

How to: Garden sustainably without harming the planet



Sustainable garden project in Lanxmeer district in The Netherlands. Photo: Lamiot, via Wikimedia Commons

Keeping the planet in mind while gardening is the key step to making your activities as sustainable and environmentally friendly as possible. Some aspects of gardening can have environmental impacts that are not obvious at first sight - energy use, water use, artificial herbicides and pesticides, peat compost, and waste from gardening materials all have an environmental cost. You can make a few easy changes to your gardening practices to have a significantly smaller carbon footprint and ecological impact

Target species:

Birds, insects, wildflowers – all your garden’s wildlife and all life everywhere that relies on a healthy environment.

How to do it

Reduce and eliminate chemical use

Try not to use chemicals in your garden unless you feel they are absolutely necessary - which most of the time they are not. **Insecticides** indiscriminately harm non-target species as well as “pests” and this reduces food resources for natural predators such as larger insects and birds. Some pesticides build up within food chains and can be lethal for the rare high-level predators such as birds of prey. Most are being withdrawn from domestic use, and there is increasing pressure to limit their use in farming. Slug pellets should be used very carefully – see our [pests guide](#) for advice.

Fungicides are less obviously dangerous, but there are nearly always non-chemical controls that gardeners have used for generations to avoid fungal damage, and there is little justification for home gardeners using fungicides. See the [RHS guide](#) for more information.

Herbicides should only be used as a last resort, because the somewhat labour-intensive process of weeding is completely practical for most home gardeners – a little effort, but often, makes sure the weeds don't get out of control. Some herbicide preparations such as selective lawn weed killers and lawn moss killers are *absolutely out* for wildlife gardeners, because they are designed to eliminate biodiversity! See the [RHS guide](#) for more information

Tolerating minor damage to your plants and encouraging biological control is a much better way of controlling pests and diseases in your garden. See our How To: [Deal with pests and diseases](#) and How to: [Garden organically](#) for wildlife for more detail on natural pest control.

Fertilisers have a large carbon footprint from manufacturing, such as the Haber process used to make ammonia, which is very energy intensive. Ammonium nitrate-based fertiliser generates nearly 4kg of CO₂ for every kilo of nitrogen produced. Much of this is then lost to the atmosphere as nitrous oxide, a potent greenhouse gas.



Industrial nitrogen fertiliser plant Photo: Mar11 via Wikimedia Commons

Most garden soil has plenty of nutrients, and the ability to renew them through natural decay. The best way of promoting lots of plant growth is to spread home-made compost, which also has a great benefit in helping the soil keep moist and aerated through building up its organic content. See our How To: Make compost guide to learn how easy it is make your own. You can make rich (but smelly) plant food from rotting comfrey or nettles, and diluted human urine is a great fertiliser and compost accelerant.

Soil fertility can also be increased by growing nitrogen fixing plants such as beans and peas within a crop rotation system. This also helps reduce pests as growing the same crop in the same bed for consecutive years allows pests to build up in numbers.

Go peat-free

The use of peat in compost is particularly damaging to the environment as peat bog habitats are destroyed by digging it up. Peat bogs are extremely biodiverse, harbouring many rare native insects and plant species, as well as many wetland birds such as curlews which have dropped in population numbers and are listed on the UK conservation Red list. Peat bogs are also a very valuable carbon sink, as the anaerobic and acidic environment of the bog prevents vegetation from fully decaying, locking in carbon as it builds up to form peat. Therefore, loss of peat bogs contributes to climate change and releases carbon that should have been stored for millennia.



Bog on Mere Clough Head by Tom Richardson via Wikimedia Commons

There are plenty of peat-free alternatives available that are just as effective for growing your plants. Look out for the 'peat-free' label when buying potting composts and soil improvers. Some products labelled 'green' or 'organic' do contain peat, so make sure to always read the label carefully. For more information on gardening without peat, visit our website [here](#).

Reduce energy use and emissions

Mowing: Gardening is not as energy greedy as motor racing, but we can do better. Petrol lawnmower engines are not very efficient. Push-along lawnmowers emit about 3.5kg CO₂ per hour, and ride-on mowers four times as much. Some tidy gardeners aim to mow once a week in the growing season between March and October, potentially generating about 100 kg CO₂ per year. Unpowered manual mowers don't emit greenhouse gases, but are hard work for older people. Mains powered electric lawnmowers use about 0.7 to 1.8 kilowatts, so for an hour of mowing create the equivalent of 0.3 to 0.7 kg CO₂ emissions, assuming gas-fired generation. Battery powered mowers are likely to be less efficient, and there is the issue of the poor sustainability of lithium-ion batteries too. Mowing your lawn less will save energy and create better habitat for pollinators and other insects. Letting your grass grow longer, setting the blades higher and reducing the number of times you mow will be beneficial to many insects such as butterflies and grasshoppers. See our guide on How To: Make a [lawn](#) more wildlife-friendly for some tips.

Gas patio heaters: Don't contemplate these awful things, which emit about 3kg CO₂ for a couple of hours use, create local nitrogen oxide pollution and waste far more heat than they actually deliver. Infra-red electric heaters use one sixth as much power and are much more effective. But why not just put on a pullover?

Reduce water use

Water use is a growing global issue and something we should all try to minimise. Gardening can be a water intensive activity, so there's every reason to try and reduce our impact. Collecting rainwater in a water-but



connected to the gutters of your roof is easy and gives soft water for lime-hating and indoor plants, but rarely enough for the whole garden in times of drought. You can also recycle your bath water to water your lawn and flower beds, by collecting in a bucket once the water is cool, but don't use this for container plants or residues may build up.

Photo: Ildar Sagdejev via Wikimedia Commons

The best ways to reduce the need for watering are to allow lawns to get dry and yellow – they will bounce back when it rains – and mulching over your bare soil surfaces. Grass cuttings work well around vegetables, and use a protective layer of compost, leaf litter or ground bark to limit evaporation from flower beds. Always water in the evening or very early morning so it can soak in before the sun evaporates it, and water the base of each plant rather than the whole soil surface. You could also try planting species that are tolerant of drought to reduce the need for watering all together - plants such as lavenders, geraniums, alliums, thymes and sages have all evolved to cope with drought conditions.



Beth Chatto's beautiful [gravel garden](#) near Colchester has not been watered since it was planted in 1992 and is world renowned for its use of drought-tolerant plants.

Photo: ©The Beth Chatto Gardens Ltd by permission

Use sustainable materials

Be mindful of the hidden carbon cost behind materials used for hard landscaping, such as gravel, concrete, brick, stone and metal. These materials are all energy intensive in extraction, production and transport, and therefore must be used sparingly to reduce our carbon footprint. Be especially careful when buying natural garden stone, which is often unsustainably sourced from conservation sites. Use second-hand stone if you can find it (often at architectural salvage yards). Non-local stone often looks “wrong” especially if you don't live in an area where using stone is traditional.

When buying wood to use for your garden (including charcoal, timber, fencing and furniture), always check whether the wood has come from a sustainable source. Look out for the [FSC certified](#) logo, indicating the wood has been harvested from carefully managed forests and has not come from the destruction of tropical rain forests or mangroves. You can often buy recycled timber very cheaply from local recycling schemes.



Avoid chemical wood treatments, which can make sheds and fences dangerous to overwintering or basking insects. Buy locally sourced charcoal for your barbie, this brings in revenue for woodland conservation and makes sure your charcoal is sustainable. A good alternative to wood is recycled plastic lumber, which is excellent for building structures and garden tables, and doesn't need treatment.

Avoid using single-use plastics as much as possible. Large plastic structures like wheelbarrows, compost bins and large flowerpots are long-lived and don't pose a major environmental problem. Reduce, reuse and recycle as much as possible - only buy things if you really need them, reuse unwanted objects for different purposes (e.g. old sinks into ponds, old pallets into compost frames), and recycle any materials no longer in use.

Plant for wildlife conservation

Make your garden a haven for wildlife by planting to create habitat and food and take care of your local wildlife that needs extra support. This will depend on where you are, but you can look into whether there are any species local to you that you could help in your garden. Making your garden pollinator and bird friendly is a good place to start. Avoid planting [invasive non-native plants](#) in your garden, as these can take over rapidly and cause damage to native wildlife. See many of our [How To: guides](#) for more detail.

How easy is it to do?

Very easy/easy. Making small changes to the materials you use in the garden is very easy. A lot of sustainable gardening is being mindful and checking the sources of materials you use and avoiding using harmful products such as insecticides and peat. Having an environmentally focused mindset is the most important thing here.

How much will it cost?

Avoiding pesticides, fertilisers and patio heaters *saves* you money! Installing a water butt can cost around £20-£40, however it's a one-off payment and your water butt should last you many years.

How effective is it for the target species?

Effective. There is potential for your garden to benefit many insects, birds and small mammals by taking an environmentally friendly approach to your gardening, but always remember it is the whole planet that is benefitting from your responsible behaviour.

Golden rules – what the science tells us

- You may think your small personal changes don't count for much, but it is essential that we all contribute to global sustainability to have any chance of success
- Harvesting peat for use in horticulture has reduced peat bog habitats down to a mere 5% of what was once present along UK coastlines. These habitats are vital for biodiversity, carbon storage and flood prevention and therefore must be protected.
- Using insecticides has a negative impact on not just your garden but the surrounding ecosystem, as the chemicals can build up in the food chain to have a wider effect on biodiversity. Killing beneficial insects such as natural predators for pests does more harm than good in the long run.
- Single-use plastics and plastic fibres are damaging to the environment both in manufacture and disposal. Recycle to keep them out of landfill and extend their lifetime as much as possible.

Things to be aware of

- Don't expect your beneficial changes to make a rapid massive difference to your garden – it will take many of us, and generations of gardeners to begin to turn around environmental degradation
- Don't be too holier-than-thou, but by telling your neighbours what you are doing you can help to spread the word about sustainable gardening

Further information

How To guides

How To: Deal with [pests and diseases](http://www.wlhf.org/ht_pests.pdf) in the garden www.wlhf.org/ht_pests.pdf

How to: [Garden organically](http://www.wlhf.org/ht_organic.pdf) for wildlife www.wlhf.org/ht_organic.pdf

How to: Create a [wildlife-friendly lawn](http://www.wlhf.org/ht_improve_lawn.pdf) www.wlhf.org/ht_improve_lawn.pdf

How to: Make your own [compost](http://www.wlhf.org/ht_compost.pdf) www.wlhf.org/ht_compost.pdf

Websites

Our [webpage](http://www.wlhf.org/Gardening_peat.html) Gardening without peat www.wlhf.org/Gardening_peat.html

Beth Chatto's [gravel garden](http://www.bethchatto.co.uk/garden-nursery/gallery/gravel-garden.htm) www.bethchatto.co.uk/garden-nursery/gallery/gravel-garden.htm

Forest Stewardship Council [website](http://www.fsc.org/en) www.fsc.org/en

Guides

Non-native [invasive species](http://www.wlgf.org/schedule_9_species.pdf) www.wlgf.org/schedule_9_species.pdf

RHS [fungicide](http://www.rhs.org.uk/advice/pdfs/fungicides-for-home-gardeners.pdf) guidance www.rhs.org.uk/advice/pdfs/fungicides-for-home-gardeners.pdf

RHS [herbicide](http://www.rhs.org.uk/advice/pdfs/herbicides-for-home-gardeners.pdf) advice www.rhs.org.uk/advice/pdfs/herbicides-for-home-gardeners.pdf

Books

Chatto, Beth (1996). *The Dry Garden* Sagapress

Nex, Sally (2021) *How to garden the low carbon way*. RHS/Dorling Kindersley