Composting is a natural, biological process resulting in the rapid decomposition of organic matter. This process is performed by bacteria, fungi, worms, and many other small organisms. In nature, decomposition results in all living things – plants, animals, insects, and bacteria – being recycled and returned to the Earth from where they originally came. This decomposition process helps provide nutrients and food to plants and soil organisms. Backyard composting is an easy way of mimicking this process. It is useful for backyard gardeners, who can use the finished compost to improve the quality of their garden soil; and for those looking to divert compostable materials from the landfill.

Effort Scale:

<table>
<thead>
<tr>
<th>Easy</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Hard</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

Involves weekly maintenance and monitoring including aeration and mixing. Your compost needs to be harvested one to two times each year.

What Can I Compost?

Any organic material can be composted but some materials are more appropriate for backyard bins than others. The wider the variety the better:

<table>
<thead>
<tr>
<th>OK to Compost</th>
<th>Not OK in Most Bins*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruit scraps</td>
<td>Meat or bones</td>
</tr>
<tr>
<td>Vegetable scraps</td>
<td>Dairy products</td>
</tr>
<tr>
<td>Rinsed egg shells</td>
<td>Bread</td>
</tr>
<tr>
<td>Shredded newspaper</td>
<td>Cooked food</td>
</tr>
<tr>
<td>Coffee grounds/teabags</td>
<td>Weeds gone to seed</td>
</tr>
<tr>
<td>Garden debris</td>
<td>Cat and dog feces</td>
</tr>
<tr>
<td>Leaves/grass clippings</td>
<td>Diseased plants</td>
</tr>
<tr>
<td>Human or pet hair (in small quantities)</td>
<td>Weeds with rhizomes (e.g. morning glory)</td>
</tr>
</tbody>
</table>

* In order to compost these materials, see Fact Sheet #3: Backyard Food Digesters, #4: Hot Composting, or #6 Trench Composting.

Compost Bins

Backyard composting is best done in an enclosed bin. Bins can be home-built or are available pre-fabricated. An enclosed bin serves several purposes:

- Keeps the rain out, preventing the pile from becoming saturated with water and leaching nutrients
- Keeps rodents and other small animals out
- Makes for easy management and containment of the compost – i.e. easy to aerate and harvest
Locating Your Compost Bin
The location of your compost bin is more important than you may think. Your compost bin should be:

♦ Out in the open. You should avoid having your bin under trees or up against shrubs, wood piles or buildings (especially your house). These places provide great habitats for rodents and give them protection to break into your compost.

♦ On bare soil. This allows soil micro-organisms to enter the bin and assist in the composting process.

♦ In a convenient place.

♦ In sun or shade, either is fine, but the sun creates more heat and thus accelerates the process.

How Do I Compost?
Composting simply requires mixing organic materials in an enclosed bin and ensuring that the conditions in the bin remain optimum for the decomposition of those materials. In order to create those optimum conditions for decomposition, you should take into consideration the following elements: green to brown ratio, surface area of materials, moisture, and air.

1. Greens and Browns Ratio
All organic materials contain both carbon and nitrogen. However, materials have different proportions of these two elements. Materials that are high in nitrogen are called ‘Greens’ and materials that are high in carbon are called ‘Browns’.

<table>
<thead>
<tr>
<th>Greens</th>
<th>Browns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh grass clippings</td>
<td>Fallen leaves</td>
</tr>
<tr>
<td>Fresh weeds and plants</td>
<td>Straw</td>
</tr>
<tr>
<td>Fresh animal manure</td>
<td>Chopped woody debris</td>
</tr>
<tr>
<td>(horse, chicken, cow)</td>
<td>Shredded newspaper</td>
</tr>
<tr>
<td>Okara (tofu by-product)</td>
<td>Sawdust</td>
</tr>
<tr>
<td>Fruit and veggie scraps</td>
<td>Dry grass clippings</td>
</tr>
<tr>
<td>Eggshells</td>
<td></td>
</tr>
</tbody>
</table>

As a general rule, when making your compost, you should use equal amounts of brown and green materials. When adding materials, try to alternate between adding browns and greens. Keep in mind that some materials are very high in nitrogen (grass clipping and manure) or carbon (sawdust and wood chips) so you will need to adjust your mix accordingly. In the summer, nitrogen materials are plentiful and brown materials can be hard to find. Therefore, it is a good idea to collect and stockpile leaves in the fall and winter as they fall from the trees. These can be stored in piles, strong bins or bags or a homemade hoop bin (see Fact Sheet #6 - Urban Leaves) and accessed as needed. It is a good idea to always cover every layer of greens with a layer of browns (prevents odour, pests, and flies).

2. Surface Area of Materials
Materials that are smaller in size will break down much quicker than larger pieces – the greater surface area of smaller pieces makes it easier for compost organisms to ingest the materials. You can cut up materials using many methods, including a lawnmower, machete, food processor, leaf shredder, knife or hand pruners. Essentially, you are starting the process of decomposition by reducing materials in size.

3. Moisture
Moisture is important in a compost pile for two reasons:

1. It helps soften organic materials.
2. It supplies water to micro-organisms in the compost pile.

Micro-organisms do most of the decomposing in your compost pile, so their survival is very important. In fact,
making a good compost pile is all about creating optimum living conditions for micro-organisms. Without enough water, micro-organisms cannot thrive and will die or go dormant and the pile will decompose very slowly. However, too much water can slow down decomposition – it prevents air from getting into the pile and creates anaerobic (without air) conditions. Anaerobic composting is a much slower process than aerobic composting and can create a strong, unpleasant odour. A good compost pile should be as wet as a wrung-out sponge.

If you are putting a lot of kitchen scraps into your compost bin you will want to be very mindful of the moisture content level. Kitchen scraps generally have very high water content and can quickly result in the presence of anaerobic bacteria. Be sure to balance them out with a sufficient amount of brown materials.

4. Air and Ventilation
Air provides micro-organisms in your compost pile with the oxygen that they require to live. It is important to ensure there is an adequate amount of air in your pile at all times. This can be done in several ways:

- Do not use thick layers of material that is prone to matting down easily, such as moist grass clippings, excessively wet kitchen scraps, large amounts of newspaper or okara (tofu by-product). These materials can easily create anaerobic conditions.

- Include thin layers of rough materials like sunflower stalks, small twigs, or corn cobs. Although these materials take longer to break down themselves, they increase airflow to the centre of the pile.

Even if you employ the above methods to keep air in your compost pile, it is still important to aerate your pile on a regular basis. An easy way to do this is with an aeration tool (pictured), a pitchfork or old ski pole. Simply push the tool into the compost pile, twist and lift out (5-10 times should be adequate). This aerates and mixes without mixing the finished material at the bottom with the fresh material on the top. Thus, when you go to harvest your finished compost, it is somewhat separate from the unfinished material.

Aerating your compost pile once or twice a week will help accelerate the composting process. This not only aerates the pile, it also prevents rodents from getting cozy and mixes the materials, ensuring a more even decomposition.

<table>
<thead>
<tr>
<th>Common Compost Problems</th>
<th>Symptom</th>
<th>Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compost pile has a bad odour</td>
<td>Not enough air; pile too wet</td>
<td>Turn it; add coarse, dry material (straw, cornstalks)</td>
<td></td>
</tr>
<tr>
<td>Pile is dry throughout</td>
<td>Not enough water; too much brown material; or pile is too small</td>
<td>Turn it and moisten materials; add fresh green materials; cover pile; water pile (summer)</td>
<td></td>
</tr>
<tr>
<td>Pile is damp and sweet-smelling but still not breaking down</td>
<td>Imbalance of greens and browns</td>
<td>Ensure you are adding equal parts of green and brown material</td>
<td></td>
</tr>
<tr>
<td>Pest infestation - rodents or birds</td>
<td>Improper food scraps added; location; open bin.</td>
<td>Don’t add meat, fats, bones or other animal wastes; Use a rodent-resistant compost bin; relocate bin; aerate pile; make sure your top layer is brown material</td>
<td></td>
</tr>
<tr>
<td>Flies</td>
<td>Food scraps not covered</td>
<td>Cover green material with brown material</td>
<td></td>
</tr>
</tbody>
</table>

Fact Sheet Series #1

Backyard Composting
Harvesting Your Compost

How Do I Know When My Compost is Finished?
A backyard compost bin can take from 6-12 months to compost completely. The closer you follow the directions on this fact sheet, the quicker the process will be!

There are a few ways that you can tell if your compost is finished:

♦ Material is now dark and crumbly and there is little sign of food scraps (i.e. it looks and feels like soil).
♦ Material has an earthy smell.
♦ Volume of bin has reduced significantly.

Once your compost is finished, it is time to harvest it from the bin. A well-designed bin allows you to harvest from a door at the bottom.

[Image: A simple screen can be made from ½" hardware cloth and a 2x4 wooden frame. This can be used by one or two people to sift your compost.]

Open or remove this door and use a shovel or hard rake to pull the material out of the bin. Alternatively, you can shovel off the top of the pile onto the ground or into a wheelbarrow, use the finished material on the bottom of the pile, and replace the unfinished material. Using a screen, sift out any materials that are not fully decomposed and return them to the compost bin (see picture on the left).

Once the compost is sifted, store it in a dry place so the rain will not leach the nutrients out of it. It can easily be stored under a tarp or in another compost bin. There is no expiration date on finished compost.

Using Finished Compost

Finished compost is one of the backyard gardener’s best friends. How can you use it?

♦ Put it on top of the soil for spring or fall planting, or use it as a mulch any time.
♦ Make your own potting soil (leaf mold, sifted compost, coconut coir, perlite, sand).
♦ Top-dress potted plants, hanging baskets, perennials, and container gardens.
♦ Sprinkle it on the lawn as a top dressing.
♦ Add compost to soil whenever planting or transplanting plants
♦ Use it to brew compost tea for fertilizing and pest resistance on your plants (ask us for details).

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We sell composting equipment, gardening guides and more. Call, e-mail, drop by or visit our web site.

Call the Compost Hotline: 386-WORM

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