

## Composting

Adding compost to your garden soil is an effective way to improve your garden's water efficiency. Compost improves soil structure and increases its water-holding capacity, which means less watering is required.

### Turn your rubbish into fertiliser

Every year, Australians throw away thousands of tonnes of household waste. Composting is a cheap and hygienic method of converting your kitchen and garden waste into valuable soil conditioner or fertiliser.

Composting reduces the amount of rubbish we throw away, decreases our need for landfill sites and provides a chemical-free soil improver and fertiliser.

### How do I compost?

Compost can be made in either a heap or bin, depending on the amount of material you generate and the needs and size of your garden.

A heap is useful for gardeners with large quantities of waste. Partially enclosing the heap using bricks or timber will help ensure it heats to a sufficient temperature. Leave an access area or work space at the front of the heap for turning the compost. The heap should be protected from hot sun and heavy rain to prevent excess drying or moisture, which prevents effective composting. You should cover it with a lid or piece of carpet.

A compost bin is often better for smaller, suburban gardens. Plastic bins and metal or plastic tumblers can be purchased from nurseries, hardware stores and local councils. Alternatively, make a bin yourself using a 200-litre drum or pieces of treated timber.

Compost bins have openings at the top and bottom. The top needs a tight-fitting lid to keep animals out and heat in. The base should be in contact with the soil. This allows earthworms to enter—they speed the decaying process by loosening the compost and allow air to enter and circulate.

The best location for a compost bin is on level soil in a garden bed. Avoid placing the bin or heap too close to houses, in case it generates unpleasant smells—if properly controlled, however, it should result in a dark, crumbly fertiliser with a pleasant, earthy smell.

You may want to have two bins or heaps. This allows material to accumulate in one while composting in the other.

A compost tumbler is a free-standing compost bin that can be manually turned to redistribute the contents. Tumblers are good for gardeners who want quick results—the aeration provided by tumbling compost speeds the process.

### What to compost

Most of your kitchen waste can be converted into compost. The process works best if you add a balanced mixture of rapidly decomposing 'green' material (e.g. fruit and vegetable scraps) and 'brown' material, which decomposes slowly (e.g. twigs). These can be added in any order.

Once you have a mixture of materials, cover with a layer of soil, add some water and a lid to keep the heat in and speed the rotting process.

Composting matter should feel damp, but if waterlogged it will smell, attract flies and be inefficient. Control the moisture level by adding absorbent materials such as sawdust, newspaper, straw or dry manure.



## Maintaining your compost

Aerate your compost. Turning the heap with a fork will speed decomposition. The more frequently the material is turned, the faster it will decompose. Care should be taken to make sure that all material is turned into the inner, hottest part of the heap where weed seeds and pathogens are destroyed.

If the heap is turned regularly, the compost should be ready for use in a month or two. Your compost can sometimes be smelly when you turn it, so set up your compost away from your neighbours. The heap may be left unturned, but the process could take an extra six to twelve months.

Compost is ready to use when it has a crumbly appearance, an earthy smell and identifying what things were is difficult.

**Water**—Keep the compost just damp. Overwatering will ruin your compost.

**Balance**—Add a mix of green and brown materials to make a well balanced compost.

**Air**—Turn the pile over every few weeks or every 4–6 days if using a bin.

**Heat**—Put your bin or heap in a spot where it gets some daily sunshine as heat helps transform waste into compost.

**Size**—A compost heap will mature quickest if it has a volume of at least one cubic metre.

**Micro-organisms**—Soil organisms help break down the compost material. They come from the soil or old compost you add and from the earth under the compost heap.

## Common problems

Getting the right proportion of moisture and the right combination of ingredients in your compost may take a little practice, but most problems can usually be overcome.

- ◆ **Too wet**—Add sawdust or shredded newspaper to help absorb moisture, and turn regularly.
- ◆ **Not heating**—Add a source of nitrogen, such as animal manure, blood and bone meal or vegetable scraps.
- ◆ **Too dry**—Water lightly.
- ◆ **Fly or cockroach breeding**—Fully enclose the compost. Make sure the compost is hot in the centre and turn regularly to ‘cook’ fly and cockroach eggs.
- ◆ **Too hot**—If the mixture goes grey and smokes, turn and spread it out to cool the compost down.
- ◆ **Smell**—All compost releases some smell when it is turned. Reduce smell by keeping the compost damp but not wet.

### How does composting work?

When making compost, the aim should be to provide air, some moisture and suitable food in the right proportions to keep micro-organisms busy.

When suitable material is collected in a loose heap, naturally occurring micro-organisms such as bacteria, fungi and algae start to feed on the softer, more succulent ingredients. The heap can heat up to 60°C while this occurs. This heat speeds the rate of breakdown and can kill diseases and weed seeds. It should also be too hot for cockroaches and flies to breed.

Once the softer material is consumed, the rate of activity slows as the organisms work on tougher material. As the heap cools, worms, centipedes and beetles move in to help. By the end of the process, most of the ingredients have been broken down, mixed together and rebuilt into a balanced soil food.

It's important to balance the carbon-to-nitrogen ration of the materials you put in your compost. Ideally, the proportion of carbon to nitrogen should be about 25 parts carbon to one part nitrogen, by weight.

‘Green’ materials such as vegetable scraps, manure and grass clippings from a lush green lawn contain high levels of nitrogen. Brown lawn clippings from a dry lawn will have less nitrogen than lush, green clippings. Clippings from lawns that have been extensively fertilised will have even higher nitrogen content.

The correct blending of carbon- and nitrogen-rich materials helps ensure composting temperatures remain high long enough for the process to work efficiently. If you are composting high-nitrogen materials such as lawn clippings, they should be blended with a high-carbon material such as chopped leaves or mulched branches and twigs.



## How do I use my compost?

Compost can be dug into the soil, applied to the surface of garden beds as mulch or used as top dressing for lawns. Dig the compost into flower and vegetable gardens to a depth of about 5 cm. Keep the compost away from plant roots and stems to avoid burning.

No single chemical fertiliser or animal manure by itself can match the goodness of nutrient-rich, homemade compost. It boosts nutrient levels in the soil, increases water holding capacity, helps control diseases in garden wastes, saves trips to the tip and backyard burning, and reduces garbage output significantly. Healthy, chemical-free flowers, fruit and vegetables are a bonus.

### More information

Other water-efficient gardening guides are available on the Department of Environment and Resource Management website <[www.derm.qld.gov.au](http://www.derm.qld.gov.au)>.

## What should I put in my compost?

Most organic materials which decompose readily can be used in a compost heap. For best results, chop or grind coarse material to speed breakdown. The smaller the leaves, twigs, and scraps you add to the pile, the faster they break down.

### ‘Greens’

- ◆ **Garden wastes**—grass cuttings, non-woody garden prunings, leaves, flowers and vegetable remains
- ◆ **Seaweed**
- ◆ **Kitchen wastes**—vegetable peelings, leaves and stalks, fruit peelings and cores, cooked table scraps, tea leaves, coffee grounds, egg shells and stale bread
- ◆ **Animal manure**—horse, chicken or cow manure but avoid other animal droppings. See ‘What should I leave out of my compost?’.

### ‘Browns’

- ◆ **Paper and cardboard**—Include small amounts of shredded newspaper and paper tissues.
- ◆ **Wood fire ash**
- ◆ **Sawdust and wood shavings**
- ◆ **Vacuum dust and hair**

## What should I leave out of my compost?

- ◆ **Woody garden clippings**—branches, whole roots, rose cuttings and other garden waste with thorns or nettles, conifer prunings or pine needles
- ◆ **Treated wood products**
- ◆ **Weeds with bulbs** such as nut grass and oxalis
- ◆ **Diseased plant material**—Put these in the rubbish bin.
- ◆ **Septic tank sludge or toilet waste**
- ◆ **Meat scraps** (which can attract rats and mice) and diseased animal carcasses
- ◆ **Animal droppings**—Cat and dog droppings can spread disease.
- ◆ **Any wastes that do not decompose**—metals, glass and plastics
- ◆ **Materials that kill the composting bacteria**—fat, oil, salt, disinfectants, antibiotics, herbicides, pesticides, waste recently sprayed with pesticides

