

## Common Backyard Composting Questions and Answers

By Kathy Powell 5/03

revised from SHWEC original Fact Sheet by Holly Johnson and Ted May

Composting is a natural process that transforms organic wastes such as yard trimmings and food scraps into a soil-like material called compost. While decomposition occurs naturally, it can be accelerated and improved by composting materials under more controlled conditions.

With the right ingredients and a small amount of effort, anyone can make good, usable compost for their yard and garden. This fact sheet contains three tables to help new or “seasoned” composters improve their composting techniques. There is also a list of additional references at the end of this publication.

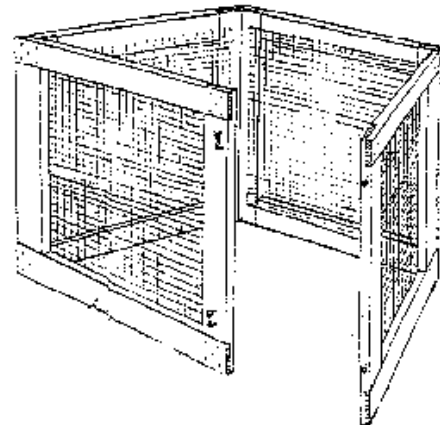
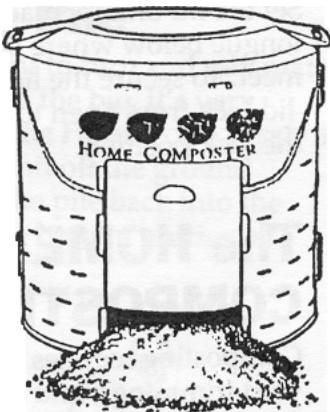
### **Table 1. General Questions:**

Provides answers to frequently asked questions about composting.

### **Table 2. Troubleshooting:**

Helps composters identify and correct common problems associated with compost piles. Factors affecting the composting process include carbon and nitrogen contents of materials, amount of surface area exposed, moisture, aeration and temperatures reached during composting. Problems with compost piles can often be corrected by modifying one or more of these factors.

**Table 3. Compost Pile Ingredients Yes or No:** Includes a list of materials people often consider putting in a compost pile. The table identifies which materials can be added to a pile and if there are limitations using them.



**Table 1. General Questions**

Questions	Answers
<b>What is compost? What are the benefits of composting organic materials?</b>	Compost is a humus rich soil amendment produced by the biological decomposition of organic matter. Compost improves soil and plant health, prevents erosion and holds moisture and nutrients in the soil. Backyard composting is less expensive and more efficient than sending yard trimmings to centralized composting or land spreading facilities. It also provides residents with a valuable resource.
<b>How long does it take to compost?</b>	Compost piles don't wear watches. There are no hard and fast schedules for composting. The length of time to get finished compost depends on the pile ingredients and how much effort is put into maintaining optimal composting conditions. A compost pile can take from 6 weeks to 2 years to fully decompose.
<b>How large an area is needed to do composting?</b>	It depends on the volume of yard materials you are composting. Usually one to three 3 x 3 bins are adequate for yard trimmings for a city lot. Individual bins should be approximately 3 x 3 ft. but no bigger than 5 x 5 ft. to be manageable. Allow double the space for portable bins in order to turn the compost. Turning is easiest if the bins are taken apart, reset up empty next to the pile and then the pile is transferred to the empty bin.
<b>Do I need a bin to compost?</b>	Bins are not essential, but they can be very helpful. Yard trimmings can be composted in a freestanding pile or in trenches. However, bins help keep piles neat, discourage animals, take up less yard space and are easier to turn than large spreading heaps.
<b>Where should I put the compost pile?</b>	Compost piles can be located in sun or shade. Piles should be placed in a convenient, well- drained area, near a water source, away from tree roots and 2 ft. from buildings. Check local zoning ordinances to see if there are any lot line setbacks.
<b>What is meant by carbon to nitrogen (C:N) ratios?</b>	The concept of carbon to nitrogen ratio is important when combining organic materials for composting. Microorganisms in compost use carbon as an energy source and nitrogen for making proteins. The ideal ratio is about 30 parts carbon to 1 part nitrogen or a 30:1 ratio. C:N information for specific materials is shown in Table 3. Generally, a pile containing 1/4 to 1/3 nitrogen or green plant materials by weight will compost well if the pile is kept moist and turned.
<b>Do I need to turn the compost pile? If so, how often?</b>	No, piles don't have to be turned, but turning speeds up the process. Turning a pile with a pitch fork, garden fork or in a tumbling unit will fluff the pile up to allow more oxygen to reach the microbes and shift the undecomposed material to the center where composting occurs more rapidly. Composters wanting compost faster need to turn their piles weekly or when the temperature falls below 90 degrees F or increases above 140 degrees F.
<b>Should I add water to the pile? If so, how much?</b>	Add water as the pile is built and afterwards, as needed. The pile should be kept moist – about as damp as a wrung out sponge. This keeps the microbes happy and working for you.

**Table 1. General Questions – continued**

<b>Questions</b>	<b>Answers</b>
<b>Do I need to do anything to materials before putting them in a compost pile?</b>	Although not essential, chopping, shredding or bruising materials into smaller pieces will greatly aid the composting process by increasing the surface area for microorganisms to work on.
<b>How do I know when the compost is done?</b>	Compost is done when it looks dark and crumbly, smells sweet & earthy like a greenhouse. Most of original plant materials are not recognizable and the pile does not reheat when turned. Compost must age an additional 4 weeks after it looks done to mature. Immature compost will compete with plants for nitrogen and can burn seedlings.
<b>What should I do with the finished compost?</b>	Finished compost can be used in gardens, around trees and shrubs and as a top dressing for lawns. It can also be used as part of a soil mix for transplanting seedlings, houseplants and ornamental trees and shrubs. Use no more than 25% compost in the soil mix and less for planting trees and shrubs. Compost can also be made into a tea and applied to houseplants and yard and garden plants. Larger pieces of material that have not fully composted can be screened out and placed into a new pile.
<b>Can compost be used instead of fertilizer?</b>	Compost cannot be used as a direct replacement for fertilizer. It can, however, reduce the need for fertilizer and is an excellent soil conditioner. Compost has a multitude of benefits. It improves drainage in clay soil and retains moisture in sandy soil. Compost provides micronutrients to plants and in some cases compost helps suppress plant diseases.

**Table 2. Troubleshooting**

<b>Symptom</b>	<b>Possible Cause</b>	<b>Possible Solution/Alternative</b>
<b>Compost pile is dry throughout.</b>	May lack water.	Turn compost and add water while turning. Moisten new materials as they are added. Cover pile with a tarp or plastic cover if out in the open. Keep damp as a wrung out sponge.
<b>Compost pile is damp and warm in the middle, but nowhere else.</b>	Pile is too small.	Gather enough material to form a pile 3x3x3 ft and/or insulate the sides and cover the top.
<b>Matted, undecomposed layers of leaves or grass clippings are present.</b>	Compaction, poor aeration.	Break up layers with garden fork or shred them, then relayer pile. Avoid adding heavy layers of leaves, grass clippings, hay or paper unless first shredded or loosened up.
<b>Large, undecomposed items present.</b>	Size and composition of materials	Screen out undecomposed items, shred or chop up to reduce size if necessary and use as a starter for the next pile.

**Table 2. Troubleshooting - continued**

<b>Symptom</b>	<b>Possible Cause</b>	<b>Possible Solution/Alternative</b>
<b>Compost pile is not heating up.</b>	If pile is damp and sweet-smelling, it may need more nitrogen	Mix in fresh grass clippings, blood meal or other high nitrogen material. Manure can be added but should be “hot” composted to kill any E.coli or salmonella. All parts of a hot pile should heat up to 130-140 degrees F. for 5-7 days. This is accomplished by turning the pile to bring all parts into the hot center. This “kill” time takes about 3-4 weeks for the entire pile. Additional time is needed to get finished compost..
	Not enough oxygen	Turn to fluff the pile and allow oxygen to enter in air spaces.
	Cool weather	Increase pile size and/or insulate it with straw or a tarp.
	Compost needs more micro-organisms	Additional microbes are not usually needed if a pile has a good C to N mix and is kept damp as a wrung out sponge. The microbes are already on leaves, grass and weeds. Keep them happy and they will multiply and heat up the pile. However, a shovel of finished compost (best) or a ½ shovel of garden soil can be added as a starter.
	Compost may be finished	If it looks dark and crumbly, smells sweet & earthy like a greenhouse, the original plant materials are not recognizable and the pile will not reheat when turned – it may be done. Let it cure an additional 4 weeks, then use the mature compost.
<b>Compost pile has a bad odor like ammonia</b>	Pile may have too much nitrogen.	Add materials high in carbon such as shredded leaves, wood chips, sawdust or shredded newsprint and turn pile.
<b>Compost pile has a bad odor like a mixture of rancid butter, vinegar and rotten eggs.</b>	Not enough oxygen – too wet.	Turn pile and add coarse dry materials such as leaves, straw or corn stalks to soak up excess moisture. Protect the pile from rain.
	Not enough oxygen – compacted.	Turn pile. Adding “breathing holes” may help some. Push a metal pipe or stick into pile in several places.
<b>Compost pile contains earwigs, slugs, millipedes or other insects</b>	Good signs pile is composting	Worms, beetles, millipedes, slugs and many other macro organisms are normal inhabitants of a compost pile. They work to help make finished compost.
<b>Compost pile is attracting raccoons, dogs, flies, rats or other pests.</b>	Inappropriate food scraps may have been added – meat, fat, bones or other wastes.	Avoid adding such materials; use a bin with a top, sides and possibly bottom. Bury appropriate kitchen scraps 6-8inches deep in the pile. See more detailed information on acceptable food wastes in Table 3.

**Table 3. Compost Pile Ingredients – YES or NO**

<b>Material</b>	<b>Okay</b>	<b>C:N *</b>	<b>Comments</b>
<b>Algae, lake and seaweed</b>	Yes	N	Use – good nutrient source.
<b>Ash from charcoal or coal</b>	NO	--	<b>Not recommended</b> – contains chemicals that may harm plants in the garden.
<b>Ashes from wood fireplace or stove</b>	Yes, BUT	O	Use carefully – very alkaline material. Use no more than a fine sprinkling every 18 inches or so. Provides K+ for plants, but can raise the pH too high and cause nutrient imbalance.
<b>Bird droppings</b>	NO	--	Not recommended – Bird droppings from pet birds should not be used as it may contain disease organisms and weed seeds.
<b>Cardboard</b>	Yes	C	Use if cannot recycle–recommend shredding into small pieces. High carbon source, glue usually organic.
<b>Cat feces or litter</b>	NO	--	<b>Not recommended</b> – may contain parasites or other disease organisms. Bury 5 inches deep in non-crop soils away from a lake, stream, well, children’s play areas, or put in the trash.
<b>Coffee grounds</b>	Yes	N	Use including coffee filters, which are a carbon source.
<b>Compost activator and starters</b>	Yes, BUT	N	<b>Not required</b> – use optional. Numerous activators, starters and inoculates are on the market which may contain enzymes, bacteria and/or high nitrogen sources. Reported results from these products range from no effect to positive. However, millions of people make compost successfully without them.
<b>Cornstalks, cobs</b>	Yes	C	Use – best if chopped up and mixed with a source of nitrogen
<b>Dog droppings</b>	NO	--	<b>Not recommended</b> – may contain parasites or other disease organisms. Bury 5 inches deep in non-crop soils away from a lake, stream, well or children’s play areas. Or put in trash or flush down toilet.
<b>Diseased plants</b>	NO, BUT	--	<b>Not recommended</b> – piles often do not get hot enough to destroy all diseases. However, a well-managed hot compost pile can kill most diseases.
<b>Dryer lint</b>	YES	N	Use lint from natural fibers (like cotton) not synthetics (like polyester). Moisten lint to speed decomposition.
<b>Eggshells</b>	YES	O	Use – may take several years to fully break down. Recommended to crush shells first.
<b>Fish scraps</b>	NO	--	<b>Not recommended</b> – can easily turn anaerobic and smell as well as attract rodents and flies.
<b>Grass clippings</b>	Yes	N-green C-brown	Use – combine with other materials to avoid matting. Grass treated with herbicides or pesticides is best left on lawn for first 2-3 cuttings after treatment. Most treated grass can be composted, but wait several months before using finished compost on garden plants. Do not compost grass if DOW Chemical’s clopyralid (Confront, Curtail, Stinger, etc.) or picloram (Tordon) has been applied, as they do not fully break down and can harm certain plants.
<b>Fruit scraps</b>	Yes	N	Use – recommend chopping the rinds as much as possible to speed up decomposition. Bury 6-8 “ deep.

\*NOTE: The presence of a C, N or O in the C:N column indicates whether the C:N values of the material tend to be carbon (C), nitrogen (N) or other (O)

**Table 3. Compost Pile Ingredients – YES or NO** continued

<b>Material</b>	<b>Okay</b>	<b>C:N *</b>	<b>Comments</b>
<b>Hair</b>	Yes	N	Use – high in nitrogen. Add moisture and mix into pile.
<b>Hay</b>	Yes	C	Use – “Hot” compost if any weed seeds are present. Avoid if treated with DOW Chemical’s clopyralid (Confront, Curtail, Stinger, etc.) or picloram (Tordon) as they do not fully break down and can damage certain plants.
<b>Lime</b>	NO	O	Lime is not needed. Yard materials will compost to a neutral pH on their own. Lime converts ammonium nitrogen into ammonia gas, creating odor problems. Lime can cause a pile to become too alkaline and kill beneficial bacteria. Before liming soil, have a soil test done at local UW Extension office.
<b>Junk Mail</b>	Yes	C	Use if can recycle or need additional carbon. Recommend shredding or tearing into small pieces or strips. Avoid glossy pages as inks may contain heavy metals.
<b>Manure from plant eaters: horse, cow, sheep, pig, goat or chicken</b>	Yes, BUT	N	Use carefully - excellent source of nitrogen. “Hot” compost to kill any E.coli or salmonella. Let fresh manure partially dry out before use. Fresh, hot manures from horses, sheep and poultry can generate too much heat and kill beneficial compost organisms. Partial to well rotted manure composts best.
<b>Meat, fat, milk, grease, cheese etc.</b>	NO	--	Not recommended – may attract animals, cause odors and slow composting process.
<b>Newspaper</b>	Yes	C	Use if cannot be recycled or need more carbon. Recommend shredding or tearing into small pieces or strips. Soy inks used today are safe for garden use. Avoid glossy pages as inks may contain heavy metals.
<b>Oak leaves</b>	Yes	C	Use – shredding will speed up composting process. Leaves are acidic but composting process helps counteract acidity.
<b>Pine cones and needles</b>	Yes, BUT	C	Use sparingly – recommend shredding and adding in small amounts (no more than 10% to regular compost pile). Compost slowly. Larger amounts can be composted with N source, but it will take longer.
<b>Sawdust and wood shavings</b>	Yes, BUT	C	Use – high in carbon, will need extra nitrogen to compost. Mix well. Do NOT use sawdust from pressure treated wood.
<b>Sod</b>	Yes	N	Use –recommend breaking up into clumps and distributing through pile, grass side down. May also be composted separately, grass side down, covered with black plastic to help retain moisture.
<b>Weeds</b>	Yes, But	N	Annual weeds that have not gone to seed can be composted. Plants that spread through roots or runners such as morning glory, quack grass, buttercup or ornamental ivy should not be put fresh into compost piles. Place them in a black plastic bag, and cook in the sun for 2-3 weeks then compost. A hot compost pile will kill most weed seeds.

\*NOTE: The presence of a C, N or O in the C:N column indicates whether the C:N values of the material tend to be carbon (C), nitrogen (N) or other (O)

## Additional References

Books	Fact Sheets
<p><b>Backyard Composting: Your Complete Guide to Recycling Yard Clippings</b> By Harmonius Technologies, 1992, revised 1997. Available at local bookstores or Harmonious Press. 800 / 247-6553 \$6.95</p> <p><b>Let It Rot!</b> By Stu Campbell, 1990, revised 1998. Available at local bookstores or on-line. \$12.95</p> <p><b>The Rodale Book of Composting: Easy Methods For Every Gardener</b> By Debra Martin, et al., 1992. Available at local bookstores or on-line. \$14.95</p>	<p>Available from SHWEC at <a href="http://www1.uwex.edu/ces/shwec">http://www1.uwex.edu/ces/shwec</a> and go to publications.</p> <ul style="list-style-type: none"> <li>• SHWEC Compost Bin Source List</li> <li>• SHWEC Compost Bin Plans</li> <li>• SHWEC Sample Home Composting Resources</li> </ul>

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### For More Information, Contact Your County Extension Agent or SHWEC

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SHWEC at <http://www1.uwex.edu/ces/shwec>

#### Green Bay

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