



Compost Systems & Operation

Community composting, or small-scale composting, can be done in many ways. The “best” way is the one that meets the needs of your compost site’s unique circumstances.

Tumblers, Bins, Or Piles?

What to consider when choosing a compost system:

- The amount of organic material to be composted
 - Remember that carbon materials are often the limiting factor!
- The amount of space available at the site
- The amount of time the compost stewards and compost team can put into maintaining the system
- Any other community- or site-specific concerns, such as vector (animal) control, proximity to neighbors, buildings, waterways, or aesthetics.

Choosing the best system, or combination of systems, will be guided by your community’s composting goals, resources, needs and constraints, including:

- ✓ Size of the site
- ✓ Human capacity— # of people involved & amount of time they can devote to composting
- ✓ Resources & budget

Systems Commonly Used at Community Composting Sites:

Tumblers

Tumblers can be single chamber or double chamber, made from rigid plastic or metal. The most effective tumblers for colder climates are insulated; and tumblers that can be locked down are best for deterring wildlife.

These factors, along with the size of the tumbler (volume), how high they sit off the ground, and how well they’re engineered (for easy turning and durability over time), should be considered when purchasing or making a do-it-yourself tumbler.

Well-constructed, double chamber tumblers are very effective for rapid composting of food scraps, with little odor (when managed correctly), and are well-suited for sites concerned about rodent or wildlife intrusion. While typically more expensive than other systems, tumblers are durable and the benefits provided make the added expense worth considering.



Examples of compost tumblers. Top: 2-chamber Hot Frog; middle: insulated 2-chamber Jora; Bottom: DIY tumbler

Bins

Bins may be purchased or homemade from wire, wood, cinder blocks, or other materials.

Wire bins, often made from chicken wire, are best for storing carbon sources (leaves, yard trimmings, garden trimmings, etc.). Wire bins are not recommended for composting food scraps because they are not fully enclosed and can attract wildlife.



Photo Cr.: Champlain Valley Housing Trust Fort Ethan Allen Community Garden and Compost, Colchester, VT

Wood bins, made from new lumber or salvaged materials (avoid pressure-treated lumber), are very common at community composting sites. They are modular, allowing a site to start with one or two, and adding more bins over time if increased capacity is needed.

The most practical design is constructed so that one side (typically the front) can be opened or boards removed to make turning or moving the material easier.



Wood bins should be lined on all sides and the bottom of the bin with 1/4-inch gauge hardware cloth to ensure that rodents or other wildlife are

deterred from getting into the bin. There are numerous plans for building wooden compost bins available online.

Plastic bins can be constructed from any kind of large plastic container, such as standard household trash or recycling bins. Drill holes into all sides of a plastic container, including the bottom (to let leachate drain), as well as the lid.

A wide variety of plastic compost bins are available for purchase from local solid waste agencies, garden supply stores, and the Internet. Enclosed plastic bins can last a long time and offer protection from rodents, particularly when the bottom of the bin is lined with hardware cloth.

Plastic bins can have challenges with sufficient airflow, causing the material to become too wet (anaerobic), which can lead to strong odors. If using this type of bin, be sure the compost recipe contains enough browns to absorb excess moisture.



Plastic "Soil Saver" Compost Bin

Piles

Piles maximize space efficiency and are capable of handling larger volumes of organic waste than small tumblers or bin systems.

Piles should be at least 3 feet in diameter and 3 feet high, to maintain heat inside the pile. Because they are not contained by physical structures they can be moved as needed, allowing for more efficient and flexible use of space. However, good management of these systems is important as these are “open” piles, and must be closely managed to deter wildlife.

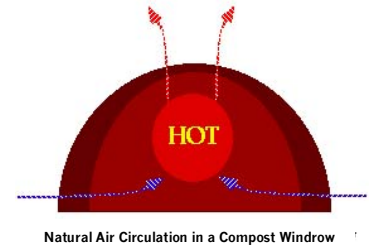
Piles require careful construction, regular turning, and consistent temperature monitoring. This type of system, especially larger ones, will likely require more volunteer assistance for turning and maintenance.



Photo Cr.: Athena Lee Bradley. Ludlow Area Community Garden and Compost, Ludlow, VT

Ideally, the piles have wood chips or some other absorbent carbon material as a base, and are built by layering greens and browns, and then “capped” with 6-8 inches of finished compost or soil, to insulate, keep odors down, and deter pests. Canvas or other material covers may also be used to insulate the piles.

Windrows are elongated piles, sometimes up to hundreds of feet long, that are often used on farms or for large-scale composting. At community composting sites, windrows are usually much shorter in length (~25 feet long) and are turned by hand with shovels or pitch forks, or with small machines.



Windrows are managed similarly to piles. Windrows can compost a much larger quantity of food scraps than piles or bins, but they require a lot of dedicated manual labor to maintain.



GETTING PHOTO INFORMATION...

Both pile and windrow composting systems may utilize an “**aerated static system**,” whereby air is forced into the piles through a blower system. This helps the material (feedstocks) heat up more rapidly and reduces the need to turn the system. There are small scale blower systems, “do-it-yourself” kits, and instructions available on the Internet.

Integrated Systems

Sites which combine systems with a mix of tumblers, bins, and/or piles can be an effective way of maximizing the volume of organic material that can be processed on a small footprint.



Photo Cr.: Athena Lee Bradley, Bennington Community Compost Site, Bennington, VT

Tumblers, whether store-bought or homemade, are effective systems for “jumpstarting” the decomposition process. They are contained systems, which help some communities address the “ick factor” of fresh food scraps, and—because it’s easier to tumble than turn in a bin—managed tumblers tend to get hot faster. Within a few weeks, food scraps are unrecognizable, have less of the “ripe” odor, and are less attractive to animals.

Depending on the volume and type of organic materials you are putting through your system, tumblers can be the principal system, or the material may be emptied from the tumbler after 2-4 weeks, into a bin, pile, or added to a windrow.

In this case, compost teams often operate the tumblers primarily with food scraps and a smaller amount of high-carbon material (for example, wood shavings), and then add manures and other bulking materials with the tumbler-processed food scraps when moved to another system.



Photo Cr.: The Garden at 485 Elm St., Montpelier, VT



Photo Cr.: Tuftonboro Community Garden, Tuftonboro, NH

Regardless of the system, remember to record food scrap volumes, carbon and other materials (e.g., manures), temperatures, and any other issues in a logbook. Make any additional notes about types of materials added (types of carbon used, notes about variation in food scraps, etc.).

Other Community Composting Tip Sheets to consult: *Feedstocks and Overview of Compost Recipe Development Tip Sheet*, *Compost Systems Tip Sheet*, and *Record Keeping Essentials*.