8. Fertilisers: feeding your plants for healthy growth

Although feeding the soil by adding your own homemade compost or manure is the best course of action for strong, healthy plants some fruit and veg can often benefit from additional direct fertilisers. You can find out more about feeding and enriching your soil in the section on Soil and compost; this section is about fertilisers that feed the plants.
These plant fertilisers feed the plants in circumstances when they may benefit from some extra nutrients. Liquid fertilisers feed the plant more quickly, whilst healthy soil feeds plants more steadily.

Fertilisers may be described as multi-purpose - supposedly usable for any plant - or sold as a blend created for specific plants, for instance:

- Tomato, peppers, chillies and other plants that produce fruit, even potatoes, can benefit from plant feed high in potassium from when they have flowered before fruiting. Fertilisers marked as tomato feed actually suit most fruiting plants including strawberries, squash, chillies
- leafy green vegetables and legumes need plenty of nitrogen to grow well
- some plants, like blueberries, need acidity, not just in the soil, but in any plant food fed to them.

Fertilisers are variously made from natural or synthetic materials and contain key nutritional ingredients needed by plants. Shop-bought fertiliser packaging will usually refer to N-P-K components. The N is for nitrogen, the P for phosphorus, and the K for potassium (sometimes referred to as potash), and they are all important in helping plants to grow.

- Nitrogen is essential for plants to make food from sunlight through photosynthesis and encourages leafy green growth
- phosphorus aids strong root development, flowering and fruiting
- potassium supports growth and strength to resist pests and diseases

N-P-K content is referred to as a ratio of the different ingredients. So for instance something described as an ‘all-round, balanced’ plant food might have a ratio of 4-4-4 or 5-2-5. A tomato feed is usually something like 3-3-6 or 4-4-8, with a higher potassium content compared to nitrogen to prevent green leafy growth to the detriment of fruit development. Don’t worry too much about this if it sounds a bit scientific, just be aware that over-feeding with nutrients not suitable for a particular plant will not do it any good.

Other components often included with fertilisers may include minerals such as magnesium or calcium, organic matter such as seaweed and other materials.

To feed or not to feed?

- Plants in containers have less compost, and so receive fewer nutrients and appreciate additional intermittent feeding.
- Give your plants additional fertiliser if you think your soil is poor, and you have not been able to add other nutrients or manure to the soil itself.
- Most plants in your fruit and vegetable garden will appreciate an extra feed when they are fruiting. By the way, vegetable plants are also described as ‘fruiting’ when they produce the edible part after flowering. Some plants are especially hungry for nutrients such as courgettes, tomatoes and squashes.
- Fruit trees and shrubs can be fed once in early spring and mulched with compost or well-rotted manure in the autumn and spring; keep the mulch away from directly touching the tree trunk so it doesn’t cause it to rot. They shouldn’t need any additional fertilisers.
- Seedlings – newly germinated seeds – definitely do not need any extra food as they will have received nutrients from the seed.

- You can check what the feeding needs of your different fruit and veg, including which nutrients they need (what quantities of nitrogen, potassium or phosphorus), how much to apply and how often to apply it. Many people go by 'little and often' rather than a big binge and then starving them of feed. It's your call how exact you want to be.
- How can you tell if your plant needs more fertiliser or has too much? Unfortunately the signs can be similar! These include poor growth or yellowing leaves. Feeding a plant too much can be worse than not feeding it enough as it may encourage fast leafy growth to the detriment of strong root growth. The plant may then be less resilient to pests and diseases if it has grown fast and weak. For example, feeding a lot of nitrogen late in the season could weaken perennial plants over the winter season when they need to be resilient.

Bought fertilisers come in different shapes and forms including:

- liquid or powder fertilisers. These usually need diluting otherwise they are too strong. Check instructions on the packaging.
- chicken manure pellets; note that the packaging will say 'organic' material but that doesn't mean the chickens have been reared organically. The reference is to poo being an organic rather than manufactured matter.
- Blood, fish and bones, a traditional addition both to soil and containers offering slow-release nutrients without the nitrogen rush.
- Seaweed feed is popular with organic gardeners, and is full of vitamins and minerals.

But stop right there, because of course we have some thrifty gardening tips for you: you can make your own organic fertilisers at no cost!

DIY plant fertilisers
You definitely do not need to spend money, or acquire more plastic packaged items, to obtain great fertiliser for your plants as you can easily make your own.

Some of these include:

- Comfrey 'tea', high in potassium, phosphorus and trace minerals. See below for step by step guide.
- Nettle liquid is high in nitrogen and other minerals, and can be made in a similar way to the comfrey tea
- If you're visiting a coastal area and have the permission of the landowner to pick seaweed above the tideline, it will make a great addition to your homemade fertilisers as it's full of nutrients. It will need washing of salt before use.
- You can put tea leaves (or split open, emptied tea bags) in your compost, or save some separately and use them as a feed mulch for acid loving plants such as blueberries.
- Aquarium water. If you have fish, or you know anyone who does, use the water removed when cleaning the aquarium to feed plants
- Like bananas, their peels are rich in potassium, phosphorus and calcium. Make a liquid feed by soaking them in water for 2-3 days; then compost the skin and use the water. Try a ratio of three banana skins in 1 litre water.
- Crushed or powdered eggshells can be added to the soil for calcium.
- Epsom salts add magnesium to the soil; they should be diluted about 1 tablespoon to 5 litres.
- Worm tea from a wormery if you have one is a great fertiliser.

- Put some of your compost in a bucket and fill with water, leaving it for 24 hours, then use as a foliar feed for leafy plants. Beware of putting this in a watering can with a rose head as it will clog it 😉
- We'll finish on the best news: you can even use weeds to make fertilisers. Some weeds, like the horsetail, dandelions and thistles among others, are talented at drawing nutrients from the soil. So instead of throwing them out – especially perennial weeds that you might not put in your compost bin – use them to make a liquid fertiliser. Even more good news: once you have drained the fertiliser liquid to use, the slushy lump of remaining weeds is safe to add to a cold composting system as nothing will regrow after being soaked.

Making fertiliser 'tea' step-by-step guide
Homemade liquid fertiliser is often called a *tea*. I can assure you, you will not want to drink it, especially once you are within smelling distance after it's been fermenting for a while!
Popular teas are made from comfrey, nettles or even weeds. Make these separately or combined, according to what fertiliser you want to create as they are all good general feeds.

If you have plenty of space, you can grow your own nettles or comfrey, but they can be a mixed blessing in the garden. Although they both attract lovely butterflies and nettles' new spring shoots are a tasty addition to soups or herbal teas, they are both big spreaders that can be difficult to eradicate. So it can be preferable to grow them in pots or better still, forage them in the wild where they are plentiful. Go for a walk in any fields, woods or even waste ground and you are sure to find plenty of nettles. Don't forget to wear gloves when you cut them. Likewise, comfrey, which often grows in similar places and especially in damp areas like riverbanks, can also be a bit prickly to pick so gloves will come in handy. There is a particular variety of comfrey that gardeners grow without it taking over, called Bocking 14. You can find out more about it through an internet search, and either buy a plant or ask around for a cutting. If you do grow your own plant, you can actually harvest it 3-4 times a year, cutting it right down, and it will grow back. I often just take the larger outer leaves.
Any weeds are fine, long rooted perennials may be especially good as they have often harvested nutrients from deep in the soil.

How to make fertiliser tea

1. Fill three quarters of a bucket with your chosen plants.
2. Add enough water to cover the leaves when squished down.
3. Cover with a lid or large saucer but don't make airtight - unless you want it to explode as it ferments 😉
4. Leave for four to six weeks. You'll know it's working if it's smell pungent…
5. Drain the liquid and store before use. Dilute it one part fertiliser tea to 10 parts water.
6. Chuck the slimy plant residue on your compost heap
7. Use this feed within a couple of months as it doesn't have a long term health life. If for some reason you've made more than you need for your plants or to share, chuck the liquid in your compost where it will act as an accellerant to decomposition.




Alternative slightly less smelly method for fertiliser tea

You'll need two marginally different size buckets. The buckets pictured were free from a local supermarket deli. Make some holes in the bigger bucket. Place that bucket on top of the smaller bucket, without holes. Fill up the bigger bucket with your chosen plant matter and just a cup or so of water. Put a loose cover on top. The plants will decompose and drip into the bucket below making fertiliser tea that does not need draining. Throw the vegetation residue on your compost heap. This tea will be stronger than the above, so dilute it more, say 1 to 15 parts water before serving to your plants.

Small one-bottle fertiliser

1. Cut a large plastic bottle in half.
2. Make a hole in the lid; I've used a corkscrew but you could use a drill, a hammer and nail or a hot skewer.
3. Put the lid back on the bottle and fill that top half with your chosen fertiliser plant, squishing it down to fill it up.
4. Place it upside down like funnel into the bottom half of the cut bottle.
5. Pour about 1/2 cup water over leaves and place a cover on top, eg a bottom of another bottle.
6. Keep lid (with its hole) on bottle or water will pass through too quickly. It needs to drip through the hole as it rots.
7. Add water to keep leaves damp as needed.
8. Use neat in a couple of weeks or dilute if left longer.



Tip: You may hear recommendations to add coffee grounds to containers or the soil but it's very acidic, puts off worms and generally isn't a great idea other than just a small amount for acid-loving plants like blueberries.

Fermented plant juice feed and foliar feeds

This comes from a tradition in Korean natural farming. It is also covered in a book by Nigel Palmer, The Regenerative Grower's Guide to Garden Amendments: Using Locally Sourced Materials to Make Mineral and Biological Extracts and Ferments. In this video, UK gardening Huw Edwards interviews him explains how to make this fermented feed from nettles; comfrey and dandelion leaves can also be used. Interestingly it can be used as a regular feed watered into the soil, as well as being a foliar feed, sprayed directly onto plants. Apparently this method helps plants absorbs the nutrients must faster than through their roots in the soil.

Keen beans and liquid gold

Have you heard of a fertiliser that has been used since time immemorial, called ***liquid gold***? Can you guess what it might be? Yes, it's human urine. Urine from a healthy person is sterile and research shows that you can't catch any diseases from using it. Plenty of advice is given in the book *Liquid Gold*: The Lore and Logic of Using Urine to Grow Plants by Carol Steinfeld. Here's some brief information:

- Urine contains nitrogen, potassium and potash as well as trace elements of other minerals, with a higher concentration of nitrogen, so it's most useful for leafy green plants and legumes rather than fruiting plants. It needs to be diluted 10 parts water to 1-part urine.
- urine is slightly acidic and salty, so don't overuse it or it could harm the soil.

There's lots of interesting information available in the previously mentioned book and online, so do give it a go. Your thriftiness can then extend to not wasting water through loo flushes too 😉

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