



MY FOOD GARDEN

urban agriculture and food gardening services

How to make ideal veg garden compost with the hot compost method - Webinar hand out instructional notes

Composting introduction

- Compost is partially decomposed organic matter, mostly plants and manures of plant eating animals;
- As the organic material is broken down by micro-organisms in the compost, the nutrients and life force of the compost are brought to a state where they can be easily taken in by plants;
- Humus is the end product of fully decomposed compost. It contains humic acid which aids the essential minerals already in the soil to be more available to plants. It stimulates seed germination, plant growth and yield;
- The key benefits of compost are:
 - Improves soil structure – Creates good separation of soil particles and this aids with the aeration of the soil;
 - Nutrition – It releases nutrients into the soil slowly and they aren't easily leached away by water seeping into the root zone;
 - Improves water holding capacity – Good compost has up to 6 times the water holding capacity of normal soil. This means more compost will result in the need for less water in your garden;
 - Creates robust plants – Using compost results in more robust plants, less impacted by diseases, pests and weakening from environmental factors such as extreme heat or cold, too much or too little moisture;

TIP: Every successful food gardener engages in the alchemy of compost making

Compost materials

- When you make compost, you are doing what nature does, but only faster. Compost is nature's method of recycling;
- For many people, compost is a way of converting into a useful resource, wastes which would otherwise be disposed of;
- If you have a sizeable vegetable patch and you live on a smallish city block, it is likely you will not have enough organic matter from your own food and garden waste to create sufficient compost for your needs. This means you will need to bring in other ingredients, especially animal manures, though you may have your own hen manure;
- For hot compost here are some of the possible organic matter ingredients you could bring in from external sources: any green manure plant, pond weeds, weeds from gardens, wood ash, cow and horse manure (preferable grass fed animals), hen manure (free range chickens), hay and Lucerne, leaf mould (not eucalypt), tea leaves, throw-away greens from your green-grocer, leafy component of most pruned plants from yours or your

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Web: <http://myfoodgarden.com.au/> Email: peter@myfoodgarden.com.au 1

neighbours gardens (not eucalypt), any vegetable garden plant scraps of un-diseased plants (exclude most roots), flowers, eggshells (free range), coffee grounds, blood and bone meal, fish and seaweed emulsion,, sawdust and mushroom compost;

- It's always preferable when bringing ingredients from external sources that they are not sprayed or treated with chemicals when grown;
- It's best to avoid putting meat into your compost. Although it will break down over a very long period of time, the smell will attract animals and repel your neighbours;
- With food scraps, it's better to only put them in a cold-compost, which is in an enclosed bin, otherwise you will attract animals to your garden.
- Many gardeners put paper and cardboard into compost. My recommendation is to only use unprocessed organic matter. Paper and cardboard bring chemicals into the compost heap and do not aid in the compost being the best possible quality compared to unprocessed organic matter.
- If you cannot get any animal manure, the best alternative is to use the partially rotted vegetable matter and with your garden scraps, you may find some of this has broken down into soil. Use this in your manure layer as well.

TIP: Be vigilant in using clean compost ingredients

How to make compost

Hot compost pile

- Your compost bay should not be located anywhere near trees as their roots will get into the compost heap. The bay does not need to be shaded and should ideally be on soil which is quite level. I use star pickets and wire to define the compost bays, very low tech and have 3 bays. One for compost brewing, one for finished compost and the third bay for accumulating garden scraps
- A hot compost pile is the best way to produce large amounts of compost fairly rapidly (less than 6 months)
- If you have machinery or want to do lots of hand turning of the compost heap, it will finish off considerably faster than 5-6 months, but it's not necessarily better compost, just faster compost.
- The pile is made all at once. Meaning, you do not progressively add to it as you would with a compost bin. The principle here is that the best compost is made when the environment for the organisms breaking down the substance is kept as stable as possible.
- I normally do my hot compost piles by hand and have a few people to help make them and I turn them once with a pitch fork and shovel during their five month break down period.
- Given it takes 5-6 months with the method I am describing to get finished compost, it's very important to time your compost making into your peak planting cycles, for example, if you start your autumn to winter veg planting in April, then make your compost for this in early November of the previous year. Then for your spring to summer planting, make your compost in March of the same year.
- Plan a hot pile well in advance so you have all the ingredients ready on the day and they are placed around the compost bay. With the help of 2-3 people on the compost making day, we can make a 2 cubic metre compost heap in 1 hour so long as all ingredients are at hand. Checklist is: Manure, green matter and dry matter of roughly equal proportions; hose at hand with spray for water, minerals (small quantities only of gypsum, wood ash, rock dust, egg shells, blood and bone), some old compost and

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your garden tools (rakes, pitch fork and shovel) and lastly a compost bay which is empty.

- The heat in the pile has the advantage of killing pathogens and seeds so you can use all your seeded weeds, grasses and old veg garden plants that have gone to seed.;
- Your greens in the pile should be as fresh as possible and preferably cut on the day. The greens you use depend on what is available at your time of year and climate. I use cut grass for fine greens and then cut lilies, banana fronds and fine leafy pruning on bushes which are not too woody (if I had a chipper I could use a lot more pruning).
- Any manures should be soaked in water for at least 1 day a before being used so they turn into a pasty consistency. I put the cow manure we use into a tarp and hose it each day to let the water soak into, do the same for horse manure and cover the manure when doing this soaking;
- When doing the layering of the heap, dry, manure and green, be sure that all layers are thin and spread the material out over the whole area of the compost bay so that the heaps grows with a level top. If you don't do this at each adding of a layer, you will find it naturally piles up into the middle to a peak.
- A well made large pile will break down faster than a smaller pile because it is more effective at retaining heat. The heat is generated by the hard working micro-organisms in the pile. A hot pile can reach up to 60-70c;
- Its best to have your compost area in or next to the garden, as the enriched soil will leach into your garden, as well as the happy worms, once it cools down.
- An open enclosure of at least 1 cubic meter square should be a minimum size. You can border this with wire, wood or metal. You could also build the heap with no enclosure and this tends to be ideal when you have a large volume of ingredients, say up to 2 cubic meters;
- The ingredients should be in thin layers like a lasagne, with dry material first, then soil or manure and then green matter. Then start the dry material layer again and keep repeating the process;
- While layering put plenty of water on the pile and sprinkle small handful of gardeners lime or gypsum, wood-ash and rock dust on the green layer;
- A biological activator can be used. Biodynamic (BD) compost heaps work very well with their compost preparations added to the heap at the end of the building process. Comfrey is also helpful but not as potent as the BD compost preps
- Some gardeners simply use some old compost from a previous heap, as long as it quite fresh;
- Insulate the pile with hay once it is completed. This helps to keep the heat in and protect the heap from getting too wet if it rains a lot or drying out if its too hot.
- The pile should start to heat up within two days and stay hot for a 6 weeks with progressive cooling from week 3.
- At 4 months, you will see that the pile has lost its volume by about 50%. This is the time to turn the pile in on itself, aerate it and water it. This will aid in the heap finishing off and ensuring it keeps moist. By month 5-6 the heap should be ready and you will know when the matter is fully broken down into a dark sticky and moist material that has a strong earthy smell. Composting alchemy that creates the gold of your garden

TIP: The right mix of ingredients prepared correctly will always produce beautiful compost

Compost troubles

- Unpleasant odour – aerate, add browns to soak up moisture, turn pile
- Pile doesn't heat up – poke holes in heap and insert plenty of water, turn the heap from outside to in.
- Hot pile cools off too quickly – use pitch fork to get more air into the heap and add water. Most times the slowing of the heating process is due to air and water imbalances.
- If you expect a lot of rain just after you have made the heap, cover it with metal to keep off water as too much water on the heap will cool the heating stage down. Normal rain is not a problem, but heavy downpours can be an issue where extra covering is needed
- If it is very hot straight after you have made the heap and its likely to stay that way for the at least 2 weeks after you have made the heap, then covering the heap to stop evaporation is very important.
- Pile is damp and warm in the centre only – Once you turn the pile in on itself and add water, the matter that is not broken down will start to transform. This problem of too much of the outer layer not breaking down will normally be because of lack of moisture. I water my compost heap after week 6 about one per week. This is a light watering only to keep the exterior moist so more of the matter is transformed. pile is too small and should be enlarged, add nitrogen via manure of grass clippings
- Animals get into the pile – avoid food scraps or meat in the pile, put a covering over the pile
- Some material does not break down – add water, turn pile, choose smaller pieces well chopped in future. Hard woods will take much longer to break down than the other matter in the heap, so if you use wood make sure its chipped, if having sawdust is OK, and preferably the wood is soft wood, not hard wood, especially avoid eucalypt as its oils greatly slow down micro-organism activity in the heap.
- If you live in a cold climate, the compost breakdown will slow when the compost gets too cold. Some tips with keeping up the heat are: (a) place the heap in a location that gets winter sun, (b) cover the heap with insulating mulch and fabric that keeps out cold rain or snow (make sure the heap is moist under the fabric), and (d) fork the heap occasionally to help with activation as this brings more air into the heap

TIP: Closely monitor the heap, especially in the first few weeks

Potentising and balancing compost

Putting all the ingredients together for a compost as described above, will result in activation, but it helps a lot to potentise the heap so its activation runs just right and an appropriate balancing of all the key minerals and substances in the compost heap is achieved. This results in a compost which is ideal for soil and plants.

Biodynamic compost preparations as the activator

I have used biodynamic (BD) compost preparations for many years and I have found them to be the final ingredient to enable an ideal compost to be created. The other methods of making and managing the heap as described above need to be followed but the BD compost preps finish it off in my experience.

The BD compost preps are added when the heap is completed. There are 6 compost preps and its best to make 6 holes around the centre of the heap and place one of the preps in a hole, then use next prep into next hole and so on until all six have been done. The compost functions of each compost prep are described below:

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The 6 compost preps are listed below and their relationship to key minerals:

1. **BD502 – Yarrow** – connection with sulphur, aiding greater attraction of trace elements. Important for plant reproduction and growth.
2. **BD503 – Chamomile** - assimilates calcium and stabilizes nitrogen (N) within the compost & increases soil life, stimulating plant growth. Promotes a good breakdown of proteins in the compost to humic plant nutrients
3. **BD504 - Stinging nettle** – It enlivens the earth and helps to release iron into the soil. Helps to improve the potency of plants by increasing their sensitivity and individualising them to their surroundings. Improves the nutritive qualities of plants
4. **BD505 – Oak bark** – Works very strongly with calcium and is an excellent remedy for plant diseases including fungus. It helps to restore balance with the ether body of the plant and control rampant growth. Moon forces become active in the plant in a healthy manner with oak bark. Extended use of the oak bark will help to raise the ph of the soil without the need to add lime.
5. **BD506 – Dandelion** - It increases a plants sensitivity and helps it to attract beneficial things from a wider area. Dandelion works strongly with silicic acid and potassium
6. **BD507 - Valerian** - concentrates phosphorous in the plant and this in turn aids with the plants capacity to attract light in the photosynthesis process. It stimulates the phosphate activating bacteria in the soil.

These BD compost preparations can be purchased from your local Biodynamic Associations. In Australia, its [Biodynamic Agriculture Australia](http://www.biodynamicagriculture.com.au).

Other activators

The substances listed below can assist in activation but are not likely to guide the compost heap to its balanced end point as effectively as BD compost preps:

- Old compost - Your old compost, if its very well made and in a slightly sticky humic state with a strong earthy smell, is a helpful activator.
- Comfrey tea and leaves - OK, but not as good as old compost or BD compost preps
- Biological ferments – There are many on the market and they can be useful.

Using compost to get the most value

- The optimum time to use compost is when the humus has its greatest aliveness and concentration of micro-organisms. You will be able to see this by its rich earthy smell, dark colour, consistency and moist/sticky to slightly crumbly appearance.
- The compost will stay in this ideal state for at least 3 months if you keep it moist, so water it lightly when you water the garden once its in its optimum state
- If you leave the compost for a long period of time after it is ready, it will turn back into soil, which is still good soil, but its not as potent in helping plants to grow as compost used at its optimum time.
- Its best to schedule your larger compost heaps to be ready for your peak planting seasons. In the sub tropical climate I live in, we have two peak planting times per year, March to May and August to October, so I aim for two large compost heaps each year, with the first made in November/December and ready for March/May and the second made in April/May for August/October.
- All during the year, I have cold composts running with scraps and whatever is not finished off into soil is added to my host compost process as part of the manure layer.

- To maximise the benefits from your compost, I suggest using it: (1) when you plant by putting a handful or more into the hole you have dug for the seed or seedling (2) add it to the base of the plants as they grow, this is the best fertiliser they can get. In this way, you will spread compost around your food growing space. (3) turn some of your compost into a liquid (compost tea and pour it over your whole garden area
- If you have the luxury of large volumes of compost, then dig into your beds prior to planting. Most home gardeners don't have spare compost for this, only farmers with large volumes of manures and organic matter.

TIP: Most home gardeners will never have enough compost, so use it wisely, don't just dig it into your whole garden; use it when it's needed most.

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Peter Kearney – My Food Garden founder

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Web: <http://myfoodgarden.com.au/> Email: peter@myfoodgarden.com.au 6