

## **A. What to put in your first compost bin**

### **GETTING GOING**

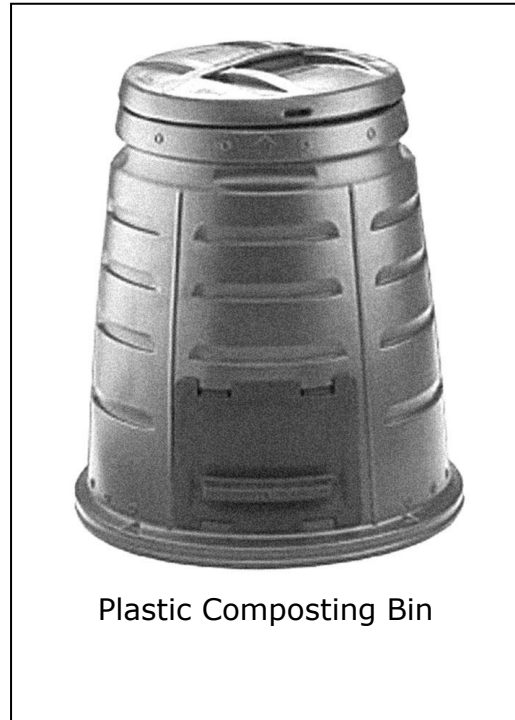
Put the bin somewhere convenient to use, on bare earth, in a sheltered spot. You need to aim for a balanced diet of 'Greens' and 'Browns'.

Start with the top of your previous heap, some animal manure or a layer of Browns. Add compost materials as they come, trying to get equal amounts of Browns and Greens. This will make your compost the right texture - not compacted or full of large air pockets.

Each time you use your compost bin, before adding more, check that it is not too wet or too dry. If it's dry water it. If it's soggy, mix in some more Browns. If most of what you compost is Greens, and you haven't got enough garden Browns, then add in crumpled egg boxes, cardboard tubes and torn-up boxes. Water as needed to keep the heap moist.

### **GREENS**

Fruit and vegetable remains, dead flowers, weeds, young hedge clippings, vegetable plant remains, grass clippings (mix really well with Brown stuff), crushed eggshells, tea bags, coffee grounds. These rot quickly and can become compacted. Mix with 'Browns' to prevent the compost becoming slimy and smelly.



Plastic Composting Bin

### **BROWNS**

Woody prunings, plant stems, twigs, autumn leaves (small quantities), crumpled cardboard, egg boxes, wood shavings, animal manure. These compost more slowly, but are essential to give the compost texture and allow air through the heap. On their own they tend to be too dry.

### **DO NOT COMPOST THESE IN THIS BIN!**

Do not put meat, fish, cooked food, dairy products, roots of perennial weeds, any diseased plants, cat or dog faeces, plastic, glass or metal in this bin.

### **TURBO-CHARGE YOUR COMPOSTING**

Chopping everything up will speed up composting. It also reduces its bulk dramatically, so you can get more in your composter.

## B. How to make Compost

### **1. Cool Compost**

A good way of making compost if you don't have much material to compost at any one time. Cool composting may take 12 months or more to be ready - but it can produce excellent results.

#### **After 6 months or more**

- look and see what has happened.
- remove any finished compost
- replace uncomposted items
- add wet or dry materials to adjust mix if necessary

#### **Or**

After a year or so, or when bin is full, stop adding to the heap. Leave it to finish composting.

- Remember it's important to have a mixture of ingredients
- Water if dry
- Add kitchen and garden waste as available
- Contents sink as it composts
- Compost forms at bottom of heap

### **2. Quick, hot compost**

This method can make compost in as little as 6 to 8 weeks in the summer. The heap can heat up rapidly, reaching temperatures as high as 70C in a few days.

When it has cooled down, empty the container, then refill it, mixing everything together. This is known as turning the heap. Add more dry materials, or water to adjust moisture if necessary. Turn the heap 2 or 3 times.

- Fill the bin in one go
- Chop or shred tough items
- Mix wet and dry materials
- Water dry ingredients
- Contents sink as it composts



Wooden slatted-side composting bin.

### **3. High fibre compost**

*This system of composting was devised at the Centre for Alternative Technology*

Too much kitchen and soft green waste makes an unpleasant, soggy mess rather than compost. Cardboard and paper provide the fibre needed to make good compost.

#### **SUITABLE FOR COMPOSTING**

card packaging  
envelopes

toilet-roll tubes  
cereal boxes

paper bags  
kitchen towel

tissues  
egg boxes

corrugated card

paper towels

#### PAPER BEST RECYCLED IN OTHER WAYS

newspapers & magazines

phone directories

flat office paper

After 12 months or so, start a new heap, leaving the first one to finish composting.

- Add stuff to the heap as and when it becomes available
- Use roughly equal quantities of paper and/food garden waste
- There is no need to turn or mix the heap
- Compost will slowly start to form at the bottom of the heap

## C. More about composting

### **The raw ingredients**

A huge variety of materials can be composted, and it is best to use as many different kinds as you have available.

It is best to have a wide variety of different organic materials in your heap. In practice this isn't always possible and perfectly good compost can be made with only two or three different ingredients. The secret is to achieve a well matched blend - if one ingredient is high in nitrogen, try to balance it with one that contains a lot of carbon. Or if one ingredient is very dense and fine, try to balance it with another one with a coarser texture.

Some materials are activators - they will help to get a sluggish heap going and usually generate a lot of heat. All heaps benefit from having an activator present.

It is worth mentioning that some things should not be put on the heap. These include plastic and other non-biodegradable materials, weed-killers and pesticides, medicines, diseased plant material and persistent weeds.

### **Rotating drums**

These are turned daily to introduce air into the compost. This makes for speedy decomposition and compost can be ready in a remarkably short period of time. If you have a continuous supply of material and need a fast turnover, this may be the system for you.

Globe Organic Services offer a small tumbler for £164.50. This holds five cubic feet of compost and is suitable for small amounts of kitchen waste. Their largest model costs £381.87 with a compact version at £299.62. They promise compost ready for use in as little as 14 days. The simplest compost tumbler on the market is available from the Organic Gardening Catalogue for £59.90. This has a 220-litre capacity and claims to produce usable compost within four weeks.

### **Worm composting**

Wormeries are very efficient composters which are filled and emptied on an ongoing basis. Units are bought as a complete system, including worms and

bedding. The worms are fed on kitchen waste, from which both compost and liquid feed are produced. The worms cannot be neglected: they need to be kept within a given temperature range and must not be allowed to dry out or become waterlogged, but they will reward you with a fine-textured rich compost. Although they only hold small quantities of waste, the turnover is so rapid that they can process 22 kg of waste in a year. They cost around £50 and are available from Wiggly Wigglers, Recycle Works and Green Gardener.

### **Garden waste**

Most weeds, and the soil clinging to their roots, are fine on the compost heap. The exceptions are perennial weeds like docks and thistles. If your heap gets really hot, any weed seeds should be killed by the heat. In practice, most garden compost has some pockets that haven't heated as well as others and some viable weed seeds will survive. If lots of weed seeds germinate, the compost may need turning and reactivating. Nettles are an excellent addition to a compost heap and it is worth cultivating a clump of them in the corner of the garden for that purpose. They have a carbon/nitrogen ratio of about 30: 1 and make a good compost activator. The leaves and soft stems from plants such as peas, beans, pumpkins and tomatoes which have finished cropping make good compost material. Coarse woody stems and branches should ideally be shredded before adding them to the heap, or they can be used at the base of the heap to create air channels. Beware of adding material, such as potato haulms, which might carry disease. Many diseases will be killed by the heat of the heap, but if you aren't sure how hot your compost gets, don't risk it.

### **Kitchen waste**

Any fruit and vegetable scraps can be incorporated into the compost heap. Even if these were not produced organically, I believe that they still serve a better purpose turned into compost than thrown away. Some people don't add grapefruit skins or banana peel, but I add the lot and it all rots down. Egg shells seem to take forever to decompose - crush them up to help the process. Coffee grounds are an excellent addition to the compost heap as they are a powerful activator.

The main thing to beware of with kitchen waste is not to incorporate things like meat and fish and scraps of cheese. It isn't that these won't rot down to make compost, but that they will invite every rat in the area to dinner. They may also create a fly problem.

Kitchen waste is generally high in nitrogen and may need balancing with a high-carbon material.

### **Straw**

This makes a perfect compost material - its bulk ensures lots of air-pockets in the heap, and although it is rather carbon rich, a layer of manure or grass mowings will complement it nicely.

The main reservation I would have is if the straw is not organically produced. In this case it is best to let the bales sit out in the rain for a few months before adding the straw to the heap. This will wash away a lot of the chemical residues which might interfere with the full functioning of the compost heap.

### **Newspaper and cardboard**

These can be useful on the heap, particularly if other bulky materials are hard to come by. The main reservation I would have is about incorporating too many inks and glues in the compost, not to mention the bleaches used to whiten paper. Cardboard is better than lots of newspaper. Glossy papers do not break down readily and should be avoided.

### **Sawdust**

Some people say that sawdust, which has a 500:1 carbon to nitrogen ratio, robs nitrogen from the soil as it breaks down, to such an extent that it should never be used fresh in the garden. I don't always agree with this, but where the compost heap is concerned I err on the side of caution. If possible, make a separate heap of sawdust and allow it to rot down until it is very dark in colour, then add it to the heap in layers. If you want to add fresh sawdust, do so only in layers of 1" or so.

### **Grass mowings (activator)**

These are the main bulk material for the compost heap in many gardens and will make excellent compost. However, problems arise if grass mowings are put on in too thick a layer as it is an easy way to overwhelm the heap. The trick is to add them gradually, creating a separate pile if necessary. Mowings contain a high level of nitrogen, which needs to be balanced by a high-carbon material if you are to avoid creating a sludgy mess instead of compost.

It is preferable only to put 6" to 8" of grass mowings on to the heap at a time using a layer of some other material in between each layer of grass. You can interspace with a layer of straw or garden refuse or try soil or cardboard if no other suitable materials are available.

Grass mowings generate a lot of heat as they rot and can be a good way to get a heap going.

### **Comfrey (activator)**

Comfrey leaves are rich in potash and will certainly break down quickly on the compost heap. However, I would only use them in this way if you have lots or if you have no other activator, since there are better ways of extracting the benefits of this valuable crop.

### **Manure (activator)**

This is a good source of nitrogen to balance out too much carbon in a heap. Manure generates lots of heat as it rots and is an excellent activator. Be wary about using cat or dog faeces, however as these may carry diseases.

### **Seaweed (activator)**

If you live near a beach and can collect seaweed that is washed above the high tide line, pile it on your compost heap. It is worth hosing it down first to remove excess salt. Seaweed breaks down very quickly to produce a dark rich compost that is full of trace elements. Being high in nitrogen, it mixes well with straw or shredded prunings.

### **Urine (activator)**

Human urine is one of the best compost activators. Dilute it with water and pour it over the heap. You can also add some to that pile of wood shavings

that you are trying to rot down. Excessive amounts can raise salt levels too high, but normal household output is unlikely to be a problem.

### **Old compost (activator)**

It's always worth sprinkling a couple of spadefuls of old compost into a new heap. Beg some from a neighbour if you don't have any of your own. This will be supercharged with the essential bacteria and fungi for getting the new heap going.

### **Commercial activators**

There are many products available to buy to kick-start your compost. They contain a balance of microbes and enzymes, and some are based on herbal preparations. Biotol Compost Maker, Rotol Compost Treat and QR Compost Activator are three to look out for. Many compost makers are carbon-rich.

### **Leaves**

You can add these to the compost heap, in thin layers, but it seems a waste - better to make leaf-mould instead.

### **Wood ash**

This is a good source of potash, but one that is quickly washed away. If you have lots of wood ash, add some to the heap, otherwise save it for more important uses.

## **D. Making your own seed and potting composts**

### **A brief history**

If a gardener of the 1920s could be transported to the present day, he - and it most likely would be a he - would be astounded at the range of potting composts now available. Before the 1930s seed and potting composts were mixed by gardeners to their own recipes. Each stage of plant growth had its own mix - 'multi-purpose' compost was unheard of.

In the 1930s, soil scientists in the newly established John Innes Institute developed a range of growing media. For the first time, standardised seed and potting composts became commercially available. A mix of loam, peat and grit in proportions of 7:3:2 provided the bulk. Fertilisers, 'JI base', were added in different proportions, depending on the use of the mixture.

Peat-based composts were developed in the 1950s in California, and became commercially available in the UK in the 1960s. 'Multi-purpose' had arrived.

### **Peat-based mixes**

Peat opened up a whole new gardening world. It was just what gardeners and the industry had been waiting for. For the first time a consistent, uniform material was available in large quantities. Peat is a weed- and disease-free medium with an acid pH, so peat-based formulations are perfect for almost all plants.

There were initial problems. It took a while to get used to the very different watering needs of peat-based composts: they dried out easily, and ran out of food faster than loam-based mixes. Once people had got used to them, however, multi-purpose peat-based composts were a runaway success. Transportation costs dropped. Container plants became easily available.

Machinery was designed to cut and lift peat in large quantities, supplying the ever-growing demands of horticulture. Commercial peat producers could see no end to this success story.

### **Peat-free mixes**

The peat bonanza was unsettled by the peatlands preservation campaign, launched by the Peatlands Campaign Consortium in the early 90's. A range of peat-free media rapidly appeared on the market, using coir and composted wood wastes as the basic ingredient. Organic peat-free mixes have taken longer to appear. Developing a standard mixture with a predictable nutrient release based on biodegradable materials, such as composted manures and other waste products, is not a quick business when compared with simply adding a few chemical fertilisers. The range and reliability of organic peat-free composts is slowly increasing. Many of them are made from recycled waste products such as manure, sewage or crop wastes - an added ecological bonus.

### **Why make your own?**

- Organic, peat-free composts are not always available locally.
- Even commercially produced seed and potting composts have a limited life. If only a small quantity is wanted, a large bag can be very wasteful.
- The basic ingredients, such as loam, compost and leafmould can be readily available at no cost.
- You can make small quantities as required.
- Those who prefer animal-free products can be confident about the ingredients.
- You can make mixes appropriate to their use.

### **The pitfalls**

If seed and plants germinate and grow in soil in the garden, why should they not do the same in trays or pots? If incorporating recycled wastes, such as garden compost, improves soil fertility in the garden, why not add some to the soil in a pot to encourage the seeds and plants to grow well?

In fact, making your own growing medium is not as simple as this. Commercial producers spend years developing their products. It is hard to replicate the characteristics of an ideal growing medium - good structure, water retention, good drainage and so on - on the potting bench.

Although plain garden soil will grow seedlings and plants very effectively in your garden, it will not be so effective when confined in a tray or pot. The number of micro-organisms in garden soil is beyond comprehension. They create an ideal balance, regulating nutrient levels, suppressing diseases, and so on. If this balance is disturbed by using a small volume of soil in a tray, for example, many of the benefits are lost, and problems occur.

It is also a complicated matter to get the balance of plant nutrients right in a home-made mix. Levels of essential nutrients will vary in organic composts and manures, and their release can be unpredictable. An over-rich mixture can be as problematic as one that is lacking in nutrients.

### **The ideal medium**

The perfect growing medium should:

- provide the correct nutrients for the plant
- retain moisture, but drain well
- retain air, yet hold plant roots firmly

It should not:

- break down, leaving pots, trays and containers half empty
- 'slump', becoming compact and airless
- contain diseases

### **The ingredients**

A growing medium consists of two main components - bulky material to hold the plants upright, and nutrients to feed them. The bulk can be loam, or peat-substitute material, or a mixture of the two. It must be capable of providing air and water in the right proportions over the period that the growing medium will be used. Nutrients can be provided by recycled wastes such as compost and composted manures - which also provide some bulk - and/or slow release organic fertilisers. The following materials can be used to make your own seed and potting composts.

#### **LOAM**

Loam is basically good quality garden soil. If your soil is not up to standard you can grow your own loam or buy a bag. Loam provides both structure and a wide range of plant foods. It is also good at 'buffering' - ironing out slight nutrient imbalances. Sieve loam before use and pasteurise if necessary to control weed seeds, pests and diseases.

#### **HOME MADE LOAM**

Stack cut turf upside down, under a cover, for 6-12 months until all grass is dead and roots have decomposed. Sieve before use and pasteurise for seed sowing. Small quantities of turf can be grown in containers - sow ordinary grass seed in ordinary garden soil in deep trays with drainage holes. Plastic-lined cardboard boxes would be suitable too.

#### **PASTEURISE NOT STERILISE**

Loam should be pasteurised for seed sowing. Pasteurisation will kill weed seeds and most pests and diseases while retaining a certain level of essential micro-organisms which can help suppress diseases and iron out slight nutrient imbalances. Heat to 80°C (180°F) for 30 minutes. Never heat treat other ingredients, or the final mixture.

#### **PEAT SUBSTITUTES**

Coir and composted, fine grade wood waste (often sold as a soil conditioner), are useful peat substitutes in home-made potting mixtures. Mix with loam and nutrients to make a potting compost, or use neat for seed sowing. Coarse material should be sieved. The Organic Gardening Catalogue also sells reclaimed peat, a by-product of the water industry. This material has been dredged from rivers, so does not have the standard qualities of mined peat. It can contain weed seeds.

#### **LEAFMOULD**

An invaluable ingredient in home-made mixes, mature - two years old - leafmould can be used neat for seed sowing, or incorporated into mixes to



improve structure. It is rich in micro-organisms helpful in suppressing diseases, and low in nutrients. It can contain weed seeds.

#### GARDEN COMPOST

Home-made garden compost is nutrient-rich. It is not needed in seed sowing mixes, but is useful for potting-on composts and long term growing in containers. Do not pasteurise. Timing of nutrient release can be very variable. It can contain weed seeds.

#### WORM COMPOST

Worm compost is ideal in mixes needing plenty of nutrients. It also has a good water holding capacity, useful in hanging baskets. It can be 'spread on top of containers and watered in where additional feed is needed.

#### MANURES

Well-rotted strawy farmyard manure provides bulk and nutrients. It is best used in rich mixes for long term use - such as tomatoes and peppers growing in pots.

#### HORTICULTURAL GRIT

Necessary to ensure good drainage if the loam is heavy.

#### ORGANIC FERTILISERS

Bone meal, hoof and horn, and other organic fertilisers can be added to a mix to provide necessary plant nutrients. These are slow release materials so large amounts are not needed. Seaweed meal is a useful substitute for people who prefer to use animal-free products.

#### TAILOR MADE COMPOSTS

Don't try to make your own 'multi-purpose' mix. Plants have different requirements, depending on the type of plant, the stage of growth, and how long it is likely to remain in the pot. Make growing mixes to suit each stage of plant growth.

Seeds contain their own powerstore. They germinate successfully in nutrient-free material. Once the first pair of true leaves has opened, seedlings will need to be potted on to a richer mix. Transplants need enough food to keep them growing steadily. You are aiming for sturdy plantlets, so don't be tempted to overfeed: grow them a little 'hard'. Too much quick release nutrient can trigger lush growth, susceptible to weather damage, disease and insect attack once they go outside. Plants to be grown for a long time in the same container, such as ornamentals in tubs, or tomatoes in pots, will need a good balance of slow-release nutrients.

#### **Tips for success**

- Pasteurise loam for a seed sowing mix.
- Don't sow seeds, or transplant seedlings, into neat garden compost. It may well be too rich.
- Add horticultural grit to ensure good drainage wherever necessary.
- Make different mixes for different purposes
- Loam based mixes tend to be more successful than peat or peat-substitute based ones.
- Mix ingredients really thoroughly.

- Do not store home-made mixes.
- Try out small quantities at first. Monitor plant reaction carefully.
- Don't feed to a rota. Respond to plant growth and needs.
- Keep mixes in use only slightly moist. Wet soil rots seeds. If in doubt, don't water.

### **Conclusion**

Is it worth the effort? Many people think so. Although I still buy in seed compost, I often make my own potting mix, especially when only a small amount is needed.

Experimentation is always fun. Amateur gardeners can accept variable results, an impossibility for a commercial grower. Making your own potting compost, to produce seedlings for your own crops and flowers, gives a fantastic sense of achievement.