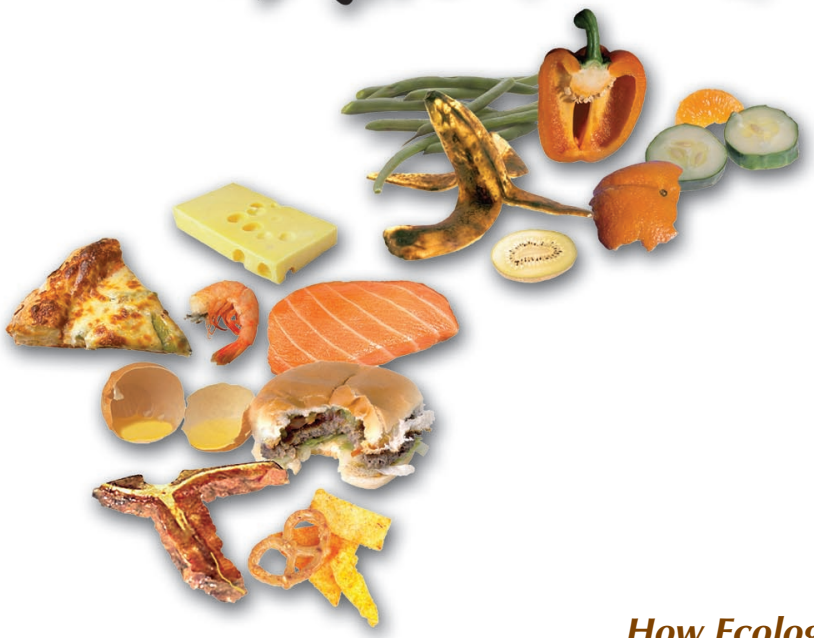
From Garbage to Garden

It's Compost Time!



How Ecology is steering its waste away from landfills and into gardens

WASHINGTON STATE DEPARTMENT OF ECOLOGY

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Why Compost?

Give us your stale, your inedible, your leftovers!

Every day, people throw leftover food scraps, peelings, cores, and pizza crusts into trash bins but there is a better way.

At the Department of Ecology, we put our garbage to work for us.

Employees and visitors generate more than 100 pounds of food waste daily at Ecology's Lacey building. Our on-site composting system allows us to divert that material and turn that waste into decomposed organic material that is good for the soil … compost!

We know that when it's properly composted, food waste isn't waste at all. By composting organics on-site, we can divert tons of organic debris from the landfills and reduce the cost of disposal, saving valuable space and reducing landfill methane gas production. Additionally, composting on-site provides a valuable finished product: some of the best soil amendment* you can put in a garden.

**Improves condition of soil*

History of Composting at Ecology

Long before the Ecology-Lacey building was built in 1993, Ecology employees across the state brought worm bins to work and/or took food scraps home for composting. After the completion of the new Ecology building in Lacey, staff continued to compost on-site with donated and home-made worm bins. These dedicated worm wranglers and compost gurus saw the value of reducing waste and creating a natural soil amendment locally (for their own gardens), yet they longed for a formal program that did not rely solely on the commitment of a few employees.

Waste studies conducted by the Ecology's Waste Reduction and Recycling (WRR) committee showed that composting organics could reduce waste by 30 percent.

Why is Ecology investing in this composting program?

After the Governor's Executive Order 02-03 mandated state government to model sustainable business practices, Ecology created a Sustainability Plan (2003) that specifically calling for a feasibility study to institutionalize organics collection and composting. Additionally, the final Beyond Waste Plan directed state government to lead by example and develop an on-site (or near-by) organics management program for the Ecology–Lacey building.

What is this composting project all about?

In the fall of 2003, Ecology's WRR committee applied for and received a grant from the Ecology Savings Incentive Account to conduct a waste-to-compost study. Additionally monies to purchase equipment and make capital improvements were requested and granted from the Environmental Program Management Team. In 2004, students from The Evergreen State College (TESC) completed a partial feasibility study that helped determine the composting technology that would be used to process organic materials from the Ecology-Lacey building.

In spring of 2005, an extensive outreach and marketing plan was created and two Earth Tubs and one EPM Model 5-8 Vermicomposter (worm bin) were purchased. Installation of the composting equipment, purchase of the collection containers, and development of education and outreach materials was completed in the summer of 2005.

Regional food waste composting projects

Eastern Regional Office (ERO), Spokane

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In August 2005, staff throughout ERO began collecting organic material. The material is recycled in a vermicomposting unit called the Worm Wigwam. The Worm Wigwam is capable of recycling 7-14 pounds of material per day into a nutrient-rich soil amendment. The amended soil is used on ERO's grounds/landscaping, for employees' personal potted plants, or for donation. Each coffee bar and lunch area is equipped with a covered 3-gallon bucket to collect food scraps (except meat and liquids) and other plant-based materials, such as: fruits, vegetables, and their cores, seeds, stems, peels, rinds, bread, pasta, cereal, coffee grounds, filters, and paper towels. Volunteers empty the collection buckets on a weekly or twice-weekly basis.

Northwest Regional Office (NWRO), Bellevue

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The lunch room is equipped with one covered "coffee grounds" bucket and one covered "food waste" bucket. Volunteers empty them every other day. The collected food waste typically includes peeling, rinds, unwanted fruits, veggies; bread, napkins, tea bags, and floral scraps. Volunteers chop this material into small pieces and add them to a BioStack vermicompost system. This system can handle about 8 pounds of chopped material per addition, depending on the season. The staff uses the worm castings to enrich employees' home gardens and NWRO's public demonstration garden.

Central Regional Office (CRO), Yakima

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A group of Ecology employees developed a voluntary compost program. Each week the volunteers take food scraps from their office kitchen area and add them to their home compost piles. The compost buckets in CRO's kitchen areas have tight lids for holding the food scraps for as long as a week. This voluntary system diverts approximately 5 pounds of food waste from the dumpster (and landfill) each week.

What can you do?
Help us compost!

What materials go into the food waste collection containers?

1. Food waste such as:
   fruit and vegetable scraps, peels, seeds/pits,
   cheese, yogurt, other dairy foods,
   plate scrapings, gravy, sauces,
   meat and fish scraps, bones, gelatin,
   crab shells, lobster claws, egg shells,
   coffee grounds, tea bags,
   baked goods, cereal, pasta
2. Food-soiled paper products like:
   paper towels, napkins,
   coffee filters
3. Other organic matter such as:
   house plant remains, cut flowers

1. Plastic utensils, plates
2. Transparent food wrap
3. Metal
4. Drink boxes, milk cartons, take-out containers, paper plates
5. Clam shells*
6. Cups, bowls
7. Coated brown paper "left over" boxes
8. Chopsticks

** Clam shells are so hard they may derail the harvest mechanism in the worm bin*

These lists are not all inclusive. Ecology - Lacey employees can contact the Compost Champion in their section with questions. If you have a different system, contact a composting specialist in your area about materials and quantities processed in your system.

Frequently asked questions:

Q. What about odor from an on-site composting system and collection buckets?

A. While no composting system is completely odor free, we designed ours to prevent most odors.

- Our collection buckets have washable inserts and are covered.
- Our janitorial staff empty, replace and wash the collection bucket inserts daily.
- Our landscape staff received training in proper methods to manage the materials as they decompose. They pay careful attention to the moisture content, air flow, and "recipe" of the compost mix, keeping the system aerobic.
- The system features odor control devices (a bio-filter and an activated carbon filter) that removes odors generated during the decomposition process.

Q. Does the system affect water quality?

A. Not at all. The Earth Tub is designed to generate extremely small quantities of liquid wastewater, called leachate. Any leachate produced by processing the materials in the Earth Tub seeps into a tube connected to Ecology's sanitary sewer line. The leachate funnels into the sewer system where it receives appropriate treatment, along with other sewage.

Q. Should we be concerned about pests?

A. No. The Earth Tubs are fully enclosed containers that allow no access to the materials by birds and four-footed scavengers. The process (including scheduled turning and aeration) prevents insects from "nesting" or colonizing and reproducing in our system.

Q. Should we be concerned about pathogens?

A. Heat kills pathogens. The organics we put in the Earth Tub will reach the appropriate temps for the appropriate duration to address the pathogen ("bad" bacteria) concern. We will back this up with a log book of temperatures taken on a daily basis.

Here are links to studies that address pathogens and compost:

- US Composting Council addresses Compost Quality – see Weed Seed and Pathogen section regarding heat used to kill pathogens. http://www.compostingcouncil.org/section.cfm?id=39
- US Environmental Protection Agency: Composting, Yard Trimmings and Municipal Solid Waste, 1994. See Chapter 2, Basic Composting Principles, page 27. http://www.epa.gov/epaoswer/non-hw/compost/cytmsw.pdf

Q. Why can meats and cheeses be composted at work but not at home?

A. The reason home composters are discouraged from composting meat and dairy is because they rarely have the correct compost recipe or desire to intensely manage their compost piles to make sure they reach and maintain the prescribed temperatures to kill pathogens. Also, meat and dairy products in an "open" home compost system have a higher potential to smell bad – attracting flies and rodents.

Q. How can I use the worm castings at home?

A. Here are some tips for application rates at home:

Vegetables and annual flowers: Line sides and bottom of plant holes and seed furrows with about 2 inches of earthworm castings. Set plants and seeds in place, then cover with soil. Every two months in growing season, side-dress plants at a rate of 1/2 cup castings per plant or 1 cup per linear foot.

Perennials: Work 1/2 cup into soil in spring, summer and early fall.

Potted plants and hanging baskets: Add 1/2 inch of castings to top of soil, then mix in. Water. Repeat every two months.

Roses: Mix 4 cups of castings in soil around each rose bush.

New lawns: Apply 15 pounds of castings per 100 square feet to soil. Sow grass seed, then keep moist until germination.

Established lawns: Spread 7 pounds of castings per 100 square feet.

Sources: Rhonda Sherman, North Carolina State University, and Wiggle Worm Soil Builder.

Are you considering composting at your facility

Here are some things to think about to help choose a system that fits your situation.

Assess your situation.

How many people use your site?
Ecology's headquarters building houses more than 900 staff and tenants, who use its many coffee bar kitchenettes and who purchase food and beverages from its full-service cafeteria.

How much food waste does your facility produce?
How can you measure it? Start with waste disposal records, and check their accuracy by occasionally sorting the waste.

Ecology's Waste Reduction and Recycling committee tracks the amounts and types of waste disposed at our facility by coordinating an annual waste sort. Our janitorial staff bring all the trash collected on the night before the waste sort event to the loading dock area. In the morning volunteers don Tyvek coveralls and safety goggles and gloves, and receive instructions from our safety officer. Then the volunteers sort the material into categories, and weigh it. We estimate that we dispose more than 100 pounds of food scraps, and about 40 pounds of paper towels daily.

How will you collect the organic material?
You need a system that is clean, safe, and convenient.

Throughout Ecology's headquarters facility, we've equipped each coffee bar with a covered waste can. We placed the 3-gallon containers with durable plastic inserts (for food waste and paper towels) under the faucet/sink, next to the open trash receptacles.

Each of the three dish-return stations in or near the cafeteria holds three bins labeled "Trash", "Bottles, Cans, and Milk Cartons" and "Food waste".

We amended our janitorial contracts to require nightly collection of food waste from all these locations. We purchased extra container inserts so the janitors can make one trip through the building to collect the full inserts and replace them with clean ones.

Who will maintain the operation?

Once you collect the food scraps, how will you process them?

We amended Ecology's landscape maintenance contract to include responsibilities for daily "feeding" and "operating" the Earth Tub and the Vermicompost bin. While Ecology staff will continue to exercise supervisory responsibility, delegating day-to-day operations and maintenance to the contractor's workforce assures service continuity and avoids volunteer burnout or program fadeout – even if we change contractors.

How will on-site composting work for your situation? Here are some questions to ask when you are considering whether or not on-site composting will work for you.

- Will your co-workers support and participate in a compost program?
- Is off-site food waste composting an option at a permitted facility?
- Can you dedicate space at your facility for an on-site operation? What size would you need to process your organization's waste?
- Who will design your system? How convenient can you make it? And who will maintain it day in and day out, year in and year out?
- Could you partner with neighboring agencies on this project?
- Do you own the property on which your facility sits?
- Does your lease – or do zoning laws – prohibit on-site composting?

What will happen to the end product? Here are more questions to ask during the planning process.

- What will your end–product look like? Consider the desired product color, moisture content, texture, and weight, in your system design.
- Your first "batch" will probably require months of processing. Once you've distributed it, how long until the next batch is ready?
- Who wants it? For what use? Will these noncommercial customers use more than one unit? How much can they use? How often will they need it?
- Will you package it? Will you deliver it to the user?
- Will you and your composting partners use all of the compost you can produce, to maintain soil conditions in your own landscapes, or in public parks or gardens?

Ecology staff may use these buckets to transport worm compost for use at home.

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For more information about home composting, visit

Washington State University Compost site
http://gardening.wsu.edu/stewardship/compost/compost.htm

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