Composting Is Good for Your Garden and the Environment

PAMELA M. GEISEL, Academic Coordinator, UC Statewide Master Gardener Program; and DONNA C. SEAVER, Program Representative, UC Statewide Master Gardener Program

Why Compost?
Composting is good for several reasons:

- It saves water by helping the soil hold moisture and reduce water runoff.
- It benefits the environment by recycling organic resources while conserving landfill space.
- It reduces the need for commercial soil conditioners and fertilizers.

Compost provides many benefits. It

- adds nutrients and beneficial microbes, holds water, and improves plant growth
- provides a supplemental amount of slow-release nutrients
- increases soil organic matter
- encourages healthy root structure
- lightens clay soils and helps sandy soils hold water
- attracts and feeds earthworms and other beneficial soil microorganisms
- helps balance pH (acidity/alkalinity)
- helps control soil erosion
- helps protect plants from drought and freezes
- decreases use of petrochemical fertilizers
- moderates soil temperature and reduces weeds when used as a mulch

Ways to Use Compost
Different composts have different properties, and vary in their suitability for various uses. Compost can be used as mulch, topdressing, soil amendment, or as an organic fertilizer.

- Mix it into flower bed and vegetable garden planting areas to improve soil properties. Before planting, mix a 3- to 4-inch layer of compost into newly reclaimed or poor soils. Mix a ½- to 3-inch layer of compost into annual garden beds at least once a year. Do not plant trees in small holes filled with compost, as this could cause root restriction. (For equivalents between U.S. and metric systems of measurement, a conversion table is provided at the end of this publication.)
Composting Basics

1. Chop materials ½ to 1½ inches for rapid composting.
2. Mix equal volumes of carbon-rich dry brown and nitrogen-rich green plant materials.
3. Keep compost only as moist as a wrung-out sponge.
4. Turn every few days to fluff the pile so air can penetrate.
5. A hot pile composts quickly, a cool pile takes much longer.
6. Finished compost should smell earthy, never rancid.

DO Compost

<table>
<thead>
<tr>
<th>Browns</th>
<th>Greens</th>
</tr>
</thead>
<tbody>
<tr>
<td>most sawdust</td>
<td>tea bags</td>
</tr>
<tr>
<td>chopped woody prunings</td>
<td>citrus rinds</td>
</tr>
<tr>
<td>pine needles</td>
<td>coffee grounds</td>
</tr>
<tr>
<td>fallen/dried leaves</td>
<td>coffee filters</td>
</tr>
<tr>
<td>dried grass</td>
<td>shrub and grass clippings</td>
</tr>
<tr>
<td>straw</td>
<td>fruit waste</td>
</tr>
<tr>
<td>shredded paper</td>
<td>vegetable waste</td>
</tr>
<tr>
<td>shredded cardboard</td>
<td>wilted flowers</td>
</tr>
<tr>
<td>shredded newspaper</td>
<td>young weeds</td>
</tr>
<tr>
<td>old potting mix</td>
<td></td>
</tr>
</tbody>
</table>

Do NOT Compost

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>dirt/soil</td>
</tr>
<tr>
<td>ashes from a stove, fireplace, or barbecue</td>
</tr>
<tr>
<td>animal products (meat, bones, fish, grease/fat)</td>
</tr>
<tr>
<td>dairy products</td>
</tr>
<tr>
<td>sawdust from plywood/treated wood</td>
</tr>
<tr>
<td>diseased plants</td>
</tr>
<tr>
<td>seed-bearing weeds (e.g., Bermuda grass, ivy, oxalis bulbs, burr clover)</td>
</tr>
<tr>
<td>manure or human waste</td>
</tr>
</tbody>
</table>

Note that adding manure to compost piles from any animal should be avoided because there is a potential risk of disease-producing bacterial contamination that may be harmful to humans. Commercial composting operations effectively control pathogens. Backyard piles may not, however, because they are smaller and may not maintain sufficient heat.

Compost is generated when organic matter is consumed and decomposed by microorganisms under favorable environmental conditions. Key management factors for the compost process include maintaining a good nutrient balance, correct moisture content and temperatures, and adequate aeration. Composting is a managed process for accelerating the decomposition of organic matter while improving its characteristics.

The majority of compost formation should occur when temperatures range from 100°F to 150°F (38°C to 66°C). At these temperatures the rate of organic matter decomposition is maximized and indicator species of pathogens are reduced to non-detectable levels. The Environmental Protection Agency (EPA) has found that decomposing organic matter...
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matter in aerated static piles exposed to 131°F (55°C) for 3 days is enough to eliminate parasites, fecal bacteria, and plant pathogens as well as inactivate most weed seeds. However, piles need to be turned 5 times and maintained at 131°F (55°C) for 3 consecutive days between turnings. Turning the pile regularly to allow cooler surface zones to mix with hot center areas is recommended to maintain 131°F (55°C).

Please contact your local Master Gardener for more information or go online to http://camastergardeners.ucdavis.edu.

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Resources Accessible Online

Web Sites

California Master Gardeners
http://camastergardeners.ucdavis.edu/

UCCE Placer/Nevada Counties Composting Education Project
http://ceplacer.ucdavis.edu/Master_Gardener252/

Publications/Brochures

California Master Gardener Handbook
ANR Publication 3382
http://anrcatalog.ucdavis.edu/InOrder/Shop/ItemDetails.asp?ItemNo=3382

Compost in a Hurry
ANR Publication 8037
http://anrcatalog.ucdavis.edu/InOrder/Shop/ItemDetails.asp?ItemNo=8037

Compost Use for Landscape and Environmental Enhancement
http://www.ciwmb.ca.gov/Publications/Organics/44207002.pdf

Key Points of Control and Management for Microbial Food Safety: Edible Landscape Plants and Home Garden Produce
ANR Publication 8101
http://anrcatalog.ucdavis.edu/InOrder/Shop/ItemDetails.asp?ItemNo=8101

Water Conservation Tips for the Home Lawn and Garden
ANR Publication 8036
http://anrcatalog.ucdavis.edu/InOrder/Shop/ItemDetails.asp?ItemNo=8036

Metric Conversions

<table>
<thead>
<tr>
<th>English</th>
<th>Conversion factor for English to metric</th>
<th>Conversion factor for metric to English</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>inch (in)</td>
<td>2.54</td>
<td>0.394</td>
<td>centimeter (cm)</td>
</tr>
<tr>
<td>foot (ft)</td>
<td>0.3048</td>
<td>3.28</td>
<td>meter (m)</td>
</tr>
</tbody>
</table>
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Using compost helps

- grow healthier plants
- reduce landfill
- save water
- improve soil properties
- decrease need for chemical fertilizers

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Ways to Use Compost

Compost can be used as mulch, topdressing, soil amendment, or organic fertilizer.

- Mix it into planting areas to improve soil properties.

- If you don’t have a garden—use it with house plants, give it to a friend, or donate it to a community garden.
How to Compost

There are several methods of composting. Ask your local Master Gardener for specifics.

Composting Basics

1. Chop materials ½ to 1½ inches.
2. Mix equal volumes of carbon-rich dry brown and nitrogen-rich green plant materials.
3. Keep compost only as moist as a wrung out sponge.
4. Turn often.

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