

A User's Guide to

BACKYARD COMPOSTING



What is Compost?

A gardener's best friend!

Compost is simply organic matter that has decayed to the point where plants can use the nutrients. Consider the forest floor. Leaves, logs, and dead animals pile up, rot and make fertile soil.

Home composting is a way to manage this process so that it is faster and more convenient. About 28 percent of the waste that Vermont residents create each year (by weight) is food waste that could be composted!*

Compost improves the structure and fertility of garden soil. It adds organic matter to clay soil, and helps sandy soil hold more water. Compost adds nutrients to the soil and provides a source of helpful bacteria. This homegrown additive will provide a slow and steady supply of nutrients for plants, while preventing plant diseases. Compost is the answer to many gardening problems.

*Source: Vermont Waste Composition Study. DSM Environmental (2013)

1. Locate an Area

You will want your compost pile or container on a level, well-drained area. Most importantly, be sure to allow yourself easy access to the area. Either a sunny or shady area is fine, since the heat associated with compost is generated by the microbes within the pile itself. Just don't locate your compost *right* near your garden, since it may attract slugs and other bugs that gardeners consider pests.



Getting Started

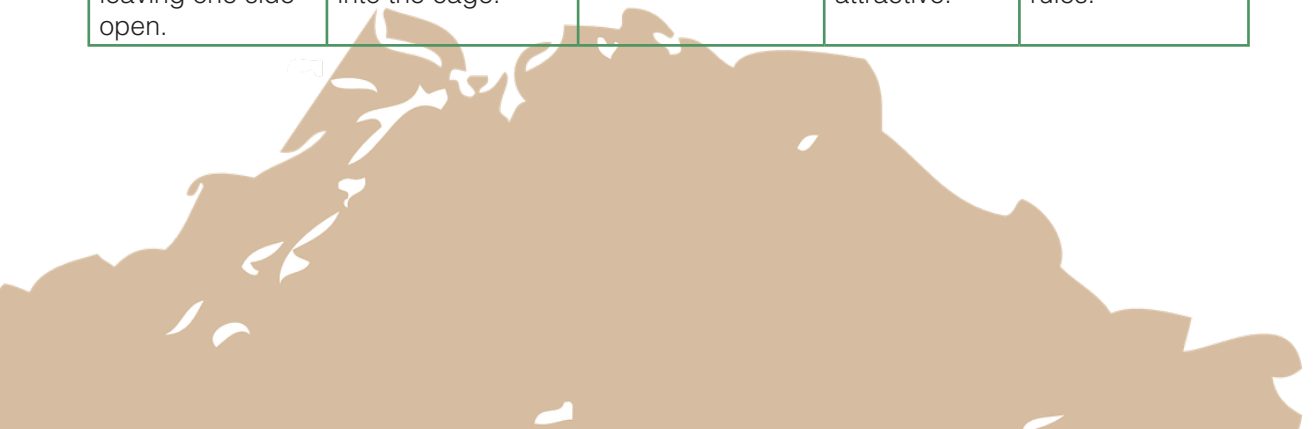
Compost is simple to make requiring just three things: a location, a “container” of sorts, and the compost ingredients.

The location is somewhat specific, but the container can take many forms, and the compost ingredient list encompasses a wide range of items.

2. To Contain or Not to Contain?

There are many ways to compost, depending on how much work you want to put into it and what you want the site to look like. Here are some ideas, listed in order from simplest to slightly more complicated. If you make a bin, always use untreated wood. Treated wood will leach harmful chemicals into the soil and your compost.

The Pit	The Trench	The Bed	The Pile	The Bag
Dig a hole, throw your stuff into it, cover with dirt and you are finished. You can plant on top of the compost pit after three to six months.	Just like the pit, except you start with a trench. Plant a row of seeds or transplants on either side of the filled trench.	Lay your kitchen and plant waste directly on top of a garden bed. Cover with leaves and a little bit of dirt and let it rot. Wait six months and then begin planting.	Easy and just like it sounds – pile everything up and it will make compost.	Throw everything into a black trash bag. Throw in a shovel of garden soil. Poke a few holes for air circulation. Loosely tie the open end.
Loading Pallet Bin	The Tomato Ring	The Can	The Pretty Bin	Store-Bought Composter
Get three loading pallets (usually available for free) from a local warehouse or grocery store. Wire them together at the corners, leaving one side open.	Drive four poles into the ground. Surround the poles with chicken wire to make a cage. Plant tomatoes on the outside and dump your stuff into the cage.	Cut the bottom off of an old plastic trash can. Drill holes in the middle of the sides for air circulation.	Use plain, untreated lumber to make a three-sided bin. Add a gate to make it really attractive.	There are many styles of plastic bins. You can choose one that works with your house and fits in with your neighborhood rules.



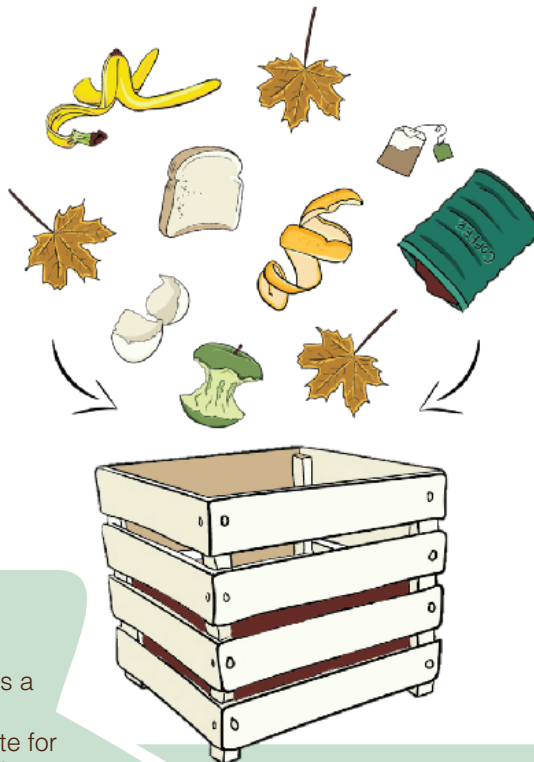
3. Compost Ingredients

Vegetable and fruit peels, leaves, grass, egg shells, coffee, tea, small sticks... the list of compostable items is long. Compost ingredients can be separated into two categories - greens and browns. **“Green”** ingredients provide nitrogen (N). **“Brown”** ingredients provide carbon (C). Mixed together they create just the right environment for decomposers, which are the organisms that turn your food waste into compost.

When adding items to your compost pile, layer the greens and browns, always ending with a layer of browns. Refer to the lists below to get you started.

The “In” List

- Fruit and vegetable scraps (N)
- Coffee grounds and filters (N)
- Tea bags and loose tea (N)
- Leaves, green (N) or brown (C)
- Wood chips (C)
- Straw & hay (C)
- Small sticks less than 1 inch in diameter (C)
- Newspaper and other paper (C)
- Grass and shrubbery clippings (N)
- Most weeds (C & N)



The “KEEP OUT” List

Although compostable, these items attract animals:

- Meat, bones or fish scraps
- Fat, in solid or liquid form
- Dairy products

These yard items will contaminate your compost:

- Weed seeds
 - Anything treated with pesticides
- Persistent weeds
- Diseased plants
 - Pet feces or bedding - these items can carry diseases.

When in doubt, leave it out!

Carbon to Nitrogen Ratio

The ideal C:N ratio is 30:1, however every material carries a different C:N ratio, which can get confusing. A good estimate for backyard composting is simply 1 part brown to 1 part green by weight.

Step-By-Step

1. Decide on the container you want to try.

Ideally, your compost bin will have an open bottom so that bacteria and other organisms can move into your pile where they will go to work for you. If you use a completely enclosed compost bin, make sure you throw in some dirt from your garden or the woods every so often.

2. Add your ingredients.

Review the Compost Ingredients section on the previous page. Be sure to layer your greens and browns, always ending with browns on top. Adding sticks of all sizes will make important air spaces in the pile (but they won't rot quickly). Some weeds will grow in the pile—once you learn which ones do, avoid them in the future. Also avoid meats, bones and fats since they can attract animals.

3. Patience young composter.

The pile will gradually sink down as the stuff rots. Continually add new materials, covering food stuffs with leaves or plant clippings to keep flies and critters out of the pile. Turn as often as you wish (see “Managing Your Pile” for more).

4. Harvest the compost from the bottom of the pile.

You don't need to wait until the entire pile has turned to dirt; simply take the finished compost from the bottom as you need it. Compost is ready when it looks like either mulch or soil. Spread it around your plants and mix it into the soil.

5. Be proud of your efforts!

Tools of the Trade

The beauty of composting is that it's a natural process that will happen with very little help from you. You won't need many tools, but the following may come in handy:

- Shovel or pitch fork to turn the pile.
- Wheelbarrow to haul compost ingredients to and from the pile and finished compost to your garden.
- Pruners or loppers to trim branches to put on the pile.
- Compost thermometer to check the temperature of the pile if you're managing a hot compost pile.
- Aerator to get more air into the pile.

Managing Your Pile

Remember - the first rule of composting is that it will happen no matter what you do! Composting is simply speeding up the process of nutrient cycling that has always occurred in nature. That being said, compost can be managed a few different ways - either “hot” or “cold” depending on how much work you want to put into it and how quickly you want that finished product.

Hot Composting

If you are really interested in hot composting, invest in a compost thermometer with a long probe so you can check the temperature from time to time. You will notice that the compost temp tends to spike at around 150°F and then starts to drop. When the temperature starts to drop to around 100°F, it's a good time to turn the compost. When the temp no longer fluctuates, the compost is ready. If you are in a hurry to produce compost to add to your garden, you might want to turn the pile before it reaches around 130°F. This will require turning your pile more often but, since the pile will be sustaining optimum temperatures longer, you will produce compost much faster.

Cold Composting

This is the method for the “relaxed” composters. Don't worry about taking the temperature of your pile. Your compost will still rot, just more slowly. Many homes won't produce enough yard and kitchen waste to make a pile that is large enough to heat up very much. Never fear the cold compost pile! It's easier to just leave it alone and let it rot. You can turn it once a month, twice a year, or never! Keep in mind, however, that this method is slower than a hot compost pile. It may take up to a year to get your first load of finished compost. Remember that seeds and pathogens will not die in the cold compost, so it's important to keep weed seeds and diseased plants out of the mixture.

The ideal pile should have the moisture of a wrung-out sponge. If it seems dry, add more nitrogen-rich material, which contains a lot of water, or add water in small amounts.

Is it DONE yet?!

Once you've started a compost pile, you may be anxious to start reaping the rewards! Keep in mind that the more involved you are, the sooner you will have the end product. By turning the pile after the temperature spikes, and making sure you have good levels of greens and browns, you can produce rich compost in as little as three months. For less managed compost piles, expect it to take up to one year for the process to complete. To speed things up, add a layer of sticks between every six inches of food and yard waste to create air pockets.

Composting *Myths & Facts*

Myth: Compost piles are hard work and must be turned often.

Fact: Turning a compost pile adds air so it rots faster. If you throw in sticks every now and then, air pockets will form and you won't have to turn the pile.

Myth: I have to water the compost pile often or it won't work.

Fact: Sure, wet stuff rots faster than dry stuff, but concentrate on adding moisture in the form of nitrogen sources, or keep the lid off the next time it rains.

Myth: Lots of bugs in the compost pile will hurt my plants.

Fact: The critters you see in compost – worms, roly-poly bugs, centipedes – are working for you by decomposing the organic matter and making the nutrients available to plants in the form of compost.

Myth: It is necessary to purchase and add "compost starter".

Fact: A shovel of regular garden soil or humus from the forest floor should be added to the compost pile when you start a brand-new pile. After that it works fine by itself.

Myth: Compost smells bad.

Fact: Only when there is too much wet material. Poke a smelly compost pile to get some air into it, add more browns, and the smell will become more like clean soil.

Myth: Lime, alfalfa pellets and other amendments must be added to make it rich in nutrients.

Fact: There is no need to buy anything to add to a compost pile. The nutrients from the decomposed organic matter are rich enough.

Myth: Compost piles must get very hot inside or they aren't working.

Fact: A cold compost pile will rot just fine, but perhaps a bit more slowly than one that gets hot.

Simple Solutions to Common Problems

Given time, everything rots. With composting, it's *how* things rot that can get confusing. Here are the most common composting problems and some very simple solutions.

What if...?

...my compost is not heating up. If you want hot compost, it requires volume and some work. The pile needs to be at least 3 ft. x 3 ft. x 3 ft. Make layers alternating green and brown materials. When the pile gets hot, turn it all over and let it heat up again.

...my compost is dry. Dig a hole in the pile and add wet kitchen scraps. There is no need to water it down with the garden hose. In the future keep it covered during dry spells to keep moisture in.

...my compost stinks. Poke it with a shovel to let some air circulate through it. In the future throw some dry leaves or straw on top of each layer of wet stuff to provide more carbon.

...my compost is only made of browns. Add some greens, or just let it be. A pile of leaves will break down slowly.

...my compost is only made of greens. Green ingredients all by themselves will rot, but they may stink. Add browns or some shredded newspaper; no more than one quarter of the total material should be paper. Add sticks throughout the pile to permit air circulation.

...my compost is attracting flies. Cover kitchen scraps with leaves, or bury them deep in the pile.

...my compost is attracting animals. Try using a closed container, cover with browns to reduce the attracting food smells. If still an issue, consider fencing or ordering a natural repellent like "Predator Pee".

Compost is alive! There are all kinds of bacteria and microorganisms in your compost pile that are too small to see with the naked eye. Then there are the myriad animals that you can see. Pill bugs, millipedes, centipedes, ants, beetles, and all kinds of worms will populate your compost. Each of these is working hard for you, breaking down your yard and kitchen waste into nutrients that your plants can use. You won't get any compost without these decomposers.

If you can't find any life in your compost pile, then it may be so dry that the soft-bodied insects have tunneled into the earth for moisture. They will come back the next time you throw in some moist food waste. It is also possible that you accidentally poisoned the decomposers with pesticide- or herbicide-contaminated plants. Try adding some garden soil to the pile to introduce new life.

Compost Uses for Homeowners

Now that you've got it - here are all the common ways you can use it:

- When starting a garden bed, mix compost into the soil.
- When transplanting, place compost into the bottom of the planting hole.
- When mulching, put compost around the plants before you add mulch.
- When watering, add compost to the watering bucket and stir it up.
- When plants don't look so good, surround them with compost.
- When container gardening, top off potted plants with a layer of compost.
- To establish a new lawn, put four to six inches of compost on the soil and till it under. For an existing lawn, apply a thin layer on the lawn and water it well. This will reduce watering needs and improve nutrient levels.
- To improve the quality of our Addison County clay, add compost to the ground to allow more air and water to get through, and to promote root development.

Making Compost Tea

No one ever has enough compost! What can you do if you don't have enough compost to fulfill all your gardening needs? You can stretch it out by making compost tea. Here is a simple recipe.

1. Place a handful of compost into the foot of an old pair of pantyhose or a sock. Tie shut and cut off the excess. This is your tea bag.
2. Put the tea bag into a bucket and add water. You can use the resulting tea immediately to water your seeds. This is especially good to use on new seedlings and transplants. Compost tea also makes an excellent foliar spray for houseplants.
3. Leave the tea bag in the bucket and use it over and over again.



Did you know that compost can even reduce your need for pesticides?!

One of the many benefits of using compost is plant disease suppression! The microorganisms in compost are antagonists to plant pathogens, and in some plants, compost activates disease resistant genes! Soils lacking organic matter have low energy reserves for microorganisms and are susceptible to developing soil-borne diseases. Healthier soil means healthier plants, and lessens the need for pesticides.

Composting with Worms!

More formally called *vermiculture*, worm composting is lots of fun and easy to do indoors when you don't have space or permission for an outside compost bin.

The basic idea is that you are keeping worms as your personal garbage disposal. Special worm bins can be expensive, but the worms will be just as happy in a bin you make yourself.



Homemade worm composting bin materials

- A plastic bin with a top—minimum of two square feet in size. The bigger the bin, the more worms; the more worms, the more food waste will be composted.
- A pan that fits underneath the worm bin.
- Window screen or other fine mesh metal or plastic screen.
- Shredded newspaper.
- Tools: scissors and drill.
- Food scraps.
- Red worms, aka red wigglers. These can be purchased online or from a fishing bait store. (Regular earthworms won't work well in this environment.)

Making your worm composting bin

1. Drill holes in the bottom of the bin to allow for drainage. Drill more holes around the sides of the bin for air circulation.
2. Cut a piece of window screen or fine mesh to cover the inside of the bottom of the bin. This keeps the worms from falling out or attempting an escape!
3. Shred enough newspaper to provide about two inches of bedding at the bottom of the bin.
4. Moisten the newspaper so that it is about as wet as a wrung-out sponge. Worms need to keep their skin moist in order to breathe, but you don't want to drown them.

Tips for Keeping Your Worms Working

5. Add worms. How many worms depends on how quickly you want your scraps to disappear. But you don't need to start with a large number of worms. Besides eating, they will be reproducing! If you get too many worms, consider passing them on to your friends, neighbors, or local schools.
 6. Now the fun begins! Feed your living garbage disposal by burying food scraps in the newspaper bedding. Start with a small amount of food, about equal to the amount of worms you have. Add more food as needed. The amount of food can be increased as the amount of worms in the bin increases. Keep the bin covered to prevent flies from laying eggs on the food.
- Don't let the worms drown! Worm tea will leak out of the bin into the pan underneath. Empty the pan so the liquid doesn't build up in the bin and kill the worms. Use the tea as a liquid fertilizer.
 - Don't let the worms fry or freeze! A good rule of thumb is to keep the worms at room temperature. Some dwellers keep a worm bin under the kitchen sink or in the laundry room. For best use, keep it near the place where you produce food waste.
 - Don't let other creatures take over the worm bin! If flies have laid eggs in the worm bin or other insects are taking over, dispose of everything and start over. Try using a more tightly fitting lid on the bin and use screening to cover all of the holes in the bin to prevent intruders.
 - Don't give up on your worms! You may lose a few helpings of worms before you get the hang of it.

The payoff comes when you harvest the worm castings—the poop. This is really easy and quite a bit of fun. Simply remove the lid, and the worms will burrow down to escape the light. Shine a light directly on the pile of food, castings, bedding and worms to make the worms move more quickly. Carefully scoop out the castings, which look like dirt. Use the castings in the same ways you would use compost.

How much should you feed your worms?

On average, each red wiggler will consume up to its body weight each day! Therefore, if you have one pound of worms, feed them one pound of scraps a day.

Can't Get Enough?



Check out these books:

Backyard Composting: Your complete guide to recycling yard clippings. Ojai, Calif.: Harmonious Press, 1992.

Let it Rot! The gardener's guide to composting. Campbell, Stu. Pownal, VT: Storey Communications, 1998

Worms Eat My Garbage. Applehof, Mary. Kalamazoo, MI: Flower Press, 1982.

