

## NATURE'S LABORATORY

*"What once sprung from the earth sinks back into the earth."*

--Lucretius

Deep now in the heart of winter, gardening becomes a numbing chore. Flowers have withdrawn, the rolling grasslands have erupted in greenery, gardens are in decline, and the trees have shivered off their fiery leaves. With such changes come mountains of leaf litter, hewn branches, and an array of gardening discards. This natural debris is a wealth of nutrients looking to return to the soil.

But too often, people burn their yard waste before it can naturally decompose. Every year, the United States generates 31 million tons of yard waste, composing a fifth of the total trash in the waste stream. Unlike most refuse, yard waste is clean and biodegradable. But when burned it emits microscopic particulate matter and toxic hydrocarbons which can irritate the eyes and respiratory system; aggravate asthma attacks, bronchitis and allergies; and are known carcinogens.

If left to break down naturally, debris like leaves can turn into humus within two years. Even freshly mowed grass clippings left on the lawn will decompose and serve as a natural organic fertilizer. Composting in your back yard is an easy way to speed up the natural process so you can reap the benefits in your own garden. The resulting humus is rich in nutrients and can improve soil texture, absorb more air and water, suppress weeds, minimize erosion, and cut back on your use of chemical fertilizers.

Worms make especially good natural composters. Composting with worms, or vermicomposting, is an efficient way to dispose of organic kitchen and yard waste, be they in a worm bin or in your compost heap. In ideal conditions, a can of worms (as they are collectively known) can recycle their own weight in waste daily, and their population can double every few months.

***Hands On:*** Vermicomposting can be a fun and easy experiment for children to conduct in your own backyard. You can invest in a ready-made Can-O-Worms at [www.worms.com](http://www.worms.com), or help your children design their own worm bin. Designer worm bins should come with worms, so if you plan on starting from scratch, contact your local nursery or visit [www.mastercomposter.com](http://www.mastercomposter.com) to find out where you can obtain 1 lb. of red worms (*Eisenia fetida*) to get started.

A lidded, plastic Tupperware storage container 10-16 inches deep can be easily transformed into a suitable bin. Drill half inch holes (*Adult supervision is a must!*) along the bottom of the bin for drainage and ventilation. Shred some black and white newspaper into 1 inch strips, moisten them, and fill the bin about 10 inches high. You can also add moistened shredded white office paper, wood shavings, peat moss, or soil to the mix. It is important the bin won't freeze or overheat, so place the bin in your garage or on a patio. Now you can add the worms!

Most of the organic waste you toss out makes a fine meal for hungry worms: Try adding coffee grounds and filters, tea bags, cereal, grains, beans, bread, crushed eggshells and seafood shells, banana peels, citrus rinds, corn cobs, and spoiled produce. You can even toss in spent paper towels as long as they haven't been used to wipe up chemical cleaners. For a faster turnover rate, break up larger items so the worms can compost them more easily. Also take care the bin is kept reasonably moist at all times.

As the worms consume and break down your kitchen waste, they'll move upward toward fresher foods while their waste, or castings, accumulate at the bottom of the bin. After a few months, you can harvest this compost. Refrain from adding scraps to the bin one week prior to harvesting so the worms will break down the remaining organic matter. Then, push the bin's contents, worms and all, to one side and add new bedding and food to the other. Once the worms have migrated to the new food, you can remove the compost and add it to your garden.

If worms aren't your thing, simply build a compost pile in the back yard. Select an area at least 2 feet from any structure and use it as a discard pile for garden and kitchen waste. In addition to the foods suitable for worms, outside you can compost carbon containing materials such as straw, sawdust, dry leaves and grass with nitrogen containing materials such as kitchen scraps, green grass clippings and manure. Try a 2 to 1 ratio of carbon to nitrogen materials. You can also add twigs and wood chips, pet and human hair, feathers, wood ashes, vacuum cleaner and dryer lint, and sweepings.

As the compost breaks down, the pile can heat up to as much as 160 F at its center. Make sure to turn the compost every two or three weeks (or more regularly) and keep the contents thoroughly mixed and moist. Optionally, cover the heap with a tarp to retain moisture in summer and deflect rain in winter. When the compost cools down, you'll have a rich, dark, sweet, earthy humus ready to be sown into your garden.

No matter how you decide to compost, there are some items you should never add to your worm bin or compost heap. Avoid meat and bones, fish, dairy products, eggs, cooking oils or fats, pet feces, invasive weeds (especially those with seeds), diseased plants, and plants treated with pesticides or herbicides. Black walnut leaves/twigs can be toxic to tomatoes, so if you are ever unsure about composting an item, contact your local nursery first.

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