

Your Guide To Chemical-Free Affordable Gardening















# Greener Gardening... it's at your fingertips

Gardening can benefit our environment; trees help absorb carbon dioxide, provide food and habitats for wildlife and growing our own vegetables reduces our carbon footprint. However, how you garden can impact negatively or positively on the environment through simple choices. In this guide we hope you will find out more about how to be a greener gardener using natural products and fewer chemicals.

Many of us rely on pesticides to kill garden pests and insects, herbicides (weed killers) to kill weeds, and fertilisers to improve the nutrient content of our soils. Pesticides have a long history of harming wildlife. The first generation of pesticides was very potent and persisted in the soil long after the initial action took effect. Today's pesticides have a much lower toxicity but if at all possible should be avoided.

Pesticides and herbicides especially can get into the food chain working their way up through insects to birds and rodents, harming the balance of our local ecosystems. Using pesticides creates a dependency on these products as they usually wipe out the predators as well as the pest. The pests recover quicker producing more need for pesticides. Top predators such as birds of prey are often worst affected. Often we reach for well known brands or "old favourites" when purchasing products to help us garden. But, just looking at the ingredients on the labels of many of these gardening products and the hazardous symbols displayed on the labels should make us think twice and reach for an alternative which is more environmentally considerate.

Fertilisers often wash off the soil in rain, leading to pollution in our water. In the garden fertilisers can encourage fast but soft growth. As a result plants are more susceptible to damage by wind and rain and also attack by pests such as slugs which love the new soft growth. Natural fertilisers result in more measured growth over time and often help plants to build their immunity to attack from pests and disease.





# Gardener's Enemies - No.1 Slugs

The number one pest for most gardeners are slugs and snails. Combating slugs is best achieved using a variety of control methods rather than one technique as no one method does the job completely for prolonged periods of time. Many common brand slug pellets can be harmful to pets, and also to frogs, hedgehogs and birds - the garden's natural defence against slugs. They can also kill insects and earthworms. Eco-friendly pellets based on iron are available but over time immunity will build up.

In recent years natural products that use nematodes (microscopic worms) which prey on slugs are available. These are spread using a watering can and within two weeks slugs will die. This is very effective in early summer when there is a lot of new growth to attack.

Or why not try a home made remedy? Top of the list is a "Slug Pub" or beer trap; a container filled with beer which attracts the slugs and snails to an intoxicating death. While you can buy beer traps any container, e.g. a takeaway box, will do. Sour milk will also work if you don't want to waste beer.

Creating a barrier that slugs and snails don't like to cross can also help. Copper piping surrounding plants gives an electrical charge to any snail or slug that tries to cross it. Copper tape can do the job but is expensive and fragile - best used on containers and not over extensive areas. Slugs and snails do not like to cross dry or gritty material and remedies used include crushed egg shells, pine needles, straw, sawdust, coffee grinds or shredded bark. Barriers reduce the numbers that succeed in getting to a plant but you do need to keep an eye out for damage where a slug may have slipped in under the barrier.

Slugs will hide out in bricks, wood, under pots, stuck in cracks so do a little checking out during the day. When you find a slug, check under that spot for their eggs and young ones. A torch lit hunt can be the most effective way of dealing with slugs and particularly snails. Go out with a torch just after dusk when they come out to feed and search in areas where you know damage is occurring. They can be picked off easily at this hour. Damp mild evenings are particularly good for a hunt. This technique is very effective at stopping an attack on damaged plants.

Many plants are not prone to attack or will suffer little damage from slugs and snails while some are very sensitive. When buying plants a good question to ask is how sensitive it will be to slugs and snails. If you do have plants that are sensitive avoid planting them in areas where attack is more likely. Plants such as hostas or vegetables such as salads can quickly be ruined by slugs and snails. Growing sensitive plants in containers makes the plant a little more of a challenge to find but more importantly, you can find the slug or snail very quickly, as the preferred place to hide is usually under the pot!





# No.2 Other Garden Pests

Insects and bugs are often a huge concern to gardeners. But in fact, they need not be as big a deal as they seem. If your garden is in good health, then bugs are less likely to be able to damage or kill your plants. For those insects that truly are voracious, consider an organic alternative to pesticides, such as a soap and water spray or introduce natural predators, like native ladybirds into your garden.

Ladybirds and hoverflies are the first line of defence against aphids such as greenfly and black fly. Build a ladybird hotel from bamboo canes and twigs to keep them cosy over winter and ensure they stay in your garden. Hover flies in particular are slow to recover after the use of chemicals. Many birds are also very effective at pest control. Digging over the veg patch in the winter is a chore but your local robin will be your best friend accompanying you as you work and picking off the bugs exposed. This is particularly worthwhile where root pests have been observed or where brassicas have been grown.

Aphids will often congregate on new shoots in early summer. Where there is a small infestation concentrated on the buds and new growth, rubbing them off carefully will allow most plants to recover quickly. Use a spray of soapy water for heavy infestations. Eco-friendly washing up liquid is good for this job because of its natural ingredients.

Vine weevil is a serious pest for some gardens. It thrives in well drained soils and pots but will be absent in damper soils. Where present, it can decimate certain plants including primulas, fuchsias, and heucharas. The traditional chemical remedy was banned. There are a number of vine weevil control products on the market which are nematodes similar to those for slugs and are very effective at control.

Particularly in the vegetable garden, other bugs including cut worms, wireworms, carrot fly, chafer grubs, caterpillars, leather jackets and many more can build up over time. Good rotation of the vegetables using a three or four year cycle is the best way to minimise the number of pests.

Barriers around carrots will protect from carrot fly which travel close to the ground. Nets over brassicas will help to protect against both pigeons and the cabbage white butterfly. Companion planting can be a very effective method of deterring pests – more on this on page 16.

There are many different types of home made sprays which can be used to deter or kill pests. Garlic, chilli peppers and tomato leaves are widely recommended. A simple internet search using "organic pest control" will generate a wealth of information about making sprays and what they control.



### **Knowledge** is power

A simple internet search using the term "organic pest control" will generate a wealth of information about keeping pests at bay!



1 Build a ladybird hotel from bamboo canes and twigs to keep them cosy over winter and ensure they stay in your garden.



2 Garden nets will help to protect against both pigeons and the cabbage white butterfly.



3 Ladybirds and hoverflies are the first line of defence against aphids such as greenfly and black fly.

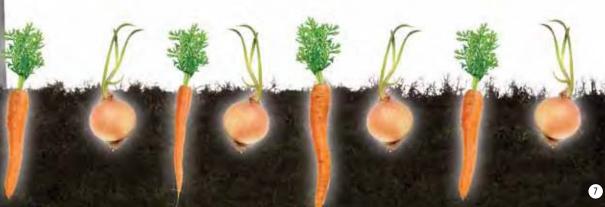


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# No.3 Weeds

The best way to get rid of weeds without resorting to herbicides is, of course, to pull them by hand or by using tools including a trowel, a hoe or an oscillating hoe. Annual weeds with fibrous roots can be pulled out while weeds such as dandelions and dock should always be taken out with a tool to get the tap root out. Annual weeds that have not produced seed can be composted. Those with tap roots should not be composted as the root can survive the process and start into life again. It is best to soak all weeds in a bucket of water for a few days before adding to the compost bin.

Weeding early in the season will make a big difference preventing many weeds producing seeds and spreading. Start weeding in March when the first growth is occurring and the work will be much lighter later in the summer. Then during the summer months be vigilant for any weeds coming into flower and remove them immediately to prevent seed production.

An old blunt knife can be an effective tool for removing weeds in tight spaces such as between paving.

Weed fabrics can help to keep weeds down in some circumstances but care should be taken as they can make maintenance difficult afterwards when used on open ground. They are best used in limited circumstances such as under a gravelled hard landscaped area or to cover areas between shrubs where plants will be in situ a long time. Left over carpet is useful for paths and can be covered in bark mulch to improve appearance.

Weeding can be tedious and time consuming so for those who would rather enjoy a garden without so much work, mulch is your best bet. Bark mulch spread 6 to 8 inches deep will keep ninety-nine percent of weeds from being able to grow. The few that do can be easily pulled in just a few seconds. Mulch should be spread in the spring and autumn whenever possible; 3 to 4 inches twice a year will make a huge difference to keeping weeds at bay. Mulching also has many other benefits including retention of moisture in the summer, improving soil structure in soils that are either too wet or too dry and adding some nutrients to the soil.

## **Know your Enemy**

Weeds can be considered as falling into 3 different categories:

NOTE!
Start weeding in
March when the first
and the work will be
the summer.

#### • Annuals with fibrous roots

Annual weeds that can be pulled out and composted once they haven't produced seeds.







Chickweed



Shepherds purse



Meadow Grass



Easy enough to weed with a hoe or by hand.

#### Perennial weeds with tap roots

Weeds that can grow again from bits of root need to be dug with care to prevent root re-sprouting after disposal.



Dandelion



Dock



Briars



Creeping Thistle



Need to get the root out – use a fork or spade.

#### **3** Creeping Weeds

Creeping weeds that require careful digging and removal of roots. It is often necessary to remove all plants from an area before digging out all the roots.



Scutch Grass



Bindweed



**Ground Elder** 



Mare's Tail

NOTE: If weedkiller must be used then paint on weedkillers will target only the desired weed. Dig up weed where feasible.

4 Mulch spread 6 to 8 inches deep will keep ninety-nine percent of weeds from being able to grow. A few types of mulch are bark, home compost, coconut fibre, mushroom compost



⑤ DO NOT compost perennial or creeping weeds (categories 2€ 3) that spread by root or runner. The rest you can soak in a bucket of water for a few days before adding to the compost bin.



# Gardener's Friends - No.1 Compost

Compost either made in your own garden or sourced locally has many benefits which allow us to reduce our dependence on chemicals both in terms of fertilisers and pesticides. The biggest benefit of compost is in soil improvement, opening up clayey soils providing aeration and drainage while also helping in dry sandy soils as it binds the soil and helps to retain moisture. Plants given compost will develop better roots and will as a result be stronger and more resistant to attack from pests and disease. Compost contains micro-organisms and micro-nutrients which also help plants to fend off pests and disease.

Why not make your own compost and start to use this as an alternative to store bought fertilisers? A third of all household waste is organic, all raw fruit and vegetable matter can be composted making a nutrient rich product suitable for gardening. Add in your green and brown waste from gardening too. There is a wealth of information on composting available locally from the Environment Section of your local Council and at www.stopfoodwaste.ie where you can download a free guide.

Worm composting is another option. Wormeries can handle small quantities of cooked food as well as the fruit and veg which go into the ordinary composter. The worms also love plenty of paper and cardboard diverting even more waste from the bin. Worm composting needs a little bit more attention to detail than ordinary composting. The worms can be a little fussy about their living conditions and food. The contents of the worm bin must be moist but not too wet and the worms like a balanced diet with a good mix of paper or cardboard added to the kitchen waste. Getting it right for the worms can take a bit of practice but once you get it right they will provide the best and richest compost for use in the garden. Some worm bins even have a tap to collect the liquid that drains off for use when diluted as a fertiliser, always dilute this "worm tea" with water as it is extremely potent.

#### Use your compost for:

- Mulching; as a layer in the autumn/winter on raised beds
- Digging into the vegetable garden in autumn/winter
- Use it with soil as a potting mix
- Making a compost tea for watering plants
- Put some in the hole when planting plants
- For top-dressing lawns

If you require more specific information on composting systems, including how to build one yourself, please visit **STOPFoodWaste.ie** where each system is discussed in detail



## It's easy when you know how

• Wasting food and waste disposal is expensive so by preventing food waste and composting what you can you will save money on your household bills.



2 Compost improves the soil's fertility, texture, structure moisture & nutrient-holding capacity. Remember, healthy soils grow healthy, disease resistant plants.



Green & brown materials -A good mix is half the battle



Moisture - not wet, not dry, keep it moist and it'll thrive!

# The five

#### essentials for successful composting



Aeration - Adding straw or wood chips keeps a good airflow



Good particle size & surface area - The smaller the particle the faster the breakdown



The right size of heap -Make a heap to suit you, big heap = more work!



## No.2 Fertilisers

Fertilisers promote growth and are extensively used for flowers and vegetables. There is a wide range of non-chemical fertilisers on the market today and some you can make yourself at home. Non-chemical fertilisers usually have a better range of nutrients and minerals so they produce healthier and more solid growth. Don't always reach for the same brand, have a look at the ingredients before you purchase.

Manure is widely available; even in cities it can often be acquired. Horse manure is regularly used in gardening but manure from cattle also works well. Ask your local farmer as he may be happy to give a bit to a neighbour. Horse manure is often available from equestrian facilities but you may be charged. Home deliveries can be arranged from some facilities. When buying horse manure always make sure it has been aged for a few months – you can always do this in your garden. Manure is very nitrogen rich so care should be taken when spreading to avoid contamination of water-ways. Also avoid direct contact with plants as for all strong fertilisers.

An easier to use alternative to raw manure is chicken manure pellets - available in most garden centres and occasionally in supermarkets. Chicken manure pellets are very nutrient rich. Being dry they are easy to handle but be aware there is a slight smell when handling and always wear gloves.

Seaweed is used to make the liquid and dried fertilisers available in many garden centres. Seaweed has been traditionally used as a fertiliser for potatoes in coastal communities. It can be collected when it washes up - you should never remove living seaweed still attached to rock. After a spring tide is a good time to collect it on a beach. A quick rinse or leaving it out in the rain will remove any excess salt before it is used. The seaweed can be dug into the soil, used as a mulch or added to the compost heap.

Both nettles and comfrey can be used to make a home-made liquid fertiliser. The technique is the same for both plants. The nettles or comfrey are cut and placed in a bucket with water for several weeks. As they break down in the water they release nutrients. The resulting liquid can be diluted and used as a liquid feed. Both these plants are rich in nutrients, particularly nitrogen. The liquid can be a bit smelly but this dissipates quickly. With nettles there is the added bonus of control of their growth. This type of fertiliser is very fast acting as the nutrients are dissolved and easily available to the plants.

Coffee grinds are also a useful fertiliser since being the seeds of the plant they are packed full of nutrients. Spent coffee grinds can be added directly to the soil where it will break down quickly providing nutrients to nearby plants. While coffee itself is acidic the spent grinds are close to neutral (acidity gets washed out into the coffee). The small quantity of coffee grinds produced at home can be targeted at specific plants that need a lot of feeding such as roses, clematis or tomatoes. Your local coffee shop may be willing to give you used coffee grinds thereby providing you with larger quantities. Coffee grinds can be used on the lawn as well when spread thinly - rain and worms will ensure it quickly disappears down into the soil.

Bone meal or fish meal is another organic fertiliser. It is made from waste materials from the fish and meat processing industries. It has a good range of nutrients with high levels of calcium but nitrogen levels are low. It is often used at the stage of putting new plants into the ground but can also be spread around the garden. Gloves should be used when handling it and keep pets away when it is freshly spread. Never spread near ruminant animals.

# **Spread it around**

• There are a wide range of non-chemical fertilisers available on the market today and usually have a better range of nutrients and minerals for your plants so they produce healthier and more solid growth.





| Manure            | Autumn to early Spring | Soil improver, nitrogen rich         |
|-------------------|------------------------|--------------------------------------|
| Compost           | Autumn to early Spring | Soil improver, micro nutrients       |
| Chicken Pellets   | Spring and Summer      | Nitrogen rich, nutrients             |
| Seaweed           | Winter                 | Nitrogen and micro nutrients         |
| Bone or Fish Meal | Early Spring           | Nutrients for fruit trees and bushes |
| Comfrey/Nettles   | Growing season         | Quick boost nutrients                |
| Coffee Grinds     | All year               | Soil improver and nutrients          |





4 Gather cut nettles or comfrey and place in a bucket with water for several weeks. The resulting liquid can be diluted and used as a liquid feed for plants.

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Lawn care accounts for the biggest use of both fertilisers and weed killers in the garden. Feed and weed combinations are widely used. Moss herbicides are also frequently used. Spray lawn weed killers are also available for targeting individual weeds such as dandelions adding to the amount of chemicals we use on our lawns to get the perfect green sward. Good lawn management can help to maintain healthy grass without the need for chemicals.

Cutting the grass and removing the clippings depletes nutrients over time. Grass cycling is a more natural and effective treatment which sees gardeners leaving the clippings on the lawn which allows the grass to be returned to the soil as mulch. This method returns nutrients to the soil and improves the soil structure making the lawn less susceptible in periods of dry weather. Grass cycling will only be effective if the grass is cut very regularly to avoid excessive accumulations of clippings on the lawn. It is also best done in dry weather as it is more likely to clump in wet weather. Short clippings will break down quickly and return naturally into the soil. Many of the natural fertilisers mentioned previously including comfrey, nettles and coffee grinds can be used on the lawns.

Excessive moss in the lawn is common. It is usually caused by either bad drainage or too much shade over the lawn. If drainage or water logging is the problem spread lawn sand to improve the drainage. Where compaction of soil is adding to the problem use a fork to create drainage holes. Push the fork down into the soil and gently tease loosing the soil slightly. This can be combined with sand if needed where soils are very wet increasing the penetration of sand down into the soil. Annual scarification of the lawn helps to remove moss. Scarification involves raking over the lawn to remove moss. This is traditionally done in autumn as it also removes excess debris that has built up in the lawn. It is labour intensive but a good workout! Scarification is particularly effective for moss in shaded areas. Where shade is too much for grass to grow it may be worth replacing part of the lawn with an alternative form of ground cover. There are a range of ground cover plants which are better adapted to living under tree cover. In some cases careful pruning of trees and large shrubs can help to allow a bit more light on to the lawn allowing better grass growth.

Regular mowing helps to keep weeds under control in the lawn and prevent them spreading further. For weeds such as dandelions (when not present in large quantities) use a tool to tease them out of the lawn trying to get all of the root or as much as possible without tearing sods of grass out. It is worth remembering that a few weeds in the lawn are very beneficial for biodiversity providing nectar for bees and other insects.

Where suitable, opt for a wildflower lawn rather than the traditional perfect green carpet. This requires less effort! It's easy to convert an existing lawn – use no fertilisers or weedkillers, mow less often and at a higher blade height. Daisies, clover and buttercups should flourish.





# No.4 Choice of Plants

All plants have specific requirements for the type of environment in which they like to live. Some like shade while others like sun. Some need well drained drier soils while others like wetter soils. Some like alkaline soils while others need acidic soils. If you put the wrong plant into the wrong place it will never thrive and will as a result be more susceptible to pests and diseases. When buying plants think about where you are going to put it, and what the conditions you will be giving it are. And remember staff at garden centres and hardware stores can help you to pick the right plant for your conditions.

Some plants are loved by slugs and snails. Sometimes it's best to avoid these plants if you don't want to be fighting off the slugs and snails afterwards. If it's a plant that you really want, choose a good planting location where slugs and snails will be less of a problem. Beside a wall or hedge will often be a spot frequented by snails. Slugs like to live in damper conditions particularly where there is plenty of vegetation providing cover. Plant slug sensitive plants close to the edge of the border, with some bare soil surrounding them where you can keep an eye out for any damage.

Choosing the right cultivar can also make a big difference, e.g. there are modern roses available that have better disease resistance than more traditional varieties. It can be worth paying a little more for a plant that you know will thrive better and need less maintenance in the long run. Choosing the right cultivar is particularly important with fruit and veg as a lot of breeding has been undertaken to produce different varieties which have different types of qualities with relation to pests and disease. Knowing the type of problems experienced can help to choose the variety of vegetable to plant in the future to avoid a return of the same pest or disease. Potatoes are a good example. Many of the old favourites have specific pests or diseases that they are susceptible to. There are varieties of potato that have good blight resistance, other with good resistance to eel worms or slugs. Choosing the right variety of vegetable will help you to avoid the use of chemicals. With fruit trees and bushes choosing a good variety is particularly important as they will be a permanent feature in your garden. Cheap apple trees will not be a good investment if year after year you are battling to save a crop.

Companion planting can be a very effective method of deterring pests. Strong smelling plants such as herbs, garlic and French marigolds can mask the smell of plants attractive to pests. Planting rows of carrots between rows of onions works in this way. Other companion plants work by attracting the pests away from what you want to protect. A few nasturtium plants in the veg patch will keep the cabbage white butterfly away from brassica crops. Some flowering plants such as borage will work by attracting predator insects such as hoverflies, which will then target aphids.

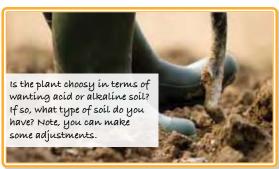
All fruit and vegetables will also have preferred soil types. In some cases deficiencies in the soil can be corrected, e.g. by adding garden lime. However in some cases there may be a specific vegetable that will never thrive in your particular garden and it may better to give the space to an alternative crop. Again advice is readily available at all garden centres and there are lots of good gardening programmes on TV to record and watch on a wet day!

#### **Helpful advice**

• When buying plants think about where you are going to put them and what the conditions will be.









2 Advice is readily available at all garden centres. Here a few things you might like to consider asking about the next time you go.



3 It can be worth paying a little more for a plant that you know will thrive better and need less maintenance in the long run. Treat yourself to a new plant, that you'll enjoy with less effort!



• Fruit and vegetables have preferred soil types. What will suit your garden?



• There are many combinations for companion planting, find out more and let nature do the hardwork!



**6** Get advice on choosing the right variety of vegetable will help you to avoid the use of chemicals.



# **No.5 Paints and Preservatives**

Garden furniture, fences, sheds and decking require maintenance to prolong their life as well as ensuring they look well in the garden. Maintenance extends their life and ultimately prevents waste as they won't need replacing. Wood that is in regular contact with the soil needs particular attention, e.g. raised bed edges, fence and decking post ends, etc.

However, before you reach for a preservative or paint it's worth doing some research about alternative products that have less impact on the environment.

There are products now available that have environmentally friendly ingredients but still penetrating properties for wood treatment. Many are water-based, others use natural ingredients like linseed oil. Alternatives to heavy metal-based wood preservatives should be looked at. Check out your local DIY or hardware store and ask the retail assistant for advice, read the labels carefully to ensure the product suits your needs. Buy only what you need and use sparingly. Using metal shoes or concrete bases for the ends of fence posts and decking posts may help reduce potential for rotting.

# No.6 Rainwater harvesting & water use

Over the whole year, water use in the garden is only a small percentage of a household's use, but during peak demand in the summer the garden can account for over half of household water use.

Consider using a barrel or butt for rainwater harvesting for use in the garden. This can be as swanky or as improvised as you like. A tap is usually useful to draw off the water. This will help you save on forthcoming water charges.

There are other things you can do to help reduce water use when gardening:

- A layer of mulch around plants helps retain water.
- Only water what needs it usually vegetables and fruit, recently planted items, as well as container-grown plants.
- When watering, try to do it in the early morning or late evening to minimise amounts that would otherwise evaporate if done in the middle of the day.
- Heavier, intermittent watering is better than a little and often.
- In any (rare) long dry periods, raise the mower to cut lawns at a higher level, and mow more infrequently.
- Certain garden features like hanging baskets and window boxes will be heavy water users if you must have them, consider plants that are more tolerant of dry conditions, and use water retaining measures like mulches and hanging basket liners.
- Check the forecast before watering; being Ireland, rain may be on it's way!

#### **Find the Alternatives!**



• Check out local furniture up-cycling and 'Men's Shed' projects for unique garden furniture that has been given a new lease of life.



2 Lookout for more eco-friendly alternatives than the more traditional type of wood preserver.



### **Rainwater Harvesting**



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