

Home Composting

Environmental Educator Fact Sheet



WHAT IS COMPOSTING?

Home composting is a simple process that assists in the breakdown of organic matter - such as food scraps and garden organics - into a nutrient rich soil-like material which can be used to create healthy and sustainable gardens. It can also help to divert organic materials from landfill.

WHAT CAN BE COMPOSTED?

Yes ✓

- Food scraps
- Vegetable and fruit scraps
- Tea leaves & tea bags
- Coffee grounds
- Crushed egg shells
- Hair - human or pet
- Paper & cardboard (shredded)
- Vacuum cleaner dust
- Garden organics (woody and non-woody)
- Sawdust



No ✗

- Animal droppings
- Meat products
- Fish
- Nappies
- Plastic
- Glass
- Metal



FOUR EASY STEPS

1) Find a location

The compost heap/bin should be placed directly onto the soil in a convenient location in your garden. Placing the heap/bin in a sunny spot will help to increase temperatures in the heap/bin to speed up the composting process.



2) Starting the process

Start with a good layer of woody or nutrient poor ('brown') materials such as leaves or shredded garden organics on the very bottom of the heap/bin to establish good drainage and aeration. Then place a thin layer (less than 5 centimetres) of food scraps or grass clippings. Cover this with a shallow layer (less than 5 centimetres) of leaves or shredded garden organics. Repeat this addition of layers. Alternating layers of fibrous or woody material with softer, nutrient rich material such as food scraps or lawn clippings achieves a well structured compost pile, which is well aerated with a good moisture content to allow for rapid composting. Water may have to be added if the composting material is dry. Note that if the material added is too coarse, composting will proceed slowly.



Department of Environment and Conservation

Our environment, our future



3) Maintain

Keep the heap/pile moist but not too wet. When adding food scraps, place them at the centre of the heap/bin where the temperature is the highest, helping to exclude pests. The composting process will proceed quicker if the material is occasionally mixed or turned about once a week to increase aeration. This will also help prevent odours.



4) Harvest - is my compost ready for use?

Home compost should be ready in three to six months and will be visibly different from commercially produced compost. Ensuring compost is ready for use is important as an incompletely decomposed product can slow or harm plant growth. This is due to the continuation of the decomposition process, which depletes nitrogen in the soil and produces acids which damage roots. Undecayed materials can also harbour pests and diseases and weed seeds may be introduced. Therefore if present in home produced compost coarse undecomposed material, such as twigs or eggshell fragments, should be sifted out.

The compost may not appear to be crumbly, however, this is perfectly normal as the weight of the undecomposed material above may have compacted it slightly and it can also be quite

wet. By fluffing up the compost with a garden fork it will soon separate into a crumbly texture ready for use.



Signs of mature compost are:

- It smells earthy - not sour, putrid or like ammonia
- It no longer heats up after being turned or watered
- It has a dark brown texture which looks like soil
- It's crumbly, and doesn't have identifiable food items, leaves or grass.



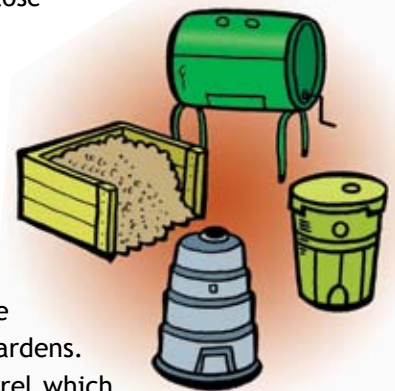
WHAT TO USE

Covered heap

A covered heap is useful for large quantities of compost. The heap should be enclosed using bricks or timber. The best dimensions are between 1-2 metres wide and 1 metre high. Leave an access area at the front of the heap for turning the compost and cover it with a piece of carpet or hessian bags. These allow airflow, prevent excess drying and keep pests out. Two heaps allow material to mature in one while composting in the other.

Compost bin

Better for smaller suburban gardens, plastic bins can be purchased from nurseries, hardware stores and local councils. They should be open at the bottom with the top requiring a tight-fitting lid. Ensure the bin you use has holes in the sides for aeration - not in the top, so you can control the amount of moisture. Avoid placing the bin or heap too close to your house. Two bins allow material to mature in one while composting in the other.



Compost tumbler

Compost tumblers are better for smaller gardens. They consist of a barrel which is held off the ground to enable it to be turned for aeration. With the increased aeration they are often quicker to produce compost than other methods. They are also less likely to have rodents and fly problems as they are fully enclosed apart from vents which allow air in.

COMPOST PRINCIPLES

Materials - Carbon : Nitrogen ratio

Basically anything that once lived will decompose and can be put in a compost bin; however, there are things that are best left out (such as meat and fish) as they can attract vermin. The composting process also requires a mixture of carbon and nitrogen materials as the micro-organisms utilise them for energy and growth.



Materials containing carbon (or 'browns') are generally drier, fibrous materials (e.g. paper, cardboard and woody prunings). They have higher levels of carbon and lower levels of nitrogen and moisture; as a result they will decompose more slowly. Browns provide structure to the compost heap. Materials containing nitrogen (or 'greens') are generally soft and moist, contain less carbon, and are high in moisture and nitrogen (e.g. most food scraps, grass clippings and weeds).

Water

Ideally, a compost bin should contain 40 - 60% moisture with the material feeling as damp as a wrung out sponge. If the material is too wet air spaces become clogged, limiting the oxygen available to micro-organisms. Decreased microbial activity results in a drop in temperature and the process then becomes anaerobic. If the contents of the bin are too dry the process slows as the materials become harder for the micro-organisms to break down. A good balance of greens and browns is required; greens supplying the moisture and nutrients and browns soaking up the excess.

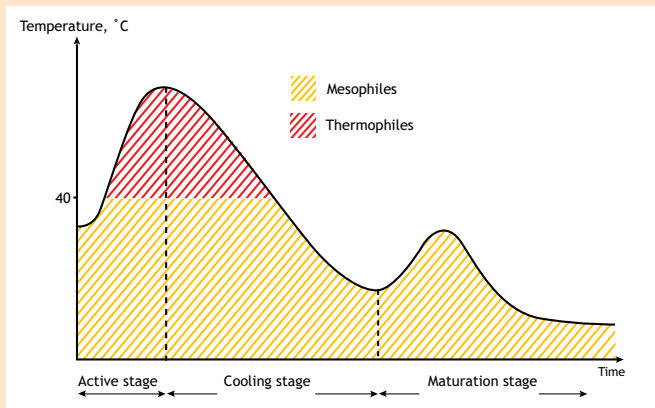
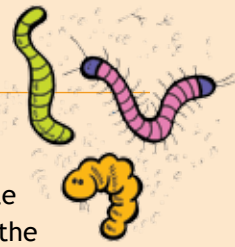


Air

Air is needed so micro-organisms can function and break down organic material. Air gaps in the material are therefore necessary to prevent anaerobic (low oxygen) conditions forming. Composting under these conditions occurs slowly and releases unpleasant smells. The most effective way to avoid this is to ensure that well structured brown material is used with regular turning.

HOW DOES THE COMPOSTING PROCESS WORK?

Composting involves the breakdown of organic matter by groups of micro-organisms. Bacteria are largely responsible and heat is generated as they consume the organic fraction in the composting mass.



1) Active stage

Initially, the composting process starts off at ambient temperatures, while non-heat tolerant (or mesophilic) bacteria eat their way through readily available organic material. They generate heat as a by-product of the process, which causes the temperature in the compost pile to rise. As temperatures rise above 40°C, a new group of bacteria called 'thermophiles' take over and continue to convert organic material into stable, soil-like humus. These heat-loving bacteria may drive the compost pile temperature up to around 50°C. These higher temperatures are important to kill weed seeds, plant pathogens and animal/human pathogens that can cause disease.

2) Cooling stage

When most of the readily degradable organic matter is used up, temperatures in the pile will cool back to ambient temperatures. Turning the compost may no longer cause temperatures to rise. The volume of the original materials will also be reduced by 25 to 50 percent. Decomposition continues beyond this point, but at a much slower rate, and little heat is generated.

3) Maturation stage

After the activity of micro-organisms decreases and the compost pile temperature falls to that of ambient air, the compost starts to mature. The maturing stage, in which compost is allowed to rest undisturbed, takes about 30 days.

HEALTH AND SAFETY



Always wear gloves and if you touch food waste or contents of the compost bin, make sure you wash your hands thoroughly in warm soapy water. If the contents of the bin are dusty, wear a particle mask and moisten the contents to prevent dust generation.

TROUBLESHOOTING GUIDE

Symptom	Problem	Solution
Compost bin smells	The compost pile is too wet or is not receiving enough air, leading to anaerobic conditions.	Turn the compost. If it is too wet, mix in some brown material such as dry leaves or shredded garden organics.
Bin contents have turned slimy	Too much green material such as food or lawn clippings has been added. Poor structure results in inadequate aeration and may produce odour.	Add brown material such as dry leaves or shredded garden organics and mix in. Reduce the amount of green material added. Turn the compost.
The centre of the pile is dry	Not enough water.	Add some water or some green material. Mix well and turn the compost.
Pests - cockroaches and flies	They are attracted to an acidic and smelly heap, which can occur when too much green material is added or when food scraps are left exposed on top of the pile.	Cover food scraps with brown material such as leaves or shredded garden organics. Add garden lime and brown material and turn the heap. A layer of garden soil can be added to the surface to help prevent pest entry while the compost re-heats.

MORE INFORMATION

Visit the ZeroWaste WA website: www.zerowastewa.com.au