/recycle/vermicompost.htm>

http://www.fac.unc.edu/WasteReduction/Recyclables/animal_bedding.asp

<http://darkwing.uoregon.edu/~recycle/Composting.htm>

Case Study: Fletcher Allen Health Care <http://www.epa.gov/epaoswer/non-hw/reduce/food/food2.pdf>

Compost Mix Calculator

<http://www.klickitatcounty.org/SolidWaste/default.asp?fCategoryIDSelected=965105457>

This guide was developed as a joint effort of Hospitals for a Healthy Environment, the Medical University of South Carolina, and the King County (Washington) Solid Waste Division.