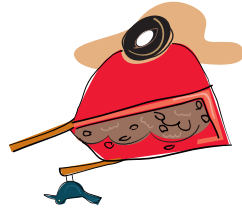


For an alternative format, contact the Clark County ADA Compliance Office.
V (360) 397-2025; TTY (360) 397-2445; E-mail ADA@clark.wa.gov



360 882 4567
www.clarkcountycomposts.org
A cooperative effort of Clark County,
Vancouver, Camas, Washougal, Battle
Ground, Ridgefield, Yacolt, LaCenter
and Columbia Springs Environmental
Education Center.



Become a Master Composter / Recycler and help educate the public about diverting organics and recyclables from the landfill

“A nation that destroys it’s soils destroys itself ”
- Franklin D. Roosevelt

MASTER COMPOSTER/RECYCLER PROGRAM

Stop Treating Your Soil Like Dirt

If you want to have a beautiful garden that is easy to maintain you have to work from the ground up and stop treating your soil like dirt. A good garden must have more than dirt, it must have soil, a wonderful living mélange of sand, clay, organic matter, moisture and air.

Healthy soil supports an intricate web of life, a soil food web. Before you plant, start building a soil teeming with microorganisms. Billions of organisms live in a teaspoon of healthy soil. These beneficial organisms, such as bacteria and fungi, live around each plant root converting decaying materials into energy and essential nutrients for plants. Soil bacteria exude a slime that binds soil particles into aggregates. Fungi further bind the aggregates together to build good soil structure or tilth. Earthworms and other organisms tunnel their way through soil, making space for air and water.

Worm Composting Your Food Scraps

Worm composting is a simple, efficient way to turn food wastes into high-quality compost for your garden. Worm bins also help reduce household garbage volume.

Eisenia fetida, also known as red wigglers are the best worms for composting. They thrive on organic materials such as food scraps. Red worms are not the same as earthworms or night-crawlers, which need mineral soils to survive. One pound of red worms is needed to start a home worm bin. Get your worms from a manure pile or a friend's worm bin or contact the Master Composter/Recycler program.

Inside the bin you should create an environment in which the red worms can thrive.

Ideally, the bin you choose should have one and one-half square feet of surface area per member of your household. For example, a 1' x 2' x 3' box has six square feet of surface area and should easily manage the food scraps of a family of four.

The bin should be made of sturdy, opaque plastic or wood with a lid to keep pets out and to help keep the bin moist and dark. It should be no deeper than 24 inches to ensure the bedding at the bottom does not become compacted

Red worms breathe oxygen through their skin, so the bin should have several air holes for good ventilation

The bins will need bedding to provide the worms with a damp, aerated environment. Common bedding materials are fallen leaves, shredded computer or newspaper, and shredded cardboard. The paper and cardboard should be torn into one-inch strips or machine shredded and thoroughly moistened. The worms will eat this bedding material as well as the food waste. Burying food waste in the bedding or covering each addition of food waste with a thin layer of bedding helps to prevent fruit flies from becoming a problem.

Soil with high organic content is full of decomposing plant material and beneficial organisms that together provide nutrients to plants and enhance the soil's ability to absorb and retain water, slows runoff, releases water to plants between rainfalls, and filters air and water that percolate through.

Master Composter/Recycler Program

A Master Composter/Recycler is a volunteer who receives a twelve week, in-depth, hands on training in such topics as:

- Compost science
- Managing organic wastes at home
- Backyard and worm composting
- Protecting water quality
- Outreach and presentation skills
- Clark County's solid waste reduction goals



Harvesting the worm bin

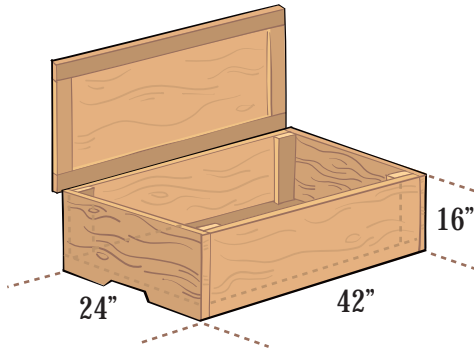
When the worms have consumed all of the food and bedding in the bin, what remains is a dark, crumbly, soil-like product called vermicompost. To move the worms out of the vermicompost, simply push the nearly finished compost to one side of the bin and put fresh bedding in the empty side. For the next six weeks, bury food wastes in the newly bedded side only. The worms will migrate over to the fresh food in the new bedding as the food on the other side runs out.

Another harvesting method is to lay a piece of window screen six inches larger than the opening to your worm bin directly on top of the vermicompost in the bin and refill the bin with damp bedding laid on top of the screen. Begin burying your food scraps in this new bedding. The small, young worms will quickly migrate through the screen to the bedding and food on top and the older, larger worms will remain in the bottom finishing off any food that might remain in the vermicompost. When they've eaten everything available they too will migrate through the screen. When the material on top of the screen is converted to vermicompost lift out the screen carrying the new vermicompost with it, and set it aside. Nearly all of the worms will be in this material. Dump out the old vermicompost from the bottom of the bin and use in your garden, and put the new vermicompost containing the worms into the now empty worm bin. Lay the screen on top of this worm rich vermicompost, refill the bin with damp bedding laid on top of the screen and begin burying food scraps into the new bedding.



How to use worm castings

- Use castings to top dress house plants
- Take out 5 inches of soil to allow room for castings
- Repeat every 45-60 days
- In the vegetable garden make a shallow, narrow trench and sprinkle castings into the row before planting. When planting directly into the soil use 1/2 cup for a one gallon plant



Worm Composting Bin

Materials:

- 1 - 1/2" exterior grade sheet of plywood
- 1 - 2"x4"x12'
- 1 - 2"x4"x16'
- 2 lbs. 6d galvanized nails
- 1/2 lb. 16d galvanized nails
- 2 galvanized hinges

The do's and don'ts of worm feeding

Do feed your worms vegetable scraps, bread crusts, fruit rinds and peels, coffee grounds, coffee filters and tea bags.

Don't feed your worms meat, fish, dairy foods, oily foods or bones. They will smell before the worms can eat them.

The difference between compost and vermicompost

Vermicompost contains higher microbial populations than backyard compost and the populations are more active. Vermicompost contains more nitrogen, phosphorus and potassium than backyard compost, but in the end, organic matter is organic matter and all compost is good for the soil.

To determine the health of your soil, take a small sample from your garden and roll it between your fingers.

- If the soil forms a ribbon up to 2 inches long, you have clay soil.
- If the soil falls apart easily and does not make a ribbon, then you have sandy soil.
- If the soil forms a ribbon about 1 inch long, you have loamy soil, which is considered the ideal soil condition.

Observe the water after a rainfall, or following watering. If water puddles on the ground and doesn't soak in, or your soil dries out quickly, it may lack organic content.

You can unravel a healthy soil food web by applying synthetic fertilizers, pesticides and herbicides to your lawn or garden. Synthetic fertilizers give a quick burst of nutrients that is often more than the plants or lawns can absorb. Pollution occurs when heavy rains flush the excess chemicals from the garden into waterways. At the worst, the fertilizers and herbicides kill the food web organisms.

Master Composter/Recyclers are the backbone of Clark County's Home Composting Program. The volunteers teach people the basics of home composting and inspire Clark County residents to recycle their yard and kitchen waste at home, work, and school. The training program is free. In exchange Master Composter/Recycler volunteers are asked to perform 40 hours of composting education and outreach in Clark County within one year of graduation. The home composting program schedules information booths and workshops at a wide range of fun venues including local farmer's markets, harvest festivals, home and garden shows and Clark County Fair.

Pet waste from dogs, cats, pot bellied pigs and birds should never be included in a home compost pile or worm bin for the following reasons:

- Parasitic organisms, which may be found in pet waste, can be transmitted to humans.
- Cat droppings pose an extra hazard to pregnant women because they can contain either *Toxoplasma gondii* or *Toxocara cati*, both of which can be dangerous to unborn children.
- Bird droppings (including those from poultry) can pose a potential disease source by transmitting either *Salmonella* or *Chlamydia psittaci*. *Salmonella* can cause violent sickness. *Chlamydia psittaci* causes a respiratory condition known as psittacosis.
- Yard debris compost piles may not generate enough heat to destroy all pathogens and parasites found in pet waste.



Did you know?
A horse can produce 50 pounds of manure a day

5. Aeration Aerobic composting requires a lot of oxygen. A compost pile can run low on oxygen in as little as three days. Turning or mixing the compost aerates the material and speeds up the decomposition process. If you are not in a hurry to get finished compost, you don't need to turn the pile. However, turning it even once will cut decomposition time in half

Cold composting is the easiest way to compost by piling up organic material as they become available. This results in a very slow composting process that may take up to two years to complete. To harvest the finished compost, remove the top of the pile and scoop out the brown, crumbly material at the bottom of the pile.

Hot composting will speed up the composting process but takes a little more work. When you create a pile following the five control factors the pile should heat up to about 110 to 150 F. at this temperature most weed seeds will be killed. After the pile starts to cool off, turn it with a pitchfork to get some fresh air into it, after turning, the temperature will rise again.

When the pile cools down again it should be turned. If the temperature rises again, turn the pile a third time.

After the pile no longer heats up, it is a good idea to let it rest without turning for a few weeks to finish the process. A hot compost pile can produce finished compost in about two to three months. When the compost is finished; it will be brown and crumbly and smell like rich earth.

Compost Uses Throughout the Seasons

- Apply a 4 to 6 inch layer of compost as mulch around woody perennials in the fall to reduce damage from winter winds
- After the soil has warmed up in the spring, apply compost around warm season vegetable crops such as zucchini and tomatoes
- Spread compost on the garden a couple of weeks before spring tilling
- Add compost to container gardens, hanging baskets
- During the growing season, side-dress your plants with compost to provide a slow-release source of nutrients
- Apply a 1 to 2 inch thick mulch around flowers, trees and shrubs in spring to maintain soil moisture and discourage weed growth

Did you know?
The hair on your head contains 30 times more nitrogen than manure.

Compost trouble shooting

Rotten Smell	<ul style="list-style-type: none"> • Not enough air • Too much water 	<ul style="list-style-type: none"> • Turn the pile • Mix in dry material
Pile Won't Heat Up	<ul style="list-style-type: none"> • Too small • Too dry • Needs air • Too many browns (carbon) 	<ul style="list-style-type: none"> • Need 3'x3'x3' pile size • Add water and turn pile • Mix in green nitrogen-rich materials like manure, grass clippings or coffee grounds
Ammonia Smell	<ul style="list-style-type: none"> • Too many greens (nitrogen) 	<ul style="list-style-type: none"> • Mix in brown high-carbon material such as shredded newspaper, straw or wood chips

Compost—Gardener’s Gold

When getting started consider both aesthetics and function as you look for an area in your yard to store compost.

The area should be convenient for adding materials and removing the compost. But you don’t want it to detract from the beauty of your (or your neighbor’s) landscape. Also, locate the pile close to the garden hose so you can moisten it during dry periods.

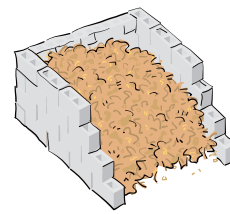
The five control factors for making compost

1. Volume The amount of material you’re adding will determine the type of compost bin you use. This booklet features several compost bin designs. All have the same objectives: to retain heat and moisture, and to make aeration easy. A pile 3’x3’x3’ is ideal.

2. Balancing material in the pile Beneficial soil fungi and bacteria need carbon and nitrogen to grow well. Brown-colored plant matter is generally high in carbon. The greens are rich in nitrogen. Remember the compost mantra, “equal parts of green and brown help to break the compost down.”

3. Particle size Chopping your yard trimmings into 1”-2” pieces will also speed up decomposition.

4. Moisture The compost pile should be consistently damp, but not wet. The material should feel like a well-wrung sponge. Decaying organisms function best in an aerobic (air-filled) environment. Too much moisture will force out air and suffocate beneficial organisms.



Wooden Box Bin can be built inexpensively using wooden pallets, or from lumber to make a nicer looking bin.

Cinder Block Bin sturdy, durable, and easily accessible.



Wire Mesh Bin

Inexpensive and easy to build from galvanized hardware cloth.

- 12’ x 48” wide 1/2” hardware cloth
- heavy wire for ties
- optional wooden or metal posts may be added

Greens	Browns	Do not compost
<ul style="list-style-type: none">• Fruit wastes• Spent annuals• Grass clippings• Manure• Vegetable peelings• Coffee grounds	<ul style="list-style-type: none">• Comstalks and cobs• Evergreen needles• Paper• Sawdust• Wood chips• Straw and hay• Most tree leaves	<ul style="list-style-type: none">• Diseased plants• Insect-infested plants• Meat, fish, bones or fats• Cat or dog feces• Tropical bird feces• Pot bellied pig or human waste• Weeds gone to seed• Invasive weeds

The best disposal method

The best method to dispose of pet waste is to bury wastes around your ornamental plants, shrubs, and trees. Dig a hole about 1 foot deep. Put 3 to 4 inches of pet waste at the bottom of the hole, and use a shovel to mix the wastes into the soil. Cover the wastes under at least 8 inches of soil to keep rodents and pets from digging it up. **NEVER BURY PET WASTE IN AREAS WHERE FOOD WILL EVER BE GROWN.**

Pet waste can also be flushed down the toilet; **HOWEVER**, cat litter must **NEVER** be put in the toilet. It is acceptable to double-bag pet waste in plastic and place it in the garbage



Manure Management

- Clean up manure every 1-3 days.
- Reduce the amount of bedding used in stalls. Manure itself has almost the perfect carbon to nitrogen ratio.
- Select a location for the compost pile away from water sources on a level area.
- For 1-5 horses try a three bin system. Fill the first 4’ x 4’x 4’ bin with manure, then move to the second bin.
- Cover the manure pile to reduce nutrients from being washed into waterways or soaking into the soil and into the ground water. You could cover with a tarp or build your compost bin with a cover and a concrete floor. Follow the steps in this brochure for backyard composting. Your pile will need to be aerated and watered. Since manure is heavy and hard to turn, try inserting perforated pipe to increase aeration to the inside of the pile. Without the pipe, passive aeration only penetrates the pile about eighteen inches. After two to four months, the first bin should be done composting and ready to use.

Mulching it Over

In an old growth forest, plants have a thick layer of mulch around them. This mulch is a mixture of dead herbaceous plants, leaves, a few sticks and twigs, a very small percent of manure, and dead animal life. At home, you can mimic the natural system with much made from wood chips, leaves, or compost

Mulch is any material, such as wood chips, grass clippings, leaves or compost that is spread over the surface of soil.

Applying organic mulch is one of the best things you can do for your garden. It reduces evaporation from the soil surface, keeps down weeds, and keeps soil temperatures from becoming too hot or too cold. Mulch also protects sloping ground from soil erosion. In addition, mulch provides ideal conditions for worms and other soil organisms that are necessary for a healthy soil.

Make mulching a part of your planting process. Layer newspaper over the weeds and spread a layer of mulching material, keeping it away from tree trunks, and stems.

The finer the mulch the thinner you should layer it. One inch of sifted compost or grass clippings is more than enough. Wood chips, leaves, and unsifted compost should be 2 to 3 inches thick.



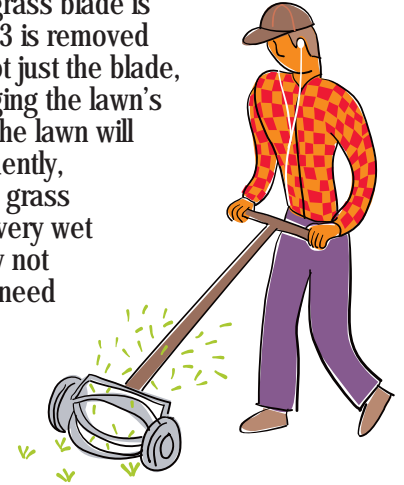
Grasscycling

Grasscycling is the practice of leaving grass clippings on the lawn instead of raking or bagging them, saving time, money and improving the health of the lawn.

Because they are 85% water, the clippings break down quickly returning their considerable load of nitrogen to the soil and adding organic matter that enhances soil structure and texture. Nitrogen is especially important to stimulate heavy populations of beneficial bacterial organisms. A program of sustainable turf management, which includes grasscycling, can dramatically reduce water and fertilizer usage.

Northwest lawns should not be cut shorter than 2 1/2" to 3 1/2".

Taller grass blades form longer root systems, shade the grass roots and preserve soil moisture. Cutting too short will cause grass plants to form shallow root systems that require more water, tolerate heat poorly and promote the formation of thatch. Thatch can be described as a tightly intermingled layer of partially decomposed stems, roots and some blades of grass. Stems and roots are more resistant to decay than grass blades and contribute most to thatch development in all grass varieties. The lawn should be mowed frequently to ensure that not more than 1/3 of the grass blade is removed. When more than 1/3 is removed the grass stem may be cut, not just the blade, stressing the plant and damaging the lawn's appearance. This may mean the lawn will need to be mowed more frequently, particularly in the spring when grass grows rapidly. When grass is very wet or very long, grasscycling may not be effective and clippings will need to be composted or used as mulch in the garden.



Manually powered reel mowers are the best mowers for turf health. They give a cleaner cut to the grass blades than do rotary gas powered mowers. They are also clean and emission free while gas powered mowers are a major contributor to air pollution.

Mulching mowers do have the advantage of cutting the grass clippings into finer pieces, thereby enabling them to decompose more rapidly. Mulching mowers also blow the clippings to the soil surface rather than allowing them to rest on top of the grass plants. An inexpensive alternative to purchasing a mulching mower is to replace the existing blade of a rotary mower with a mulching blade, which also cuts the clippings into fine particles. It is important to keep all lawnmower blades sharp so that the grass blade is cleanly cut and not torn off.

Good turf management practices also involve annual core aeration of the lawn and compost top-dressing. Core aerators remove soil plugs about the size of your little finger, enabling oxygen to reach the grass roots and helping to loosen compactions. Compost top-dressing feeds beneficial soil organisms and helps the soil to retain moisture and nutrients. Top-dressed lawns use far less water and, when grasscycling is practiced, require far less fertilizer than do lawns not manage using these practices.

