

## Composting

### Basics:

- “Composting” means the controlled decomposition of organic material such as yard trimmings, kitchen scraps, wood shavings, cardboard, and paper.
- “Compost” is the humus-rich material that results from composting.
- Compost contributes nutrients and beneficial life to the soil, improves soil structure, and helps prevent runoff that can pollute rivers and lakes.
- Compost helps the soil absorb and retain nutrients and moisture, and protects plants from diseases and pests. Better moisture retention means less watering, allowing you to conserve water and reduce runoff pollution.

### Compost benefits:

Compost makes good mulch. It can also be mixed into garden and potting soils. Compost contains the full spectrum of essential plant nutrients. However, you should test the nutrient levels in your compost and soil to determine what supplements your landscape requires.

- Compost contains micronutrients such as iron and manganese that are often absent in synthetic fertilizers.
- Compost releases its nutrients slowly, over several months or years.
- Soil enriched with compost retains fertilizers better than lifeless soil does. Less fertilizer runs off to pollute waterways.
- Compost balances both acid and alkaline soils, bringing pH levels into the optimum range for nutrient availability.
- Soil structure – compost helps bind clusters of soil particles (aggregates). Soil rich in aggregates is full of tiny air channels and pores that hold air, moisture, and nutrients like a sponge.
- Compost helps sandy soil retain water and nutrients that would normally wash right through the sand.
- Compost breaks up tightly bound particles in clay or silt soil, allowing roots to spread, water to drain, and air to penetrate.
- Compost alters the texture and structure of all soils, increasing their resistance to erosion.
- Compost particles attract and hold nutrients strongly enough to prevent them from washing out, but loosely enough so that plant roots can take them up as needed.
- Compost makes any soil easier to work and cultivate.
- Beneficial soil life – compost introduces and feeds diverse life in the soil, including bacteria, insects, worms, and more, which support vigorous plant growth.
- Compost bacteria break down mulch and plant debris into plant-available nutrients. Some soil bacteria also convert nitrogen from the air into a plant-available nutrient.

Beneficial insects, worms, and other organisms are plentiful in compost-enriched soil; they burrow through the soil keeping it loose and well aerated.

- Compost suppresses diseases and harmful pests that overrun poor, lifeless soil.
- Water quality – compost increases soil's ability to retain water and decreases runoff. Runoff pollutes water by carrying soil, fertilizers, and pesticides to nearby streams.
- A 5% increase in organic material quadruples the soil's ability to store water.
- Compost promotes healthy root growth, which decreases runoff.
- Compost can reduce or eliminate your use of synthetic fertilizers.
- Compost reduces the need for chemical pesticides because it contains beneficial microorganisms that protect your plants from diseases and pests.

## **Lasagna Composting**

The "lasagna method" is a way of structuring a compost system so that maintenance is minimized, pests are deterred, and both large and small amounts of compostables can be handled at any time. The simple layering system can be used in any bin.

Initial Layer:

- The first layer in your bin should be a loose layer of twigs and branches – stinky material that will not compress as the compost bin fills up.
- The purpose of this layer is to build in a way for air to reach the center of your pile. Oxygen ensures that the decomposition will not generate unpleasant odors.

"Brown" Layers:

- These can be made of straw, dried leaves, wood chips, sawdust, even torn up paper. All these materials are carbon-rich, supplying a critical food source to the decomposer organisms.
- The brown layers help to balance the moisture in a pile since the brown materials are usually much drier than the food scraps in the green layers. These materials are also usually coarser, so they create a porous structure that allows air into the center of the pile and allows excess water to escape. Finally, the brown layers serve as a visual and physical barrier to pests, by filtering food smells and putting the food scraps out of reach of insect pests.

"Green" Layers:

- These nitrogen-rich materials, supplying another critical food source for the decomposers.
- Acceptable "greens" include food scraps from meal preparation, inedible leftovers, grass clippings that are too long to be left on the lawn, garden weeds, manure, etc.
- DO NOT include meat, oily materials, dairy products, or bones. These risk attracting pests to the compost area.

### Layering Technique:

- Alternate green and brown layers, starting with a brown layer and always ending with a brown layer so that no food ever shows.
- Brown layers should be two to three times as thick as green layers. Green layers should be no more than 1 to 2 inches thick.
- Brown layers should be shaped like saucers – lower in the center and higher around the edges – so that the next green layer can be kept to the interior of the pile with no food showing on the edges.

### Routine Tasks:

- Whenever your indoor collection container is ready to be emptied, take it out to the compost bin, spread the food scraps on top in thin layers – keeping them away from the edges – and cover them with a generous layer of browns.
- Wash out the kitchen container and return it to its spot, lined with a fresh piece of newspaper to make cleaning easier.

### Optional Maintenance:

With this layering technique it is not necessary to turn the compost. However, if you wish to get the compost finished sooner, you may choose to turn the bin contents. Compost forks or other digging tools may be used to stir and mix ingredients right in the bin.

Alternatively, if it is possible to simply lift off or undo the existing bin, then you can get easy access to the unfinished compost. Reset the empty bin, put down an initial layer of stalky material, and turn the partially finished compost into the new bin. This will mix the ingredients, and bring the materials that were on the outside edges in to the middle where they will start to break down faster.

### Harvesting Finished Compost:

The materials on the bottom layers will tend to finish first, since they started first. If there is unfinished compost on top of the bin, transfer the unfinished compost to a new bin. The finished compost may then be harvested and put to use.

The length of time it takes for compost to be ready depends on many factors, so it is difficult to give a general rule for how long it will take. Weather conditions, the size of your bin, the type of materials included, the amount of turning, and other factors all play a role in determining the speed of breakdown. Generally, a year should be sufficient.

### **Preparation of Food Scraps for Faster Composting**

Composting is a natural and powerful process and if you manage it right you can get great finished compost with very little work.

If you take a few minutes to cut food scraps into smaller pieces, the composting will happen even faster. The key is that the organisms that do most of the breakdown are tiny and they work just on the surface area of food – the smaller the pieces, the more the surface area.

What you need:

- Container for collecting food scraps – milk cartons, cereal boxes, or small plastic buckets work well
- Kitchen knife or scissors
- Cutting board

What to do:

- Line your compost container with newspaper – this makes emptying and cleaning the container much easier
- Place the container in a convenient spot – on the countertop, under the sink, on a porch, etc.
- Do not cover the container – this just promotes odor due to fermentation

What goes in?

- Any vegetable or fruit scraps (apple cores, orange peels, banana peels, potato skins, corn cobs, wilted lettuce, etc.)
- Egg shells – crush them up a bit
- Inedible leftovers of prepared foods
- Coffee ground and filters
- Tea bags (tear the bag and remove the staple)
- Pizza boxes, newspaper, paper towels, cereal boxes, etc. (and non-waxy paper)

What doesn't go in?

- No meat, fat, dairy products, bones, or raw eggs (these materials would break down, but they risk attracting pests)
- No plastic, metal, glass, rubber bands, twist-ties, etc.

What are the steps?

- While preparing your meal, or after eating a snack, cut the leftovers or food scraps into smaller pieces to accelerate their breakdown in the compost bin
- Place the scraps in the compost container
- Cover food scraps with used paper towels, torn newspaper strips, or a handful of leaves or sawdust to prevent odors and fruit flies
- When container is full, take it out to the compost bin and empty it, and cover well with a layer of “browns” (dried leaves, woodchips, straw, torn paper, etc.)
- Clean the container out, line it with fresh newspaper, and return it to its spot.

Source: Cornell Cooperative Extension