# the dirt on COMPOST



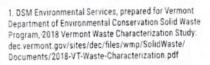
**DEPARTMENT OF ENVIRONMENTAL CONSERVATION** 



#### Did you know?

Almost 20 percent of all Vermonters' landfilled waste is food scraps that could have been composted.

If thrown in the trash, they release methane, a greenhouse gas 34 times more powerful than carbon dioxide², while decomposing in the anaerobic conditions of a landfill.



Intergovernmental Panel on Climate Change (IPCC) 2013
 Working Group Assessment Report: climatechange2013.org/ images/uploads/WGIAR5\_WGI-12Doc2b\_FinalDraft\_All.pdf

# WHAT IS COMPOST?

In a forest, leaves, logs, and dead animals pile up, rot, and make fertile soil. It happens naturally. Home composting is a way to manage this process; either in a passive, hands-off manner, mimicking the natural process of the forest floor; or by adding inputs and turning material regularly to hasten the process.

In this booklet, we'll describe many ways to compost food scraps in your backyard. There are a few key ingredients and a variety of approaches to make the process go smoothly. Whether you have never composted before, or you're a 20-year composting conqueror, you'll find tips and strategies to help you along.

## VERMONT'S UNIVERSAL RECYCLING LAW

Vermont's Universal Recycling law, Act 148, bans all food scraps from the landfill starting July 1, 2020. This mandate refers to all Vermonters — businesses, grocery stores, schools, offices, cities, events, and residents. The law passed unanimously in 2012 and has been implemented in phases since 2014.

Backyard composting is an inexpensive, fun, and simple way to create a wonderful soil amendment for your lawn and garden while keeping your

household in compliance with the law. This booklet will help you get started (or improve) composting in your backyard, but if you don't have the space, or can't do it for any reason, there are other options, including:

- All Vermont's transfer stations accept food scrap drop-off, often for a fee.
- Haulers offering bag drops and "fast trash" also accept food scraps for a fee.
- Commercial compost companies, such as Grow Compost or Vermont Compost Company, accept food scrap drop off for free.
- Join (or start) a neighborhood community composting site and learn to make compost together to apply on a community garden.
- Share space with a neighbor! Invite your neighbors to join you in composting in your backyard, or see if someone near you will let you bring your food scraps to them. Gardeners love having extra compost.

SHRED IT! Chop your food scraps and organic matter (leaf litter, etc) into small pieces before composting. Cut or shred food scraps by hand, and run a lawn mower over leaves; you'll expose more surface matter of your materials, which accelerates the compost process. FREEZE ITE If you are holding onto food scraps to drop off somewhere, keep them in a bag in your freezer to eliminate smells. If you compost at home, dump your kitchen compost pail every 2 days and you won't even notice it's there!

#### Can I compost meat?

Best practice is keep meat and bones out of the compost. Doing so will keep odors down and wildlife at bay. You still have several options for meat and bones:

- Use a green cone (learn more at cvswmd. org/green-cones)
- Drop off meat scraps at a local transfer station or commercial composting facility.
- Bury bones in your garden by digging 18"
   -2' deep and covering with soil.
- Add to trash (Act 148 does not ban meat scraps from the landfill for homecomposters; it does for businesses).

See local food scrap drop off options at: https://anrmaps.vermont.gov/websites/Organics/default.html



### **GETTING STARTED**

If you are new to composting, start with a self-assessment.



How much SPACE do you have?



· How much TIME do you have?



How much ENERGY do you have?



- How much do you care about producing QUALITY COMPOST (versus finding a convenient way to keep food scraps out of the trash)?
- Will you USE the compost you create, or will you need to find someone to take it?

Keep your answers to these questions in mind as you think about the kind of system that makes the most sense for you and your lifestyle. It doesn't matter if you cold-compost, hot-compost, or anywhere in between, as long as it works for you!

#### WHAT GOES IN? WHAT STAYS OUT?

Anything that has ever been alive can be composted. That includes vegetable peels, coffee grounds, leaves, egg shells, dairy, citrus peels, small sticks, leaves, wood chips, etc. Start by keeping meat scraps out of your compost bin, but there are options (such as transfer station drop-offs or a green cone) for those as well.

#### What goes in? Greens and Browns

"Green" ingredients are wetter and nitrogen rich, such as food scraps, grass clippings, or fresh plant parts. Greens are:

- · Fruit and vegetable scraps
- · Coffee grounds or tea bags
- · Grass and shrubbery clippings
- Green yard plant parts, such as yard waste or weeds

"Brown" ingredients provide carbon. Add three times as many browns as greens to your pile for a 3:1 ratio. Browns are:

- Dead plants, weeds and clippings
- · Leaves (raked in fall)
- · Small sticks
- · Straw and hay

#### Pro Tip

Remember to remove PLU stickers, twist ties and elastic bands from food scraps before composting.

 Wood shavings or chips

 Shredded newspaper, cardboard, office paper

#### What stays out?

- Meat, bones, fish scraps (unless you are a pro)
- Yard plants that seem diseased
   — when in doubt, leave it out
   (make a separate pile away
   from your garden)
- Anything treated with pesticides
- · Weeds that have gone to seed
- Pet waste, which can carry diseases (you can use a green cone for pet waste)
- Cut flowers from a florist (these contain fungicides, which can slow or stop the composting process)

#### Carbon to nitrogen ratio: why it matters

Food scraps turn into compost because microorganisms break them down. The microorganisms need materials, such as greens and browns, for energy while they break down your organic matter. The ideal carbon to nitrogen ratio is 30:1. This does not mean you add 30 times more carbons to nitrogen. It does roughly translate to 3 times more browns than greens.



Keep a stock pile of dry leaves or wood shavings in a covered bin near your compost pile. For every container of food scraps, add three containers of browns.

### 8 TYPES OF COMPOST CO

#### 1. The Pit

Dig a hole at least 1 foot deep; throw your food scraps into it; cover with soil and you are finished. You can plant on top of the compost pit almost immediately. More info: wikihow.com/Make-a-Compost-Pit.

PROS: Easy peasy! No pile turning, no need for a supply of browns. Good for small spaces, gardeners, people who don't like to manage a full pile.

CONS: Must dig a new pit regularly. Digging isn't an option in winter.

#### 2. The Trench

Same idea as The Pit, but you start by digging a trench 1-2 feet deep, typically within a garden. Add food scraps and cover as you go, slowly filling in the trench one day at a time. Once you've filled and covered the trench, plant seeds or transplants directly on it. More info: instructables.com/id/Trench-compost.

PROS: Easy, perfect for gardeners and small spaces; can continually add plants throughout growing season.

CONS: Must dig a new trench regularly. Digging isn't an option in winter.

#### 3. The Trash Can

A great option for winter. Use a lidded trash bin. Drill 1" holes about 12" apart evenly around the bin to promote airflow. Start the bin with "browns" such as leaves or wood shavings. Add food scraps and alternate with browns. Cover tightly and roll on its side weekly. If using only for winter, dump contents into your compost bin in the spring. If not, continue adding material until bin is full, then let sit for 2-3 months before harvesting. More info: thebalance.com/howto-make-a-compost-bin-froma-garbage-can-1388581.

PROS: Great way to compost in winter, easy and inexpensive. Keeps food scraps contained before adding to a bigger pile.

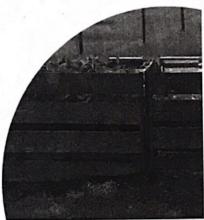
CONS: Food scraps may not fully compost. This system may require finishing the compost process in a regular bin or compost pile.

#### 4. The Pallet Bin

Get three loading pallets from a local warehouse or grocery store. Wire them together at the corners leaving one side open. Add onto this to create a 2- or 3- bin system. Line the bottom and sides of the bin with ¼" or ½" hardware cloth and add a hardware cloth lined pallet door and lid to deter animals. More info: instructables.com/id/Pallet-Compost-Bin.

PROS: Inexpensive and easy; start composting right away. Built-in aeration due to gaps in pallet construction.

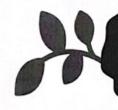
CONS: Easy access for pests unless using hardware cloth. Must manage compost pile with adequate "browns" and turn regularly to deter animals.



#### Basic steps for composting

- · Food scraps go in.
- Add 3 times as many "browns" (carbons, such wood shavings) as "greens" (food scraps).
- Turn the pile to mix ingredients on a regular basis.
- Keep the pile as damp as a freshly squeezed sponge.
   If it gets too dry, you can always add water.

### **NTAINERS**



Consider combining methods to span the seasons. What works best for you in summer may not work in winter.

#### 5. The Tumbler

Tumblers are great for small households that do not produce much food waste, or as a first step in a compost system that finishes in a bin. People love tumblers because they're fully enclosed. Put your food scraps in and turn! However, if not properly managed, tumblers can be problematic. See page 12 for tips on successfully composting with a tumbler. More info: growveg.com/guides/the-prosand-cons-of-compost-tumblers.

PROS: Enclosed system deters animals.

CONS: Requires regular management, doesn't always work. May need to finish composting process in a separate bin.

#### 6. The Multi-Bin System

Use untreated lumber to make a two- or three-bin system. Hemlock, locust or cedar are ideal. Line the interior and bottom with hardware cloth to keep pests out, and add a door and lid. Plans are available at: cvswmd.org/homecomposting

PROS: Rotating materials through the three bins allows for aerating and curing, and leaves space for storing browns. Great for winter composting because of the ample space needed when materials freeze and don't break down quickly.

CONS: Requires time to set up, and a time investment for regular management of the system.

#### 7. The Store-Bought Composter

There are many styles of manufactured bins, including tumblers. Choose one that works with your house and fits with your neighborhood sensibilities. TIP: choose a style that is at least 3' in diameter for hest results.

PROS: A pre-made bin means you can start immediately and is typically easy to set up.

CONS: Costs \$50-100 or more at retail prices. Pre-made bins often don't have adequate

> aeration. Turning compost can be tricky. Fills up quickly in winter.

#### 8. The NOT Composter: The Green Cone

Green cones are partially buried solar "digesters." They do not make compost; materials digest underground and fertilize the soil nearby. They are totally enclosed systems, so animals are less attracted to them. Unlike composters, Green Cones do not require management once installed.

PROS: Can add meat, fish, and dairy. Can be sited inside a garden to capture nutrients generated by decomposing food scraps. Unobtrusive, does not attract animals, and does not require additional "brown" materials.

CONS: Must be sited in full sun with well-drained soil. If using a Green Cone for all your food scraps, it will fill up quickly and you may need two. If used for pet waste, plan to site the Green Cone well away from vegetable gardens. Do not add browns to these!



Green cones need:

- · Full sun for at least half the day
- · Well-drained soil

Never add browns to a green cone!



## MANAGING YOUR COMPOST PILE

#### Key Compost Ingredients

- Greens (nitrogen rich material like food scraps or fresh grass clippings)
- Browns (carbon rich material like leaves, dried grass clippings, or wood shavings)
- 3. Air
- 4. Water

Think of your compost pile as a pet: it needs food (greens and browns), air, and water to survive.

Compost can be managed as "hot" or "cold," depending on how much work you put into it and how quickly you want a finished product.

For both hot and cold composting, make sure to stockpile browns, such as leaves or wood shavings. Add a watertight container next to your compost pile that's just for browns. A trash can with a lid is perfect for this. You may need to dedicate a space for stockpiling extra browns, so you'll always have enough for that 3:1 ratio of browns to greens.

#### **Hot Composting**



If you want compost in as little as 3-4 weeks, and you're interested in managing your pile more intensively, try hot composting. Start by investing in a compost thermometer featuring a long probe so you can check the temperature regularly. If you have enough material (at least a 3'x3' pile) you will notice that the compost temperature tends to spike around 150°F, then starts to drop. When the temperature

If all areas of the pile have reached 131°F for three consecutive days, that's hot enough for long enough to kill pathogens and weed seeds.

drops to around 100°F, it's time to turn the compost. When the temperature no longer fluctuates, the compost is ready. For more info: thespruce.com/how-to-hot-compost-2539474

#### Recommended Tools

You won't need many tools, but the following will help:

- · Gardening fork or pitchfork to turn the pile
- Wheelbarrow to haul compost ingredients to and from pile and finished compost to your garden or lawn.
- Compost thermometer to check the temperature of the pile if you are hot composting.
- Acrator to get more air into the pile.

#### **Cold Composting**

Don't worry if your pile doesn't reach an "optimal" temperature. Your food scraps will still compost, just more slowly. Most homes won't generate enough food scraps to create a pile big enough for hot compost anyway.

Cold composting (or "passive composting") is slower than a hot compost pile. It may take 6 months to get your first load of finished compost. Seeds and pathogens will not die in cold compost, so it's important to keep weeds and diseased plants out of the mixture when you're adding materials to your pile.

#### Think You Are Composting? Think Again.

You may think you are composting when you add food scraps and leaves into your backyard bin, but what you are really doing is **farming microorganisms**.

Microorganisms such as bacteria, fungi, and actinomycetes account for most of the decomposition that takes place in compost. They are the "chemical decomposers," because they release chemicals for decomposition and change the chemistry of organic wastes. The larger decomposers, or macroorganisms, include

mites, centipedes, sow bugs, snails, millipedes, springtails, spiders, slugs, beetles, ants, flies, nematodes, flatworms, rotifers, and earthworms. They are the "physical decomposers" because they chew materials into smaller pieces.

Just like you, microorganisms need food, water and air to survive and thrive. When you add carbons and food scraps, you're feeding them. When you turn your pile, you're adding the oxygen they need to convert food scraps into compost. If their environment gets too dry, they'll need water, just like you. Take

good care of your microorganisms, and you'll have a working, odor-free compost system.





Make a screen with lumber and 1/2" hardware cloth by creating a square with the lumber, and stapling the hardware cloth onto it. A 3'x3' size should be sufficient, especially if you want to set it over a wheelbarrow. Sift finished compost through the screen, and add any materials too large to get through the screen back into your compost bin.

Instructions at: instructables. com/id/Compost-Screen/

#### **COMPOST: STEP BY STEP**

- 1. Decide on what type of compost system you will use. Ideally, your compost bin will have an open bottom (lined with hardware cloth to keep pests out) so worms and microorganisms can easily crawl into your pile where they will go to work for you. If you use an enclosed bin, such as a tumbler, throw a shovelful of soil in every spring to inoculate the pile.
- **2. Add ingredients.** The following can go in your compost bin: any food scraps (except meat, fish and bones), including egg shells, coffee grounds, tea bags (not plastic or cloth), cheese rinds, plate scrapings, vegetable peelings, fruit scraps, etc; plant clippings, grass clippings (as long as there is no fertilizer, herbicides or pesticides on them); small sticks or wood chips (for aeration); brown and green tree leaves; weeds and dead plants (but not diseased or bug filled). Add 3 parts browns to 1 part greens (see page 4 for details). Avoid meats, bones and animal fats as they can smell and attract pests.
- **3. Let nature take its course.** The pile will gradually sink down as stuff decomposes. Continually add new materials, covering food scraps with leaves, wood shavings, shredded paper, or plant clippings to keep flies and critters out of the pile.
- **4. Harvest compost from the bottom of the pile.** You don't need to wait until the entire pile has finished composting. Simply take the finished compost from the bottom of the pile as you need it. When compost is ready it looks like mulch or soil.
  - Optional: Screen it! If you don't mind a few crumbled egg shells or the
    occasional avocado pit, go ahead and spread your compost as soon as it is
    done. If you prefer a more finished product, take the extra step to screen.

### HOW TO USE COMPOST

- LAWN: Compost on the lawn will reduce watering needs and help prevent erosion. Apply a layer approximately 1/8"-1/4" deep. Water thoroughly.
- GARDEN: Add compost every year before planting.

  Apply 2"-4" (add more for deficient soils) and turn into the soil. Compost can be used as a top dressing.
- TREE AND SHRUBS: Before planting, dig a hole larger than the plant base, mix compost with soil, using 1 part compost to 2 parts soil. Established trees: Top dress a 2" layer 6" from base of tree with coarse compost (un-sifted) in the spring or early summer. Established shrubs/perennials: Apply a 1"-2" layer of coarse compost around the base of plant.
- POTTED PLANTS: Add 1/4" to 1/3" compost to sterile soil when you repot your plants. Or top dress annually, 1/4" layer of fine compost and scratch into the potted soil.
- STARTER MIXES: Create your own seed starter mix using: 1 part mature sifted compost, 2 parts soil, 1 part sand, perlite, or vermiculite.
- CHEER UP WILTING PLANTS: When plants are wilting or dropping leaves, surround them with compost, either in the garden or in a pot.
- WHEN MULCHING: Put compost around plants before adding mulch.



### When is my compost ready?

When your compost is ready, it will smell earthy and look soil-like or loamy. You may still see broken egg shells, small sticks, etc.

The more involved you are, the sooner you'll have compost. With hot composting, you can produce finished compost in as little as three weeks.

For a "cold" compost pile, expect it to take several months for the process to complete. To speed things up, turn pile regularly. Remember: composting is a natural process that will happen, regardless of how involved you are.

**TROUBLESHOOTING** 

Compost not working? Check out these common composting problems, and our simple solutions:

#### My compost is not heating up.

You do not have to compost with heat, but it goes faster if you do. If you're trying out hot-composting,

remember that hot compost requires volume and some work.

The pile needs to be at least 3'x3' (but 4'x4' or larger works better).

Alternate green and brown materials and mix together, then leave it alone until the pile heats up to above 141°F. At this point, you may notice steam rising out of the bin. Use your hand to gauge the heat level in addition to a thermometer. The heat indicates the microorganisms that break down materials are active. Wait for the pile to cool slightly to no less than 100°F, and turn the pile. Let

it heat again and repeat until it stops heating up.

#### **Tumbler Tips**

Add a shovelful of finished compost or soil to inoculate your tumbler with microorganisms. If food scraps in your tumbler stop composting, troubleshoot:

- · Is it wet? (Add browns)
- · Is it dry? (Add water)
- Are the food scraps staying intact (not decomposing?) Add a bit of soil to jump start the process.

The ideal way to use a tumbler is to combine it with a bin system. Start composting food scraps in the tumbler. When it fills, empty it into a compost bin, add browns, and let sit while you fill up your tumbler again. This method prevents pests, and provides built in aeration as you move the compost from tumbler to bin.

#### My compost is dry.

Grab a handful of material from your compost bin and squeeze. Is it damp and holding together or dry and falling apart? If holding together, it's wet enough from your food scraps and rain. If dry, you may want to add a gallon or two of water to keep it damp.

#### My compost stinks.

Compost should not stink. If it does, it means something is not working and it's time to fix it. Typically, a smelly bin indicates your bin has grown anaerobic, meaning there is no oxygen allowing microorganisms to do their job breaking down materials. That's when the pile gets sloppy and smelly. It's easy to fix. Add a layer of dry browns, and use your pitchfork to mix the pile together, then add a layer of leaves or wood shavings about 3"-4" thick on top.

• Smelly pile and no time? If you have neglected your compost pile and it's gotten smelly, no worries! Add 4"-6" of wood shavings (not chips) on top of the pile until you have time to deal with it. This is a great way to cover up the smell and block pests from going in or out until you have time to turn the pile to incorporate air and carbons (like the wood shavings). It works like magic!

#### My compost is not making compost.

Look under the pile. You should find some decomposed mulch-type materials and possibly even new soil. That's compost.

#### My compost is attracting flies.

Cover kitchen scraps with leaves, or try our emergency tip: add a few inches of wood shavings on top of your pile until flies die down, then mix the wood shavings in with your food scraps, and keep on composting. In the summer, regularly adding a 2"-3" layer of wood shavings over your compost pile blocks flies from going in or out.

#### Winter composting? No problem.

Many people stop composting in the winter but you don't have to. Just remember these tips and you can compost all year:

- Think of tromping through the snow to your compost bin as your winter exercise! Wear your snowshoes, or use a sled to make it more fun.
- Food scraps will freeze over the winter, so plan for it. Empty your bin, set up an extra bin, or try trash can composting, knowing that your winter food scraps will pile up.
- Food scraps don't actually compost in winter's frozen conditions. You're really storing materials that will begin the compost process as soon as winter ends. That's OK. Just plan for it with by starting winter with an extra (empty) bin.
- \* Keep adding browns, even in the winter.

 Your compost bin will pile high, but as soon as spring comes, it will reduce to less than half of

its original volume. At that point, **add more browns** 

then layer even more browns on top to kick-start the composting process

and turn the pile,



## WHAT ABOUT BEARS & OTHER ANIMALS?

Vermont has seen an increase of bear-human interactions so it's important to take a few steps to discourage bears, and to manage your compost so it doesn't attract animals. Here's how:

- Take down your bird feeders! A bird feeder is hanging bear bait.
   Bears can smell bird seed from 1-2 miles away, so the best thing you can do to keep bears away is give up your bird feeding hobby and landscape with native plants that attract birds instead.
- When composting, use three times as many browns as greens. This
  minimizes smells and speeds up the composting process.
- · Regularly turn your pile so materials compost more quickly.
  - Compost fresh scraps in an enclosed container that would be challenging for a bear to open. Tumblers are especially challenging for bears to open.
  - Do not add meat scraps or bones to your compost pile. You can put these items in the trash, freeze them to drop-off for composting when you have enough, or bury them by pit-composting or trench-composting.
  - To keep rodents and smaller animals out, line your compost system with 1/4" hardware cloth.

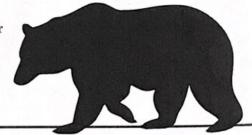


Deter bears by soaking a rag in ammonia; leave the rag in a plastic bucket next to your compost system. Bears' sensitive noses will be repelled by the ammonia smell, and they will stay away. Replace every 2–3 weeks. If you are managing your pile with browns and turning it regularly, and you have left the ammonia-soaked rag nearby, bears will not be interested. If a bear comes on your property anyway, make some noise! Yell or bang pots and pans (or both) so it has an unpleasant experience, making it unlikely to return.

#### Got bears anyway?

- · Check with your neighbors. Is anyone leaving out birdseed or other treats for bears? Minimizing bear-human interactions saves bears lives and makes human lives safer, but everyone needs to work together. One person attracting a bear with birdseed can bring a bear into an entire neighborhood.
- Stop composting at home until the bear leaves the area or surround your bin with an electric fence (smear peanut butter on the fence so the bear gets a little zap to the face).
- · Contact VT Fish and Wildlife for advice before the bear becomes a problem.

Report bear interactions at: anrweb.vt.gov/FWD/FW/ WildlifeBearReport.aspx



#### RESOURCES

cvswmd.org/home-composting for free bin plans

anrmaps.vermont.gov/websites/Organics/default.html for a list of food scrap drop off sites

VTrecycles.com for more information about composting and recycling, or to find a food scrap hauler

uvm.edu/extension/mastergardener/vermont-master-composter-course for info about the Vermont Master Composter course

802recycles.com to find your local waste experts. Some offer free backyard composting classes.

Questions? Contact us at Vermont DEC (802-828-1138) or @VTrecycles (1) or @TheVermontDEC (1)





VTrecycles.com 802-828-1138

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@VTrecycles



(i) @TheVermontDEC

With much gratitude to the authors of "The Dirt on Compost":



#### CENTRAL VERMONT SOLID WASTE MANAGEMENT DISTRICT

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This edition was rewritten and edited by Cassandra Hemenway, Central Vermont Solid Waste Management District and Vermont Master Composter. Design by Dana Dwinell-Yardley. Updated March 2019.

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## Compost with Confidence



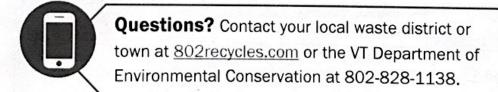






State law bans food scraps from the landfill starting July 2020.

- At Home: It could save you money on trash; or
- **Drop-off:** Transfer stations, bag drops, and compost facilities accept food scraps; **or**
- Curbside Collection: Ask your hauler if they pick up food scraps for composting.



Reduce before you compost! A family of four spends ~\$1,500 a year on food they never eat. Give yourself a raise: reduce your food waste with tips from <a href="SavetheFood.com">SavetheFood.com</a>.

VTrecycles.com
@VTrecycles 
@TheVermontDEC 
@





#### **Backyard Basics**

Compost food scraps & yard debris at home.

Compost: Purchase a bin from your solid waste district or town or build your own durable, enclosed container. Line the bottom of the bin with wire-mesh hardware cloth to keep critters out.



Cover 1-part food scraps ("greens") with 3-parts dried yard waste, wood chips, sawdust, or shredded paper ("browns"). Mix occasionally and cover exposed food scraps with more browns to reduce odors. Empty the bin in the fall to make space for the scraps to freeze in the winter; shovel any fresh food scraps back into the bottom of the empty bin. The frozen winter scraps will decompose as they warm in the spring; add lots of browns and stir frequently at this time. Use compost on your lawn or plants.

Solar Digester: A different type of bin that nourishes nearby plants and breaks down food scraps, even meat and bones. Compost yard waste separately.



Feed your chickens: The gals love food scraps. Compost the scraps they don't eat.



Worried about animals? You don't have to compost meat & bones at home, even after 2020. Take them to a drop-off or throw them in the trash.

Tip: Wash your kitchen bucket regularly and/or toss a handful of dry browns in the bottom to absorb liquid. Cover with a lid.





#### **Composting in Bear Country**

Composting well protects animals and people because it reduces the chance that you will accidentally feed an animal.



Take down birdfeeders, except when bears are hibernating. Bird seed draws bears into yards. Plant native flowers and shrubs that attract birds instead.



Compost in a hard, durable bin, ideally with a lid that would be challenging for a bear to open. Cover all food scraps with "browns" (dried yard debris, wood chips, sawdust, or shredded paper); they help contain odor. Frequently mix the pile.



Don't compost meat and bones at home. Bring them to a compost drop-off or put them in the trash.



You have options! You can bring food scraps to transfer stations and other local drop-offs. Consider drop offs in the spring when bears are most active.



#### Curious Bear? Don't Feed It. 🦏



- 1. Contact Vermont Fish & Wildlife for more advice on deterring a bear in your yard before it becomes a problem. Fill out this form to get in touch: Anrweb.vt.gov/FWD/FW/WildlifeBearReport.aspx
- 2. Bring food scraps to a drop-off for a while OR Surround your bin with an electric fence (smear peanut butter on the fence so the bear gets a little zap to the face).



Why compost? Food rotting in landfills releases methane, a greenhouse gas 25 times more damaging than carbon dioxide. If every Vermonter composted, it would reduce greenhouse gas emissions as much as taking 7,000 vehicles off the road each year (EPA Warm Model & GHG Overview).

#### Tips:

 Store food scrap, recycling, and trash containers in a shed or garage so they don't attract animals.



- Keep food scraps in the freezer until you're ready to take a trip to a drop-off.
- Buy local compost for your yard or plants. This supports composters and VT's soil and water quality.



#### Learn more:

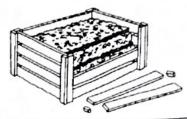
- Explore <u>VTrecycles.com</u>, call VT DEC at 802-828-1138, or follow @VTrecycles and @TheVermontDEC
- Take the online <u>VT Master Composter course</u> offered by UVM Extension.
- Ask your local solid waste district or town if they offer compost classes or discounted bins. Find their contact information and website at 802recycles.com.







# Troubleshooting Your Compost Pile



Symptom	Possible Causes	Prescription
Rotten or sulfurous odor	**Too many food scraps; or "lumping" food wastes.     **Too wet.     **Too many grass clippings in a mass.     **Material shredded into particles which are too small.     **Anaerobic conditions (no oxygen).	Eliminate food scraps (put them in a worm bin). Or, mix food wastes evenly throughout the pile. Add coarser material to keep moist food scraps more aerobic.     Turn pile while adding some dry, high-carbon material such as leaves or chipped wood. The odor will eventually correct itself as the pile drives off excess nitrogen. Cover the bin during rainy spells.     Mix grass clippings with coarser and drier high-carbon material.     Turn pile while adding material of different sizes and coarseness. Layer pile with plenty of loose, bulky material.     Tear pile apart, diagnose problems and rebuild a loose pile with many types of materials.
Ammonia smell, mostly when turning pile	Too many grass clippings in one mass, or layered too thickly.     Too much manure; too many kitchen scraps.     Anaerobic conditions (no oxygen).	All symptoms of too much nitrogen. If the pile is left alone, it sometimes corrects itself by volatilizing nitrogen. Leave alone. Or, turn the pile while tearing apart any matted lumps of high-nitrogen material (adding coarser, high-carbon compostables) and rebuild into loose, aerated layers.      Often caused by one of the following: Material is the same size; material pieces are too small; pile is too moist. Rebuild using the guidelines mentioned above.      Turning the pile helps circulate oxygen.
Pile has low temperature	Pile has finished composting. Not a problem, time to use the material.     Pile too small.     Too much high-carbon material.     Too dry or too wet.     Material too coarse or too fine.     Not enough nitrogen.	Congratulations, you are a certified compost maker.     The formula for hot compost recommends a pile built with at least 27 cubic feet (3'x3'x3'—a cubic yard) of material.     Rebuild pile, adding nitrogen—manure, grass clippings, kitchen scraps or fresh garden wastes.     If too moist, the pile will have an odor. Rebuild and add dry carbonaceous material. Cover when raining. A dry pile has no odor. Rebuild pile while wetting the raw material. A cover may help retain moisture.     Too much coarse material can make a dry pile; too fine can make an anaerobic pile. Use different-sized materials. Rebuild pile with a heterogeneous mix.
Pile too hot	Temperatures above 160°F can kill beneficial microbes. Temperatures above 180°F will sterilize the pile's core.     Too much nitrogen.	The hot pile will kill some of the bacteria and the temperature will drop, then a few remaining microbes will re-inoculate the pile. Turning the pile will help cool it.     Turn pile while incorporating more carbonaceous material.

Symptom	Possible Causes	Prescription
Pile bursts into	Needs more frequent turning.     Pile is too dry.	<ul> <li>The pile must be too dry. It rarely bursts into flames, but can smolder.</li> <li>While lots of nitrogen is needed to generate heat, the pile's upper layers must be very dry to combust.</li> <li>Scatter – extinguish fire – allow to cool and rebuild the pile.</li> <li>Turn the pile more often.</li> </ul>
White moldy/fungal growth	<ul> <li>Not really an illness; most likely the filament of beneficial fungi as they help digest compostables. While there are fungi which thrive at all temperature levels, fungal growth is usually noticed when the pile is in a mesophilic condition (cooler than hot compost, but not a cold process).</li> <li>Too wet or too dry.</li> </ul>	If you want a high temperature pile, adjust the carbon-to-nitrogen ratio, check the moisture level and turn the pile.     A dry condition often favors fungi. Either way, adjust moisture by rebuilding the pile while adding either water or dry material (depending on the condition).
Nothing rots	Not enough moisture.     Material too woody or not enough nitrogen.     Not enough available carbon.     Pile too small.	Rebuild the pile while misting material.     Shred any woody material which is too chunky; or mix in more nitrogen-filled material (such as fresh lawn clippings).     Shredding "waxy," hard leaves helps aerobic bacteria.     Save raw materials until you can build a 3' x 3' x3' pile.
Flies and insects in and around pile	•• Too much food waste.	Reserve the kitchen scraps for your worm bin or add them only to the pile's middle. If this does not solve the problem, stop mixing vegetable waste with fruits and edible parts.
Mice and rats in pile	•• Food wastes.	•• First try adding the kitchen scraps to the middle of the hot pile. If that doesn't work, try eliminating all meat dairy and fish scraps and all salad and cooking oils. Or, eliminate all kitchen wastes and use them in a worm bin. Some bins are sold with tightly fitting, plastic bottoms and lids to help exclude rodents.

#### Visit our website: www.lsuagcenter.com

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#### Backyard Composting

IT'S ONLY NATURAL

Composting is nature's way of recycling organic materials back into the soil in order for the cycle of life to continue. The billions of living organisms in healthy soil transform dead plants into vital nutrients for new plant growth. Since healthy plants come from healthy soil, one of the best ways you can build healthy soil in your garden and lawn is by using compost. You can easily make compost with landscape trimmings and food scraps in your own backyard. With a small investment in time, you can improve the health and appearance of your yard, save money on fertilizers and mulch, all while preserving natural resources and protecting the health of your family and pets.

#### Why compost?

- this earth-friendly: Food scraps and yard waste make up 20-30% of the waste stream. Making compost keeps these materials out of landfills, where they take up precious space and release methane, a greenhouse gas 21 times more potent than carbon dioxide emissions in the atmosphere.
- t benefits your yard: Compost improves soil structure and texture, increases the soil's ability to hold both water and air, improves soil fertility, and stimulates healthy root development in plants.
- The leaves and grass, then work your way towards composting your food scraps.
- t It saves money: Adding compost to your garden can reduce or eliminate the need to buy chemical fertilizers or compost. If you pay for the amount of trash hauled, composting can also cut down on your



United States



#### What do I need to do to make compost?

- A Bin or Pile? Some people start with an easy pile, and then move to a bin when they're ready. You can give your pile some structure with chicken wire, snow fencing, or by nailing scrap wood together to make a four-sided box. A pile works great for just leaves and grass clippings, but when you want to incorporate food waste, it's time to use a bin to prevent rodents. Closed-top bins include turning units, stacking bins, and bins with flip tops. Many communities provide their residents free or discounted bins to encourage backyard composting. Bins can also be purchased from retail or mail order businesses. Take the time to consider your options and then select a bin or pile to fit your needs.
- B Space. Select a dry, shady, or partly shady spot near a water source and preferably out of sight for your compost pile or bin. Ideally, the compost area should be at least three feet wide by three feet deep by three feet tall (one cubic yard). This size provides enough food and insulation to keep the organisms in the compost warm and happy and working hard. However, piles can be larger or smaller and work just fine if managed well.
- ( Browns for carbon, greens for nitrogen, air for organisms, and water

Brown material provides carbon and includes:

- Paper, like shredded pieces of paper, cardboard, and paper rolls,
- ry yard waste, like dry leaves, small branches, and twigs, straw, sawdust, and used potting soil.

Green material provides nitrogen and includes:

- Wet yard waste like fresh grass clippings, green leaves, and soft garden prunings
- Food scraps like vegetable and fruit peels, coffee grounds, and tea bags.

Vermicomposting is a method of composting using a special kind of earthworm known as a red wiggler (Elsenia fetida), which eats its weight in organic matter each day. Vermicomposting is typically done in a covered container with a bedding of dirt, newspaper, or leaves. Fruit and vegetable scraps can then be added as food for the worms. Over time, the food will be replaced with worm droppings, a rich brown matter that is an excellent natural plant food Vermicomposting requires less space than normal composting methods, and is therefore ideal for classrooms, apartments, and high-density urban areas.

#### How do I make compost?

- Add your brown and green materials (generally three parts browns to one part greens), making sure larger pieces are chopped or shredded. The ideal compost pile contains browns and greens (of varying sizes) placed in alternate layers of different-size particles.
- 2 Mix grass clippings and green waste into the pile and bury fruit and vegetable waste under 10 inches of compost material.
- 3 As materials breakdown, the pile will get warm and on cold days you may even see some steam.
- 4 Every time you add to the pile, turnover and fluff it with a pitchfork to provide aeration, unless your bin has a turner.
- 5 When material at the bottom is dark and rich in color, with no remnants of your food or yard waste, your compost is ready to use. There may be a few chunks of woody material left; these can be screened out and put back into a new pile. The resulting compost can be applied to lawns and gardens to help condition the soil and replenish nutrients. Compost should not be used as potting soil for houseplants because it may still contain vegetable and grass seeds.





#### Troubleshooting Your Pile

Problem:	Cause	Solution:
Rotten egg smell	Insufficient air or too much moisture	Turn pile and incorporate coarse browns (sawdust, leaves)
Ammonia smell	Too much nitrogen	Incorporate coarse browns (sawdust, leaves
Pile does not heat up or decomposes	Pile too small	Add more organic matter
	Insufficient moisture	Turn pile and add water
slowly	Lack of nitrogen	Incorporate food waste, grass clippings, or manure (chicken, rabbit, cow, horse)
	Not enough air	Turn pile
	Cold weather	Increase pile size or insulate with straw or a tarp

#### How do I get started?

#### What to add

#### Greens:

- . Uncooked or cooked fruits and vegetables
- Bread and grains

#### Browns:

- Cotton or wool rags
- Dryer and vacuum cleaner lint
- Eggshells
- · Nut shells
- · Fireplace ashes (from wood burning)
- Coffee grounds and filters
- Grass clippings

Sawdust

· Hay and straw

Houseplants

Used potting soil

· Yard trimmings (e.g.,

leaves, branches, twigs)

- Paper tea bags with the staple removed, if there is one.
- · Hair and fur
- · Chicken, rabbit, cow, horse manure
- Wood chips
- Leaves
- Shredded newspaper
- Cardboard rolls
- · Clean paper

#### What not to add

- · Aluminum, tin or other metal
- Glass
- · Dairy products (e.g., butter, milk,
- sour cream, yogurt) & eggs · Fats, grease, lard, or oils
- · Greasy or oily foods
- Meat or seafood scraps
- Pet wastes (e.g., dog or cat feces, soiled cat litter)
- · Soiled diapers
- · Plastic

- Stickers from fruits or vegetables (to prevent litter)
- Black walnut tree leaves or twigs
- Yard trimmings treated with chemical pesticides
- · Roots of perennial weeds
- · Coal or charcoal ash
- Firestarter logs
- Treated or painted wood



For more information on composting: www.epa.gov/compost To learn additional ways to green your lawn and garden: www.epa.gov/greenscapes.

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