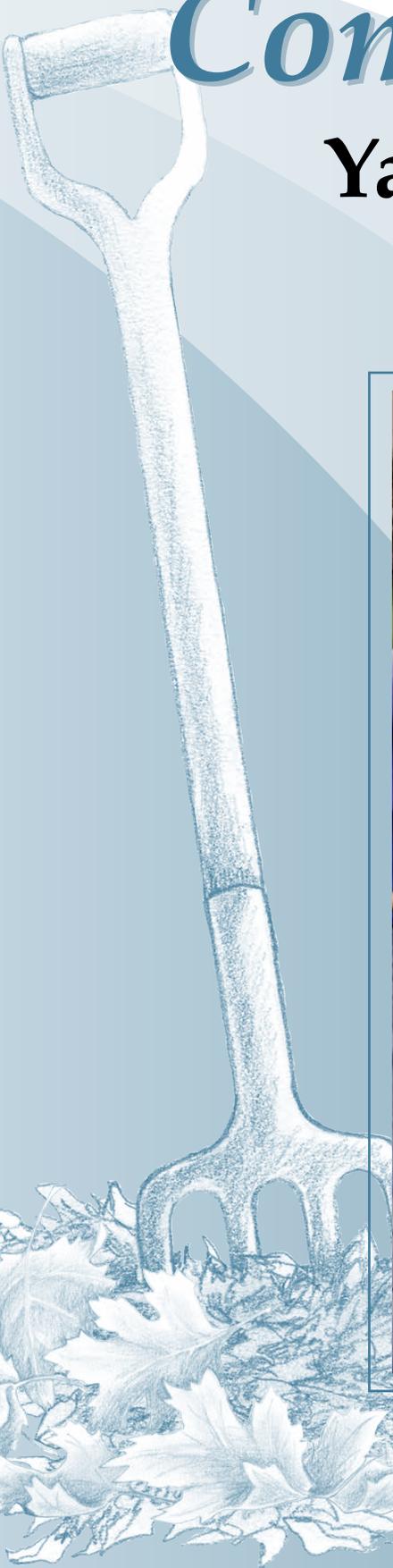


THE NATURAL LAWN & GARDEN
Healthy Landscapes for a Healthy Environment

Composting

Yard and Food Waste *at Home*





COMPOSTING AT HOME

GOOD FOR YOUR GARDEN—AND THE ENVIRONMENT!

Composting yard waste and kitchen scraps is one of the best and easiest things you can do to reduce waste and grow a healthy, sustainable garden. Using compost in your garden recycles nutrients and organic matter that help grow trouble-free plants with less water, fertilizer or pesticides. Compost also builds healthy soil that absorbs and filters runoff, protecting streams from erosion and pollution.

Composting at home can also save you time and money. You won't have to bag and drag yard waste to the curb for collection, pay to have it trucked to composting facilities or buy finished compost. Composting your food scraps keeps them out of costly landfills and reduces your garbage bills.

The following methods for composting your yard and kitchen scraps are described in this guide:

- ◆ Composting yard waste in piles, bins and turning systems.
- ◆ Pest-resistant composting of kitchen scraps using worm bins, food digesters and garden burial.

Additional methods of recycling organic wastes at home are described in two other guides:

- ◆ *Growing Healthy Soil** describes how to use garden trimmings as mulch to conserve moisture and build soil. It also explains how to use finished compost as mulch or to amend soil.
- ◆ *Natural Lawn Care** explains how to leave grass clippings on lawns to fertilize and improve your soil, and build healthy turf.

Read on to learn all about composting! Then call the WSU Master Gardener Hotline at (425) 357-6010 if you have questions or need other guides. Refer to the Resources section for bin building plans.



Photograph by Peggy Campbell

YARD WASTE COMPOSTING

There are lots of ways to make good compost—the best method is the one that is most convenient for you. Some common methods of composting yard waste are described below. Food scrap composting options are described starting on page 7.

METHODS

Most garden waste (leaves, grass clippings, stalks and sticks, etc.) can be easily composted in simple bins without pest or odor problems—but only if food scraps are not added. Food scraps can create bad odors and attract flies, rats and other pests. The following systems are ideal for composting yard waste. Refer to the Resources section for additional information on these methods.

- ◆ **Piles** are the simplest composting method, requiring no special tools or bins. However, open piles can easily become too wet if uncovered, can dry out, or can be disturbed by pets or other animals.
- ◆ **Holding bins** neatly contain composting materials, ward off animals and keep in moisture for efficient decomposition. Many types are available in stores, online and in mail-order catalogs. They can also be made from wood pallets, wire fencing or hardware cloth, cement blocks, or other recycled materials.
- ◆ **Turning systems** are designed for quick, hot composting to handle large amounts of material. To make compost turning easy, use a series of bins or a rotating barrel.
- ◆ **Mulching and grasscycling** are great ways to reuse yard trimmings in the garden. See the *Growing Healthy Soil* and *Natural Lawn Care* guides* for details on these practices.

*Refer to the back cover for a list of all Natural Lawn & Garden guides and how to obtain them.

COMPOST. IT'S IDEAL FOR YOUR GARDEN!

Reducing waste is just the beginning of benefits from composting at home. When you use the finished compost in the garden the savings of time, effort and money just keep growing!

- ◆ **Soil amendment.** Mixing compost into the soil before planting improves every type of soil and makes every plant grow better. Compost helps sandy soil hold water and nutrients. Compost also loosens clay soil so water is absorbed and drains better, roots can spread, weeds are easier to pull, and plants and soil life can breathe. Two to four inches of compost mixed into the top eight inches of soil throughout planting areas will make a difference for years to come.
- ◆ **Mulch.** An inch or two of compost spread on planting beds helps smother weeds, keeps moisture in the soil, and feeds valuable soil life and plants as it breaks down.

For more information on how to use compost in your yard and garden, see the *Growing Healthy Soil* guide.*



SECRETS FOR SUCCESSFUL YARD WASTE COMPOSTING

It's not a secret—simply place garden waste in a pile and bacteria, bugs and fungi will turn it into compost—but it may take a year or longer. For quicker composting, provide the decomposer organisms with proper food and conditions:

- 1. A balanced diet.**
Composting bacteria thrive on a mix of succulent “greens,” like fresh grass clippings, annual weeds, and flowers, and on woodier “browns,” such as autumn leaves and corn stalks. An equal mix of greens and browns works well. Too many greens can produce a smelly, soggy mess. A pile that is mostly browns takes a long time to decompose. The chart below lists common greens and browns.
- 2. Bite-sized pieces.**
Decomposers can break down small pieces quicker than large ones. For rapid composting, chop woody stalks with a shovel or machete, run over them with a lawn mower, or put them through a shredder.
- 3. Moisture.**
Materials should be moist but not dripping wet—like a wrung-out sponge. Spray and mix dry trimmings as they are added to the pile. Keep compost piles in the shade and cover open piles with plastic.
- 4. Fresh air.**
If materials are too wet or compacted, composting will slow down and may create bad odors. Start with a good mix of materials including some coarse stalks or sticks so air can flow through. Let air into soggy piles by turning them and mixing in coarse stalks or dry straw.
- 5. Pile size.**
A pile that is one cubic yard (3 x 3 x 3 feet) is ideal. Smaller piles dry out quickly, though bins with solid sides and a lid help keep small piles moist. Larger piles may need to be turned to let air into the middle.
- 6. Preventing pests and other problems.**
Use the chart below to avoid materials that may attract pests, create odors or cause other problems.

BE SURE TO USE AN EQUAL MIX OF “GREENS” AND “BROWNS”

GREENS	
DO compost	Do NOT compost at home
✓ Fresh grass clippings	✗ Clippings recently treated with “Weed & Feed” or other herbicide—put in curbside yard waste collection.
✓ Fresh garden trimmings, flowers and plant leaves	✗ Insect-infested or diseased plants—put in curbside yard waste collection.
✓ Barnyard aged manure (horse, cow, chicken)	✗ Pet feces (dog, cat, rodent, exotic bird)—wrap in plastic bag and put in garbage.
✓ Garden vegetable leaves and stalks, fallen fruit	✗ Meat, fish, poultry, dairy products, cooked vegetables and fruit—see page 7.
✓ Weed leaves, stems and flowers	✗ Weed seed heads and roots of spreading weeds like ivy, buttercup, morning glory and quackgrass—put in curbside yard waste collection.
✓ House plants and potting mix	✗ Insect-infested or diseased plants—put in curbside yard waste collection.

BROWNS	
DO compost	Do NOT compost at home
✓ Autumn leaves	✗ Large amounts of evergreen leaves, needles or cones
✓ Twigs and stalks	✗ Branches over 1/2 inch diameter; thorny stems and leaves
✓ Coarse sawdust or shavings (small amounts)	✗ Sawdust from plywood, treated or painted wood
✓ Shredded paper, cardboard, paper towels, napkins or tissues	✗ Coated photo or copy paper, colored paper, waxed cardboard



RECIPES FOR COMPOSTING YARD WASTE

There are many ways to make good compost. Here are two basic recipes to help you get started. Choose the recipe that suits the amount of time and effort you want to spend.

QUICK AND HOT COMPOST

Made in batches that are ready to use in 2 to 3 months.

Ingredients: enough to make a 3 x 3 x 3 foot pile, or fill a bin.

- 3 to 4 heaping wheelbarrows of fresh “greens.”
- Do not use “Weed & Feed” treated grass clippings.
- 3 to 4 heaping wheelbarrows of “browns.”
- Water.

Steps:

1. Chop or shred coarse materials with a pruner, machete, shovel, lawn mower or shredder.
2. Put an equal mix of “greens” and “browns” on a tarp or on the ground.
3. Mix and spray materials with water until they glisten. Or just mix and moisten materials as you fill the bin.
4. Load mix into bin or stack in pile until bin is full.
5. Check heat in **middle of pile** by using a compost thermometer or by touch. Ideally, the middle of the pile should heat up to 110° to 140°F—too hot to touch!
6. When the pile has heated and starts to cool (5 to 10 days), pull it apart and restack, turning materials from the outside edges into the middle and hot stuff from the middle out to the top and sides. Moisten as needed to keep everything as moist as a wrung-out sponge. If pile does not heat up, check the Troubleshooting chart below.
7. Monitor pile and turn again when it cools. Cover and let cure for 8 weeks or more before using. It’s ready when most material is dark, crumbly and sweet-smelling like soil.

COOL AND EASY COMPOST

*Built continuously as materials are available.
Ready in 6 to 18 months.*

Ingredients:

- Equal amounts of “green” and “brown” yard trimmings, as available.
- Do not use “Weed & Feed” treated grass clippings.
- Water.

Steps:

1. Put yard trimmings in bin as picked up from yard. Mix and moisten dry materials as they are added. Chop tough stalks using a machete or spade.
2. Cover with plastic or bin lid after each addition.
3. Dig into pile occasionally. If materials in the middle of the pile are not decomposing, check the Troubleshooting chart below.
4. In 6 to 18 months pull aside fresh materials to harvest dark, crumbly, sweet-smelling finished compost at bottom of pile. Return undecomposed materials to bin.



TROUBLESHOOTING COMPOST

SYMPTOMS	CAUSE	SOLUTIONS
Smells like rotten eggs or garbage	Pile is too wet	Turn pile and add dry stalks, leaves or straw.
	Food or pet waste in pile	Remove food scraps and pet waste.
Pile is dry inside	Not enough water	Turn and moisten materials, cover pile.
	Pile is too small	Add material to fill bin or make 3 x 3 x 3 foot pile.
	Too much woody material	— Mix in fresh greens or nitrogen fertilizer such as urea, blood meal or chicken manure. — Chop or remove coarse woody materials.
Pile is damp inside, but not composting	Lack of greens	— Mix in fresh greens or nitrogen fertilizer. — Chop or remove excess woody material.
Pile has shrunk, but looks undecomposed	Outside of pile is dry, inside probably composted	Check in pile for finished compost. Use undecomposed material in new batch.
Clumps of slimy grass, ammonia smell	Too much fresh grass	Leave clippings on lawn, or mix in additional brown leaves or straw.

FOOD SCRAP COMPOSTING

Food scraps can be a great source of nutrients for the garden. However, they are also attractive to disease-carrying pests like rats and must be composted with care. Food scraps should only be composted in systems that keep out rodents and other pests. Meat, fish, poultry, dairy products and pet wastes should not be composted in any system at home—they break down slowly, create bad odors and attract pests.



METHODS

There are three simple and reliable methods to compost food scraps without pests:

- ◆ **Worm bins** are a fun and interesting method for composting food scraps to produce rich compost and worms for fishing.
- ◆ **Burying food scraps** in the garden is a simple method requiring no special tools.
- ◆ **Food “digesters”** provide a convenient and pest resistant way to compost food scraps.



HOW DO I STORE FOOD SCRAPS IN THE KITCHEN?

A stainless steel or plastic container with a lid is great for storing scraps in the kitchen until you are ready to take them outside. Empty the container into your worm bin, hole in garden or digester every two days so food scraps don't start to smell.

A 5-gallon bucket with tight lid can be used outside to store food scraps for longer periods if it is inconvenient to add them to the compost, but odors and flies may become a problem—especially in summer. Sprinkling an inch or two of shredded newspaper or sawdust on top of layers helps prevent flies and odors.

Food scraps can also be stored in a plastic container in the freezer to control these problems. Do what works best for you.

INGREDIENTS FOR FOOD SCRAP COMPOSTING

GREENS	BROWNS (bedding)
✓ Fruit and vegetable trimmings	✓ Newspaper, cardboard
✓ Bread and grains	✓ Fall leaves
✓ Coffee grounds, coffee filters, tea bags	✓ Clean sawdust or shavings
✓ Fruit from yard	

Do NOT compost or bury

- × Meat, fish, poultry or dairy products—put in disposal or trash.
- × Pet wastes—bag in plastic and put in trash.
- × Evergreen leaves
- × Sawdust or shavings from painted or treated wood
- × Coated paper



METHOD 1: WORM BIN COMPOSTING

Worm bins are a fascinating way to turn food scraps into high-quality compost. Follow these easy steps to start your own worm bin. Check out Mary Appelhof's book *Worms Eat My Garbage* for more detailed information on composting with worms.



Step 1. Get a bin.

Use a sturdy wood or plastic box with a tight-fitting lid to keep pests out and moisture in. Holes drilled in the bottom are essential for drainage. Drill holes near the top of all sides for added ventilation; cover large holes with mesh to keep flies out. A box about 18 inches deep is best, since worms must live near the surface to breathe. Worm bins can be made from old cupboards or crates, or built with plywood. Bins made from recycled plastic are available online or through mail-order catalogs. Refer to the Resources section for additional information.

Worm bins should have one square foot of surface for each pound of food added per week. A bin 2 x 4 x 1 foot deep can process about 8 pounds of food scraps a week—usually enough for two people. Weigh your food scraps for a few weeks before buying or building a bin.

Cold winter weather and hot summer temperatures can dramatically slow worm composting. If bin is kept outside, find a spot that is shady in summer but gets some winter sun. Outdoor bins can be insulated with rigid foam insulation tacked to the lid and sides. Worm bins can be kept in a basement or enclosed garage if set on a drip tray.

Step 2. Fill the bin with bedding.

Carbon-rich bedding supplies worms with a balanced diet and helps prevent flies and odors. Good beddings include moist autumn leaves, shredded cardboard or newspaper, or straw—a mix of these works best. Immerse dry bedding in a garbage can full of water for several minutes before adding to worm bin, or mix and spray with hose until everything is moist like a wrung-out sponge. Fill the bin to the top with loose bedding to keep the worms from freezing in winter or getting too hot in summer. (Tip: save up a few bags of leaves each fall to rebed your bin later.)

Step 3. Add worms.

Red worms, also known as “red wigglers” or “manure worms,” are used for composting. These are the worms often used as fish bait. “Earthworms” or “night crawlers” are not suitable for composting. Start with about a pound of worms (about one pint of pure worms). Get red worms from a friend’s bin or refer to the Resources section for local sources.

Step 4. Bury food scraps.

Pull aside bedding to make holes or trenches large enough to lay food scraps 1 to 2 inches thick, and deep enough to cover scraps with a few inches of bedding. Bury in a different spot each week to give the worms a balanced diet of food scraps and bedding. Place a sheet of plastic or moist newspaper on top of the bedding to keep moisture in and flies out.

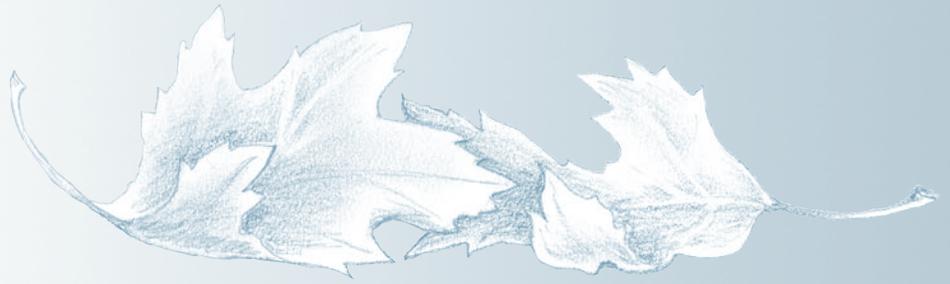


STACKABLE WORM BINS

A number of worm bins are for sale that use stacking trays to take advantage of the worms' tendency to feed on the surface and migrate out of finished compost.

The top tray is fed fresh food scraps. When material in the bottom level is decomposed and worms move up into fresh materials, the tray is removed, harvested and then rebedded and replaced on top.

For more information, refer to the list of books and websites in the Resources section.



Step 5. Harvest compost and worms.

After 6 to 12 months, most of the bedding should look like dark, rich soil. To harvest compost and rebed the bin, push the compost to one side of the bin (it shrinks as it composts) and fill the empty side with fresh bedding. Then bury food scraps only in the new bedding until food scraps in the old bedding finish decomposing and most worms have migrated to the fresh food. Harvest finished compost and replace with fresh bedding.

To harvest worms to start new bins, shovel a few gallons of the compost into a pile in bright daylight. After 15 minutes, scrape away the outer layer of compost until many worms are visible. Repeat until worms are concentrated at the bottom of the pile.

TROUBLESHOOTING WORM BINS

SYMPTOMS	CAUSE	SOLUTION
Smells like rotten eggs or garbage	Too wet	Mix in dry leaves, shredded newsprint or sawdust.
	Meat, fish, dairy or pet waste in bin	Keep food scraps and pet waste out.
	Food scraps not covered	Cover food with bedding when added.
Bedding is dry, few worms	Not enough water	— Mix and moisten bedding, cover with plastic or moistened cardboard. — Move bin out of sun.
Food scraps building up	Too much food	— Limit food scraps. — Add more worms. — Build another bin.
	Bin too cold or too hot	— Move bin to cool basement or garage. — Keep bin filled with bedding.
Maggots in bin	Meat, dairy or other animal products	— Keep animal products out of the bin. — Cover bedding with cardboard or plastic.
Fruit flies swarm out when bin opened	Exposed food scraps	Always cover food scraps with bedding. If you still have fruit flies, add an inch of sawdust or moistened shredded newsprint to top of the bedding, or cover bedding with cardboard or plastic.
Worms crawling up sides of bin	Too much food, bedding too wet or fully decomposed	— Limit food scraps or build another bin. — Add dry bedding.

Still having trouble? Call the WSU Master Gardener Hotline at (425) 357-6010—they're the experts!—or email them at MG.help@wsu.edu.



METHOD 2: BURYING FOOD SCRAPS IN THE GARDEN

Burying food scraps at least 8 inches deep in the garden is a safe and easy way to compost. Garden soil provides a natural barrier that keeps out flies and other pests, and holds in moisture and odors. Just follow these simple steps:

Step 1. Select a spot.

Food scraps can be buried in empty areas of vegetable and flower gardens, or in holes outside the drip line (below the ends of branches) of trees and shrubs.

Step 2. Dig a hole.

Use a shovel or post hole digger to dig a hole or trench about 1 foot deep.

Step 3. Add food scraps.

Add 2 to 3 inches of food scraps to the hole. Chop and mix scraps into soil.

Step 4. Cover with soil.

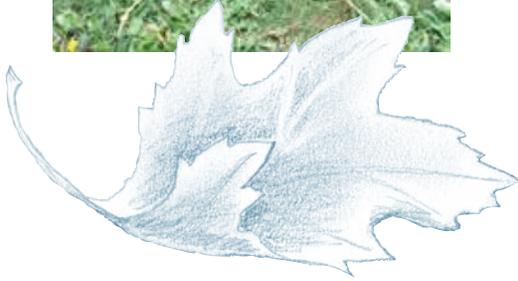
Cover food scraps with at least 8 inches of soil to keep pests out.

Step 5. Watch for pests.

Check for signs of digging by rodents, dogs or other pests. If you see signs of digging, it may be better to switch to a digester or worm bin that excludes pests.

Step 6. Plant.

Food scraps may take from 1 to 6 months to decompose depending on the season, moisture, soil and what is buried. Seeds and small seedlings may be planted on top of buried food scraps immediately. Large plants should not be planted until food has decomposed.



METHOD 3: FOOD DIGESTERS

Food digesters are partially buried metal garbage cans or other containers with tight-fitting lids, and holes or mesh screens in the bottom providing access to the soil. Digesters provide more protection from pests than garden burial and require less work than digging holes for burial or maintaining a worm bin. Follow these steps to start a digester:

Step 1. Get a digester (or two).

Digesters can be purchased through many garden supply catalogs, and building plans are available online for homemade food digesters. Refer to the Resources section for more information. Using two digesters makes management easy. One digester can be fed for active composting, while compost in the second finishes decomposing before harvest.

Step 2. Select a spot.

Find a convenient spot in the garden that has at least 18" of well drained soil. If your soil drains poorly, consider building a mound of soil to set the digester in.

Step 3. Dig a hole (or two), and install digesters.

Use a shovel to dig a hole large enough to bury the base of the digester 17 inches deep, or according to the manufacturer's instructions.

Step 4. Add food scraps and cover material.

Add layers of food scraps as they are generated. Covering each addition of food with a thin layer of shredded paper or sawdust helps to speed composting and reduce flies, though it is not essential.

Step 5. Harvest.

Digesters can be fed for 6 to 12 months before they are full of food scraps. If you have two digesters, when the first is full, stop using it, and use your second digester for the next 6 to 12 months. When the second digester is full, shovel the finished compost out of the first unit for use in the garden, and begin using that unit again. If you only have one digester, shovel the compost and decomposing food scraps out of the digester when it gets full, and bury them in the garden.



COMPOSTING RESOURCES

WSU SNOHOMISH COUNTY EXTENSION

- ◆ **Master Gardener Hotline.** Call (425) 357-6010 or email: MG.help@wsu.edu.
- ◆ **Master Gardener Clinics.** Email or visit a clinic around the county to inquire about composting options. For clinic locations, call (425) 357-6010, email: MG.help@wsu.edu or visit <http://snohomish.wsu.edu>.
- ◆ **Gardening Fact Sheets.** Download free fact sheets (FS) by visiting <http://tinyurl.com/WSUfactsheets>.
 - FS #12 Composting
 - FS #23 Composting with Worms

BOOKS FOR GARDENERS

- ◆ *Let It Rot* by Stu Campbell; Storey Books, 1998.
- ◆ *Mulch It!* by Stu Campbell; Storey Books, 2001.
- ◆ *The Rodale Book of Composting: Easy Methods for Every Gardener* edited by Grace Gershuny and Deborah Martin; Rodale Press, 1992.
- ◆ *Worms Eat My Garbage: How to Set Up & Maintain a Worm Composting System* by Mary Appelhof; Flower Press, 2003.



RED WIGGLER WORM SOURCES

- ◆ **Seattle Tilth.** Good Shepherd Center, 4649 Sunnyside Ave N., Suite 100, Seattle WA 98103. For prices and hours, visit www.seattletilth.org or call (206) 633-0451 or email: tilth@seattletilth.org.
- ◆ **Yelm Earthworm and Castings Farm.** To order worms, visit www.yelmworms.com.

WEBSITES

- ◆ **Natural Resource Conservation Service:** www.nrcs.usda.gov and search for “Backyard Composting.”
- ◆ **Seattle Tilth:** www.seattletilth.org and search for “Compost.”
 - Compost bins—Download bin plans. Learn about commercially available options.
 - Troubleshooting tips.
 - Local sources for purchasing finished compost.
- ◆ **Snohomish County Solid Waste:** www.snoco.org.
 - search for “Composting Food Scraps.”
 - search for “Recycling” to find where to dispose of excess clean yard waste and wood.





For a worm bin, use an 18-inch deep wooden or plastic box with a tight fitting lid.

TO REQUEST A NATURAL LAWN & GARDEN GUIDE, CONTACT:

- ◆ **Snohomish Conservation District**
(425) 335-5634, www.snohomishcd.org
- ◆ **Snohomish County Public Works, Surface Water Management Division**
(425) 388-3464, www.naturalyard.surfacewater.info
- ◆ **WSU Snohomish County Extension Master Gardeners**
(425) 357-6010, www.snohomish.wsu.edu
Email: MG.help@wsu.edu

NATURAL LAWN & GARDEN GUIDES:

- ◆ Composting at Home
- ◆ Choosing the Right Plants
- ◆ Growing Healthy Soil
- ◆ Natural Lawn Care
- ◆ Natural Pest, Weed & Disease Control
- ◆ Natural Yard Care (summary)
- ◆ Smart Watering
- ◆ The Plant List

FOR ADDITIONAL INFORMATION, VISIT:
www.naturalyardcare.org



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Información sobre el Título VI y sobre la Ley de Americanos con Discapacidades (ADA por sus siglas en inglés): Es la política del Condado de Snohomish asegurar que ninguna persona sea excluida de participar, se le nieguen beneficios o se le discrimine de alguna otra manera en cualquier programa o actividad patrocinada por el Condado de Snohomish en razón de raza, color, país de origen o género, conforme al Título VI de la Enmienda a la Ley de Derechos Civiles de 1964. Comuníquese con el Department Title VI Coordinator (Coordinador del Título VI del Departamento) al correo electrónico spw-titlevi@snoco.org, o al teléfono 425-388-6660 si tiene preguntas referentes al Snohomish County Public Works' Title VI Program (Programa del Título VI de Obras Publicas del Condado de Snohomish), o para servicios de interpretación o traducción para los no angloparlantes, o para pedir que los materiales se hagan disponibles en un formato alternativo. Los que tienen necesidades comunicativas especiales pueden llamar al 711.

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