

Mastering Compost

Deep, friable, moisture retentive and sweet smelling soil is the holy grail of gardening. But when our garden soils are depleted of nutrients or parched for water, that's when the smart gardener steps in - with bucket loads of wonderful compost. It's the perfect answer to most soil questions and making your own home compost is a great way to turn your garden waste into garden gold!



The most basic and best way of improving your soil is to dig plenty of compost into new garden beds or simply lay it on top of existing beds. Buying compost in bulk can be expensive but you do have an alternative. You can produce your own compost successfully at home or in your school or community garden! And once you've mastered the skills of good composting, you'll never look back.



What is Compost?

Compost is the end product of decomposed organic materials i.e. anything that was once living. In nature this might be fallen trees, dead animals, leaf litter, bird droppings etc. As they decompose they lose their original form, break apart, become dark in colour and finally resemble the soil upon which they lie. This quite simply is composting!

As gardeners we generally cannot wait decades for organic materials to break down onsite to improve our soils. So we attempt to accelerate the process by running composting systems. To do this well we need to understand a number of key composting principals. And, once these are mastered, we are guaranteed to make beautiful compost every time.

Carbon/Nitrogen (C/N) ratio

This is often mentioned in composting text books and refers to the ratio of carbon rich materials to nitrogen rich materials in your compost heap. The ideal ratio is 25-30 parts carbon to 1 part nitrogen. At this ratio, and with the right amount of heat and moisture content, you will produce compost in the shortest possible time.

But the difficulty with calculating the C/N ratio is that different types of organic material (your compost's main ingredient) will each contain different proportions of carbon and nitrogen. This makes it almost impossible to figure out what amounts of each material should be added to the heap without getting a serious headache!!

A simpler system to follow is to decide if you want to Hot Compost or Cool Compost!



Organic Materials Suitable for Composting

High Nitrogen (Low Carbon)

- Fruit and vegie scraps
- Coffee grounds and tea bags
- Herbs and soft prunings
- Green leaves
- Grass clippings
- Fresh weeds (not bulbs or seed heads)
- Aged animal manures



High Carbon (Low Nitrogen)

- Dry leaves and small twigs
- Straw (pea, lucerne)
- Egg cartons
- Shredded newspaper
- Shredded pizza boxes
- Animal hair

**Garden waste
collected to
be added to a
compost heap**



Hot Composting

The micro-organisms that break down organic matter work best in tropical style compost heaps - hot, hilly and humid! If you can provide this environment you are **HOT COMPOSTING**.

- Build a large heap of organic materials 1.2 metres high by 1.2 metres wide. This can be on soil or on a hard surface area.
- Alternate your organic materials between high nitrogen and high carbon materials. Each layer should be about 10 to 20cm deep. Do not pack down.
- As you build your heap, spray each layer with water from your garden hose so that the materials are nicely moist but not saturated.
- Cover your finished compost heap with hessian or biodegradable weed mat and secure with garden bricks.
- Turn your heap twice a week so that the internal part of the heap moves to the outside and the external part of the heap moves to the centre. This will ensure even composting.
- After about 6 weeks you should have a heap of beautiful garden compost. Don't worry if you can still recognise some shapes e.g. eggshells. When you add the compost to the soil the composting process will continue.

Building a **compost heap**

Layer of Hessian to Retain Heat & Moisture
Low Nitrogen Straw & Water
High Nitrogen Kitchen Waste
Water
Low Nitrogen Garden Waste
High Nitrogen Manure
Low Nitrogen Coarse Prunings
High Nitrogen Grass Clippings/Paper
Low Nitrogen Straw Or Dry Leaves
High Nitrogen Soft Prunings
Low Nitrogen Coarse Prunings
Loosely Forked Soil Base

Why does **Hot Composting Work?**

For any composting system to work you need to supply four ingredients:

- Nitrogen - From the organic materials
- Carbon - From the organic materials
- Oxygen - In the air spaces between the ingredients
- Water - To keep the heap from drying out

A compost heap with all these ingredients and built to at least 1 cubic metre in size, will attract composting micro-organisms e.g. fungi, bacteria and actinomycetes. These aerobic (oxygen loving) micro-organisms chomp their way through the organic materials producing a hot and sweaty environment. Their populations increase and the composting process accelerates.

The whole system is literally cooking, materials are decomposing and compost is produced in weeks.



Cool Composting

Essentially the four ingredients needed are the same as in a Hot Composting system. The difference is that these ingredients are not all added at the same time but instead the compost heap is built over days, weeks and even months. In fact the size of the heap will probably never reach the 1 cubic metre volume that is needed for hot composting.

If not carefully monitored, cool composting systems can have an imbalance of carbon rich to nitrogen rich ingredients. And where oxygen levels are low or the heap is too wet, they can also become dominated by anaerobic bacteria. These anaerobic bacteria are very slow composters and so a cool composting process takes at least 2 to 3 times longer than a hot composting system.

Cool composting systems are typical of those run by home gardeners with a variety of compost bins. They can be very successful but require ongoing attention to ensure everything is in balance. If the ingredients added to the cool composting system are the same as in hot composting and the layering system is maintained, then the compost produced will be just as good. The ONLY real difference is that the compost will take longer to produce, perhaps 12-16 weeks instead of 6-8 weeks.



How do I know when my compost is ready to use?
It should look brown and moist and smell rich and earthy!

Worms and composting

Worms get all the glory for composting but they are not your first line of decomposers. Worms move through the decomposing materials after the fungi and bacteria have already started the process. Essentially composting worms consume the bacteria attached to the broken down organic particles - its pure self interest!

Composting systems do not need worms but they are useful. They tunnel through the decomposing materials creating tiny airspaces and their excretions or castings are nutrient rich and enhance the compost mix. So if you do have worms in your compost heap it is a reassuring sign that all is working well and your heap is humming!

Add to your compost

- Fruit and vegie scraps
- Coffee grounds
- Tea bags
- Herbs
- Leaves
- Egg shells - crushed
- Pizza containers
- Egg cartons
- Vacuum cleaner dust
- Animal hair
- Onion - outer skin
- Finely chopped citrus peel
- Grass clippings
thin layers 3-4cm)
- Chopped prunings
- Weeds - not bulbs or seed heads
- Shredded newspapers

Keep out of your compost

- Meat and fish scraps
– they can attract vermin
- Dairy
– again they attract vermin
- Office paper
– bleached or glossy
- Weed seeds and bulbs
– You will only spread them
around your garden
- Bird, dog and cat poo
– No, No, No!
- Large tree branches
– unless you've put them
through a chipper
- Citrus fruit
– Okay in small quantities
- Diseased plants
– No, No, No!

Common Composting Problems

- **My compost smells sour** – Too much nitrogen based materials and/ or too wet. Mix in some shredded newspaper, dry leaves or straw. Relayer if necessary.
- **Nothing is happening** – Too much carbon based materials and/ or too dry. Mix in lots of garden clippings, aged animal manures and kitchen waste. Re-layer if necessary.
- **There are ants in my compost** – Too dry. Compost heaps should be moist but not saturated. Re-layer and spray each layer with water as per instructions.
- **There are no worms in my compost** – You either have a sealed compost system eg a Compost Tumbler or your compost is too wet or too dry or too hot. Worms like to live in moist environments with temps below 30°C. If running a cool composting system, keep it out of direct sunlight in the summer months.
- **There are worms on the rim of the compost bin** – They're bohemians - let them be!
- **There are slugs and other crawlers in my compost bin** – Good, it makes for a balanced society (ecosystem). As long as they are not there in excessive numbers, tolerate difference!
- **How do I control vinegar flies?** Put a piece of shade cloth across the top of the compost bin before putting the lid on.

Why Compost?

Typically food scraps, and any other organic materials included in your general household waste, end up in landfill. When organic waste breaks down anaerobically (without oxygen) in landfill it produces methane gas. Organic waste breaking down aerobically (with oxygen) in a home composting system produces carbon dioxide. While these are both greenhouse gases, methane has 21 times the global warming potential of carbon dioxide. By composting at home you are diverting this organic waste from landfill and creating an excellent soil improver for your garden.

