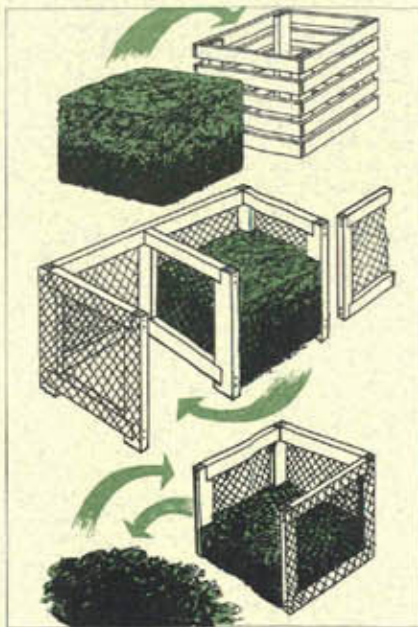




## Urban home garden composting A first step in recycling



### Compost

Composting is a biological process that converts solid organic wastes into a stable, humus-like product: compost. It not only supplies plant nutrients but also serves as a soil conditioner. Compost improves soil structure, increases pore volume, and improves the buffering and water-holding capacity of the soil. Together with the nutrients compost provides, its restorative qualities make it the best soil treatment available to the home gardener.

The common wastes in the urban garden are grass clippings, dead plants from the fall cleanup of vegetable and flower gardens, fallen leaves, and dead grass from the spring raking. Large amounts of these residues have to be transported to disposal sites by city governments. Composting can save the community the cost of this removal and disposal, and at the same time recycle these wastes into a useful product.

The method described is high-temperature, rapid composting and is adapted from one developed at the University of California at Berkeley and successfully applied in the prairie provinces. While this method requires considerable labor, its advantage lies in the absence of foul odors.

### Frames

A frame enables a more compact pile to be formed and maintained. A capacity of about 5.4 m<sup>3</sup> is adequate for city lots. The upper illustration on the cover shows a movable frame. Before the compost can be turned, the frame is lifted and put down beside the pile; the compost is then forked into the repositioned frame. This type of frame should be of light but sturdy construction; cedar is ideal. The nails must be clenched or screws used. A rectangular frame that is tapered

slightly toward the top is easier to move than a square one.

The other illustrations show double-bin and single-bin frames with posts set into the ground. A removable front section is required for each frame. The movement of compost is indicated by arrows. Plans and instructions for building and using a three-bin frame are given on pages 180-183 of *Crockett's Victory Garden*, by J.U. Crockett, published in 1977 by Little, Brown (Canada) Ltd., Toronto. This unit is able to handle the grass and garden clippings from larger (about 0.4 ha) lots.

### Method

In the autumn, material is saved from the garden cleanup. The larger material is then cut into 20- to 25-cm lengths and stored in the compost frame until spring. In the spring the rakings and first grass clippings are added, and the pile is turned with a hayfork (preferred) to mix the old and new material. Water is also added if the material is dry. The pile heats up in 3 days.

During the summer, grass clippings and other materials are added as they become available, and the pile is turned at least once a week. Thorough mixing is essential to supply oxygen to the interior of the pile. Water should be added sparingly during the turning process because the pile will shed water applied to the top. The compost has enough water when the particles glisten. Vegetable wastes from the kitchen may also be added to the pile throughout the process. It is important not to add animal products, such as meats, fat, etc., to the pile because they contribute to foul odors and attract flies. Foul odors, which usually indicate too much moisture, can be remedied by turning the pile more frequently until the odors disappear. More frequent turning also

shortens the time required to produce compost.

The process continues until the end of August. Then the adding of green material stops, but the pile is turned and kept moist until the compost is finished. This occurs when the pile will not heat up even though moisture and air are adequate. Finished compost is uniformly dark in color and has an earthy odor. It makes a good mulch. Compost shredded with a mechanical shredder is more easily incorporated into the soil or used as a top dressing.

### Process

Composting is carried out by bacteria, fungi, and actinomycetes. All are present in garden residues. The first organisms in the process are active at ambient temperatures. They are succeeded by organisms active at successively higher temperatures. A small, active compost pile has an internal temperature of 55°C or more, although turning and watering temporarily lower it. Up to 70°C has been recorded in a small pile. The high temperature generated is sufficient to kill flies in all stages of development, most seeds, and plant pathogenic organisms. This and the absence of foul odors make the high-temperature method particularly suitable for urban home composting.

Composting microorganisms require a suitable carbon-to-nitrogen ratio: dry garden wastes have a high ratio, while grass clippings have a low ratio. Mixing them produces the required ratio.

No additives (compost starter, fertilizer, lime, or earth) are necessary to make the composting process work. All necessary ingredients are in the garden residues.

Tests have shown that urban compost used in the winter as a mulch, then shredded and analyzed in the spring, has the following composition: pH 6.5, available nitrogen 0.25%, phosphorus (P<sub>2</sub>O<sub>5</sub>) 0.2%, and potash (K<sub>2</sub>O) 1.2%. Although the nutrient levels are low, the phosphorus and nitrogen are in a form readily available to plants. If lawns are fertilized with inorganic fertilizers, the nutrient levels in the grass clippings will be high and the nutrient levels in the compost with these clippings will also be higher than normal. It is necessary, however, to ensure that the fertilizers used do not include weed killers because these can adversely affect plant growth when incorporated in the garden. Composting the clippings from fertilized lawns can eliminate the need to use inorganic fertilizers in the garden.

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