

Composting

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Any plant or plant-based material—fruit and vegetable peels or trimmings, spoiled fruit, badly wilted lettuce or greens, coffee grounds and paper filters, tea bags, very stale or moldy bread, houseplant trimmings and dead foliage—can be composed instead of throwing it in the trash. Food waste that is sent to the landfill produces methane—a greenhouse gas that is four times more damaging than carbon dioxide.

In our household of two people, we fill a one-gallon compost pail (shown without the lid) about twice a week [1]. On a yearly basis this would easily fill an entire 95-gallon rolling trash can. As noted in my March article about minimizing food waste, keeping track of what ends up in the compost pail helps to refine buying decisions to avoid unnecessary waste too.

Once again, when I think back about 10 years, before mixed stream recycling and composting, we typically put out a full trash can almost every week. In recent years we have been able to compost all plant material and divert a full 95-gallon-can to recycling once a month (see the February article). This means we put a half-full “regular” trash can out at the end of our driveway for collection about every 4 to 6 weeks. Hence, our landfill waste stream is about 10 percent of what it was. And, what’s better, the composting process converts “waste” into a valuable regenerative resource that improves the fertility and productivity of our vegetable garden.

To get started, all you need is a compost pail, compost bin, and garden fork or shovel for mixing. It is not smelly, unsanitary, or attractive to rodents or bears (we live in the country and see them occasionally). As I will describe in the second half of this article, composting replicates and accelerates a key part of the soil development process that is as old as Creation. As with all the other suggestions in this 2% series, all that is needed is increased environmental consciousness, a very modest commitment of time and energy, and the willingness to learn by doing. Composting is not complicated, and you will quite naturally find ways to fit the process to your needs and time constraints.

After using wire fencing to make a circular bin with limited success, we switched to the heavy duty recycled plastic bin [2] about five years ago (~\$100 and indestructible). It allows enough air flow while retaining the heat generated by the composting process. The black plastic helpfully absorbs solar energy from late-fall to early-spring. This is especially important in the winter since it helps to keep the compost from freezing. Throughout the year, the heat released by the decomposition process greatly reduces the time required to convert plant waste into a valuable soil conditioner.

To begin, fill the compost bin with plant material from your yard: grass clippings, shredded leaves, and any other non-woody material (unless it is shredded or chipped). Add enough water to fill your compost pail and dump it into the bin [3]. Use hot water in the winter to keep the center of the compost bin from freezing, revive the microbes, and facilitate thorough mixing [4]. Mixing brings the new and old material together and fosters air flow. This encourages aerobic (oxygen-loving) microbes to go to work. They are roughly 20 to 30 times more efficient than anaerobic bacteria (those that function in the absence of oxygen). I occasionally add a shovelful of garden soil to further enrich and diversify the microbial population.

If the contents of the bin become a dense, sodden mass, stop adding water and mix in some dry plant material. The contents of the bin should be very moist, but not saturated. I keep a small pile of dry grass or old hay near the bin to add as needed. You will be surprised by how hot the compost becomes, how quickly it reduces in

volume, and how soon the fruit and vegetable peels break down and become unrecognizable. They are a veritable feast for the beneficial microbes and fungi that will quickly colonize the bin; their growth is analogous to yeast in a sourdough culture. It hardly seems possible that frequent additions do not fill the bin to overflowing. Since in our case we want to produce as much compost as possible (primarily from plant material from our yard, enriched by our kitchen compost pail), I try to keep bin quite full. As noted earlier, we probably generate about 100 gallons of kitchen scraps per year. I add at least that much from the yard. We “harvest” about 20-25 gallons per year—four or five large buckets [5]. This ~10:1 reduction in volume is the net result of water loss and the intense biological, physical, and chemical activity in the bin [6]. If you do not have vegetable or flower garden and simply want to reduce the household waste you generate, a small bin or tumbler would be fine. You could use compost to enrich potting soil for house plants, fertilize a tree, or scatter on thin areas of your lawn.

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Composting mimics the ecological processes that are vitally important for soil development. A thin and fragile layer of soil grows the food and the trees that are the foundation of all life on Earth. The biosphere is, after all, defined by the sun above and soil below. I planned to write this essay for May because it happens to be the time of year when we focus on preparing our garden. Now that I am writing it in April, I realize it carries a spiritual message too. Here is how John Burroughs wrote about soil more than a century ago in a book entitled “Leaf and Tendril” (1908).

There is no better illustration of the way decay and death play into the hands of life than the soil underfoot. The earth dies daily and has done so through countless ages. But life and youth spring forever from its decay; indeed, could not spring at all until the decay began.

The vital processes that have contributed to the soil, we see going on about us in the decay of animal and vegetable matter. It is the process that gives the humus to the soil, in fact, almost humanizes it, making it tender and full of sentiment and memories, as it were, so that it responds more quickly to our needs and to our culture. The elements of soil remember all those forms of animal and vegetable life of which they once made a part, and they take them on again the more readily.

I don’t know the origins of the term “composting” but suppose it had something to do with the awkwardness of calling it humusing. In soil science and related fields, organic matter decomposition is the accepted terminology. This



photograph of a soil pit on a U.S. Forest Service research site¹ shows subtle, yet distinctive soil layers, called horizons. Trees and other plants extract water and nutrients from the soil, use these resources for photosynthesis and growth, and, in turn, renew and enrich the soil with an annual tithe of leaves. The same biological, physical, and chemical processes that transform fruit and vegetable peels to compost, convert leaves and any other organic matter into humus. Insects, earthworms, and small mammals mix the humus with the underlying subsoil (sand, silt, and clay particles) to form the dark brown topsoil layer where most of the feeding roots grow. Deeper roots anchor the trees and other plants and bring more essential nutrients (e.g., nitrogen, phosphorus, and potassium, NPK) to the aboveground portion of the plant. Chemical reactions produce iron compounds that impart a rusty hue to the subsoil.

As the years, decades, centuries, and millennia roll by, this cycle enriches the soil and the ecosystem as a whole. Increasingly fertile soil enhances the diversity of plants and animals and reinforces the health, interconnectedness, and resilience of the entire ecological community. This is an Easter message to all of us from Mother Earth and the Creator.

2% Per Year List

1. Reusable shopping bags
2. Drive rationally
3. Don’t “burn” electricity
4. Be frugal
5. Active Hope
6. Diligent recycling
7. Abhor food waste
8. Trees!
9. Composting
- 10.

¹ <https://www.fs.fed.us/soils/>