

Organic Garden Pest Control



Organic Methods To Stop
Disease & Garden Pests

James Paris

Organic Gardening Pest & Disease Control

*How To Stop Destructive Pests & Disease
From Ruining Your Plants – Without Chemical
Insecticides!*

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[James Paris](#)

Introduction:

First of all I would like to say a huge Thank You, and congratulations on downloading my book on Organic Pest control.

The idea behind organic growing methods, and the fact that you are growing plants free from the pollution that comes from popular chemical insecticides or fertilizers, is fantastic! However what do you do when you go out to inspect your prize crop, only to find that a plague of caterpillars or aphids or leaf-cutters – the list goes on – have decided to feast on your prize veggies?

The slugs are happily munching their way through your strawberry patch, and the gooseberry sawfly has reduced your wonderful berry bush into a bunch of leafless sticks!

You may find your tomato plant rotting at the stem, or the fruits covered with dark blotches. Leaf-mould is devastating your raspberries and powdery mildew is attacking your peas and carrots!

To reach for the chemical sprays that are widely available to counter this onslaught, is not an option that is acceptable to the organic gardener. The idea after all is to prevent contamination of your food crop by these toxic chemicals, and instead embrace the concept of growing healthy food without resorting to the use of decidedly unhealthy chemicals.

So...Is this actually possible? The short answer is of course **YES**.

If you have read any of my previous books on gardening techniques and procedures, you will have noticed that I am very much a fan of organic growing. My book on Companion Planting in particular, promotes not only the concept of companion planting for best results in an organic garden – but also some of the techniques used to control pests through this method.

There are many different ways to control garden pests as well as the fungal diseases that often accompany them, and in this book I will show how this can be done cheaply and effectively.

However during all this we have to recognise that not all insects are pests. Some insects have a vital role to play in the garden, and in fact without these welcome visitors it is true to say that your vegetables would not prosper, and your fruit bushes would not 'produce the goods.'

The Good The Bad & The Ugly!

In this book you will find out just what makes a 'good' insect and what make a 'bad' insect. As for the 'ugly' well in my opinion the earwig really creeps me out – but there is a long list of contenders in this category!

When properly controlled, insects can play several positive roles in a balanced organic garden. They pollinate the plants, they protect the plants, and they add life and beauty to the garden as a whole.

If not properly controlled however the exact opposite can occur and the destructive insects will gain the upper hand, leading to poor vegetable crops and worm-eaten fruit trees!

In the following chapters you will find out just what makes a 'good' or 'bad' insect, as well as different simple methods to use that will encourage the good insects while at the same time discourage or remove the damaging weevils and sap-suckers!

Birds & Co.

Other potential garden predators such as birds or rabbits for instance, can also wreak havoc on your prize veggies. How to control these potential pests will also be looked at in later chapters on pest control methods.

Birds in particular can be a contentious issue, as not all birds are your enemy all the time! How they can benefit your garden and how to control their destructive tendencies will also be discussed, as well as the feeding habits of the different birds that may frequent your vegetable garden.

Glossary of Insects

This is a list including a brief description of the most common insects that are likely to frequent your vegetable garden. This list includes the common name and the particular aspects of the insect highlighted, in relation to the damage (or good) that it can visit upon you!

Bear in mind that the terms 'good' and 'bad' can sometimes be a little ambiguous, as sometimes they share both good and bad tendencies when it comes to garden pest control.

The ladybug is one such example. Whilst commonly accepted as the gardener's friend because of their aphid-eating tendencies, there are nevertheless a few species that will in fact feed on plant life. The *Epilachninae* family of these beetles is such an example.

That said however, I have listed these insects in the categories to which they are generally accepted as beneficial or non-beneficial.

Top 20 Destructive Insects:

Bad insects come in many forms, and destroy your vegetables using a variety of techniques. Of course for them it is all about survival – it's nothing personal I promise!

Leaf strippers, cutters and chewers. Boring, burrowing grubs and sticky sap-sucking aphids, all compete to devour your plants if left unchecked.

Here is a 'rogues gallery' including pictures of some of the most common garden pests that you may be up against.

Aphids:



Also known as Greenfly, Blackfly and Whitefly; these are small sap-sucking insects, are members of the Aphidoidea family. They multiply at a horrific rate and cause destruction by their sap-sucking activities, and the diseases that the sticky residue encourages.

Army Worms:



The Army Worm is the larvae of the White-speck moth (*Mythimna unipuncta*) and is a major pest, particularly with corn and pea crops.

Cabbage White Butterfly:



Often referred to as the 'cabbage moth' it does in fact look completely different. It is a white butterfly measuring about 1 ½ inches across (40mm) with black markings on the tips on the wings with a black spot in the middle.

The larvae (which is what does the damage) is a smooth blue-green caterpillar.

Cabbage Moth (larvae):



This is a small mottled-grey coloured moth, often confused with the cabbage butterfly by name. This small moth - about ½ inch across, lays its eggs on the underside of brassicas and peas, the larvae in the form of a green-brown caterpillar will go on to devastate the plant infected.

Cabbage Looper:



This moth lays eggs on the underside of brassicas leaves in particular; resulting in a smooth pale green caterpillar with white stripes, which forms a hump-back when walking – hence the name ‘looper’.

Carrot Fly:

This is the scourge of all carrot-growers and can result in whole crops wilting virtually overnight! This pest will also attack parsnip, parsley and celery. The fly lays its eggs around the top of the developing carrot and the maggots quickly burrow into the root.

Codling Moths:



This is a small moth with grey-brown mottled coloring, with copper stripes and darker markings to the edges of the wings. The larvae maggots yellow with black heads, and are particularly fond of walnut and fruit trees where they will attack the fruit voraciously immediately on hatching.

Colorado Potato Beetles:



These prolific pests can lay up to 800 eggs, which are deposited on the underside of leaves in batches of around 30 yellowish colored sacs. Both the adults and the larvae of this pest will feed on the leaves of potato and tomato plants especially, and will completely devastate a crop if left to do so.

Cucumber Beetles:



The larvae of this pest are also known as the 'corn rootworm,' and cause significant damage by chewing on the foliage of plants. It also carries bacteria called Bacterial Wilt which will cause the whole plant to wither and die – and for which there is no cure.

This bug is particularly damaging to cucurbit crops like water melon, where the squash plant is often used as a 'sacrificial' plant to distract them away from the melons.

Cutworms:

Although called a worm, this is in fact a caterpillar – the larvae of various species of moths. The term cutworm comes from the habit of feeding on the stems of young seedlings, thereby cutting them off in their prime. It is a nocturnal feeder, dark green-brown in appearance and will appear under cover of darkness.

Common Earwigs:



Often referred to as a clip-shear, this pest will cause damage to soft fruit crops in particular, as well as the foliage of some plants.

It does however like to snack on aphids and other sap-sucking pests, so it is not entirely without benefit.

Flea Beetles:



This is a general name given to small leaf beetles. They come in many colors including metallic black, and can walk and fly. The adults feed on the leaves, stems and petals of plants, and the larvae of some species are root feeders.

Gooseberry Sawflies:



This pest lays eggs on gooseberry and currant bushes that hatch out to form tiny green caterpillars. These are voracious feeders and can strip a plant bare of leaves in a matter of days if left unchecked.

Grasshoppers:



The grasshopper is quite simply an eating machine, and if left to multiply will soon devastate most vegetables, but particularly corn, bean, peppers and peas.

They hatch in the spring as hungry nymphs and soon begin a season-long buffet in your vegetable patch.

Japanese Beetles:

These feed on a wide variety of flowers and vegetables, the adults eating whatever they land on! They can gather in large numbers and are attracted by the presence of their own kind – so removing the plants manually when you find them is essential.

Mealy Bugs:



These are sap-sucking insects, similar to aphids in that they secrete a sticky mess around the host plant. Apart from weakening the plant, infestation can result in leaf disease.

Slugs & Snails:



The scourge of the strawberry gardener in particular, slugs will chew their way through a wide variety of plants. They are particularly active in warm wet conditions and after nightfall. They tend to hide out during daylight or sunny conditions in crevasses or under fallen logs etc, where they will also lay their small white, round eggs.

Spider Mites:

This is a tiny insect only just visible to the human eye, that can do massive damage if left unmolested! It is a sap-sucking insect that causes the plant to wither and die over quite a short period.

Squash Bugs:



These insects feed on all members of the cucurbit family especially, and soon make a plant weak and sickly by sucking out the sap. They lay tiny reddish-brown eggs on the underside of the plants leaves that must be removed on discovery by rubbing them gently away, or cutting away and burning the infested leaf.

Tomato Hornworm:



This giant caterpillar, which is the larvae of the **5- spotted hawkmoth**, is the leviathan of the caterpillar world! They can grow up to 5 inches long, and munch their way through Peppers, Eggplant and Potato crops especially.

The good news is that they are so large; they are also easy to spot and remove by hand. Sometimes you may see these cover with tiny white eggs – these are the eggs of the Braconid wasp which is the natural predator of the tomato hornworm. The eggs will hatch and feed on the caterpillar.

Signs of hornworm activity include large dark green droppings, and major loss of foliage. The larvae will typically hide underneath leaves. Simply drop them into a bucket of soapy water to destroy them.

Top 10 Good Insects:

These are the kind of insects that you may want to encourage to your garden. These can protect your plants by eating the larvae of other destructive critters, or they can pollinate your plants by visiting the flowers.

A healthy garden hosts a variety of these beneficial insects. Check out later chapters to find out how you can encourage them to visit and stay in your garden.

Carabid Beetle:



Adults of the native Carabid beetle are voracious predators of Colorado potato beetle eggs and larvae.

Ground Beetle:



Coming from the *Carabidae* family of beetles, these come in many shapes sizes and colors. This voracious predator will kill a multitude of garden pests both in its larvae and adult stages. The adult will hunt down and eat snails, slugs, cutworms and gypsy moth larvae, while the larvae will feed on other insects at the larval stage as well as their eggs.

Lacewing (*Chrysoperla carnea*):

The lacewing larvae are voracious predators and will feed on greenfly and blackfly aphids, as well as mites and small arthropods.

Lady Bug (*Coccinellidae* family):



The lady bug beetle – also called ‘ladybird’ -comes in several colors and is perhaps the best known of the ‘gardeners friends’ when it comes to organic insect control. They will feed voraciously on aphid larvae and scale insects, though their insect diet is considered to be fairly comprehensive.

Praying Mantis:



The larvae of the Mantis have a voracious appetite for aphids and other sap-sucking insects, whilst the adults will consume many kinds of moths and caterpillars. The downside is that they are likely to eat beneficial insects as well as destructive pests!

Pirate Bug (*Oris insidiosus*)



Both the nymphs and the adults of this bug are natural predators of aphids and other sap-suckers. They will happily feed on the eggs as well as small caterpillars, spider mites and thrips.

Spined Soldier Bug (*Podisus maculiventris*):



These bugs will feed on the larvae of beetles such as the Colorado potato beetle, Mexican bean beetle and gypsy moth caterpillars amongst many other destructive pests.

In fact many regard it as one of the top predators for organic pest control purposes. Perhaps one downside is that they do not discriminate between 'good' or 'bad' insects.

Syrphid Fly or Hover Fly:



There are many species of hoverfly that make up the Syrphidae family, and the maggots of many of these species are insectivores that will happily feed on aphids and other sap-sucking insects.

Tachinid Flies:

These large dark-grey flies lay their eggs on cutworms, caterpillars, corn borers, stinkbugs, and many other garden pests.

They are an important pollinator and an effective defence against caterpillar or armyworm outbreaks.

Wasps:



Whilst I normally refer to wasps such as yellow jackets as ‘the skinheads of the insect world’ they are nevertheless the gardener’s friend, as they predate on many destructive insects and insect larvae. Many wasps such as the *Aleiodes indiscretus* (pictured above), use caterpillars as a host for their own larvae, whilst others will feed directly on them.

Pollinators:

Plants of course would never prosper if it were not for pollinators; these are insects and other creatures that spread the pollen between plants allowing for the process of pollination.

This is the process where the pollen from the male anthers of a flower, are passed to the female stigma in order to accomplish fertilization.

There are many insects that can be included in this list, even some of the otherwise destructive pests can sometimes be of use to the plant as pollinators. Suffice it to say however it is best to encourage the beneficial insects such as honey bees, hoverflies, wasps, and hoverflies.

Insects such as butterflies and moths, will also act as pollinators but may leave a parcel of eggs behind to consume your precious plant!

For this reason it is best to keep a watchful eye on what insects you have around your vegetable patch, and try to discourage the destructive pests while at the same time encourage the beneficial ones – sometimes not an easy task.

Some birds of course such as the Humming Bird or the Honey Eaters and Sunbirds, make excellent pollinators; as do bats such as the fruit bat.

Encouraging Pollinators:

Possibly the single best way to encourage pollinating insects into your garden, is to grow flowering plants that will encourage them in. The choice of flowers to grow around your garden will of course depend on where exactly you live – as indeed will the type of pollinating insect (or bird) you are attempting to attract.

Think about the species of plants and insects relative to your own area, and plan accordingly.

Some herbs especially, such as rosemary and thyme, lavender and mint, are excellent for attracting honey bees and hover flies, as these herbs contain essential oils in their flowers and leaves that attract the pollinating insects.

Allow some rocket and chives to flower. This will attract bees and wasps to your veggie patch. Nasturtiums are also great for attracting pollinators, with their large colourful flowers.

Dwarf French marigolds are an excellent choice to intersperse between your plants as beneficial insect attractors, and a stand of sweet peas will add color as well as encourage beneficial insects.

Many of these flowering plants are of course beneficial in other ways, and the insects themselves even are not just pollinators, but potential predators of destructive pests. There will be **more on this aspect of pest control** in the following chapters.

Hand Pollinating:

Some species can be hand pollinated with the help of a soft brush dipped onto the male and female flower. This is particularly the case where the plant is grown inside and has little insect activity.

Even the tomato plant - which is self-pollinating – can be helped along by simply tapping the flowers to release the pollen from the anther.

First Step – prevention

I am very much a believer that as far as disease and its followers go, prevention is usually easier, cheaper, and more effective in the long term than the steps that have to be taken in hindsight to ‘stop the rot’ so to speak.

This is very much the case when it comes to organic gardening also. Planning your planting areas with regard to crops and rotational planting methods, play a large part in pest as well as disease control, and done properly this will have a huge positive effect on your growing efforts.

This is a short summary of the things to consider – there will be more details included in later chapters.

Ventilation:

Fungal attacks in the form of powdery mildew or leaf mould can often be simply fixed by ventilation, and/or controlling certain insects (such as aphids) that can be responsible for the infection.

Always make sure that your plants receive adequate ventilation (especially fruits and berries). If there is insufficient air-flow around and between your plants, then this is an invite to disease such as leaf mould or powdery mildew.

A damp or humid climate especially, coupled with inadequate air-flow can be a disastrous combination. Make sure that if you are growing in a greenhouse situation for example, you leave windows open (especially during daytime) to allow for ventilation.

When planting in any other situation, be sure that the plants are not all pressed too close together and that there is adequate space between them.

This can be difficult when using the Square Foot Gardening method or Raised Bed system, granted. However even these intensive growing methods do not preclude the idea of adequate ventilation.

Destructive sap-sucking pests such as aphids will also prosper in poorly ventilated, humid conditions. This will exacerbate the problems with mildew and mould attack, as aphids, greenfly, blackfly etc; will spread disease amongst your plants if left unchecked.

Companion Planting:

Consider the vegetables you are about to grow and what variety of plants you may grow alongside them to help protect them from insect and/or disease attack. This is a method known as Companion Planting (more details to follow).

Surrounding your vegetables with their ideal ‘companions’ means that not only are they growing in ideal conditions nutritionally, but the whole idea for the sake of this

article is that the companions will attract or distract the destructive pests that may otherwise devastate your vegetables.

Companions can work in several ways to achieve this. Growing onions for example near your carrots, will distract the dreaded carrot fly that is normally attracted by the smell of your carrots foliage.

Other flowering plants such as nasturtium can act as 'sacrificial' plants that will lure away insects such as greenfly or blackfly.

Other plants such as marigolds excrete a type of natural pesticide into the soil that kills certain destructive nematode. They also repel whiteflies, thrips, and bean beetles.

Direct Insect Prevention:

It does no harm to spray your plants with a preventative organic spray before any insect predation actually occurs. Many kinds of home-made sprays made from a variety of naturally occurring sources (see later chapters), can be applied to your plants and will act as a deterrent to destructive pests.

In many cases this regular spraying will prevent insect and fungal infections from gaining any foot-hold, and scupper any attack before it even gets started.

Soil Conditions:

Something that is often forgotten about as the growing season begins is the condition of the soil. In particular, you want to be aware of what was grown the previous year and in general just how successful the resulting crop was.

The reasons for this are simple and almost self-explanatory. You do not want to grow potatoes for instance, on an area that suffered from potato blight the previous year, or indeed for several years previous. The potato blight virus (*Phytophthora infestans*) can lie dormant for several years once established.

Be sure that when composting or mulching, you do not use discarded, diseased plants (which should be burned). It is amazing how often this simple procedure is ignored, and disease is allowed to spread via this means.

Diseased plants of any kind are best kept away from the compost heap, and burned to avoid any possibility of contamination.

A good composting mix to complete your soil medium is essential if you want to achieve the best results. The aim of the organic gardener is to feed the soil and not the plants directly. The long term effect of this type of soil management is to produce plants that grow healthy and strong, thus enabling them to resist more effectively the predations of insect and disease.

Rotational Planting:

Proper crop rotation is also essential for nutritional considerations as well as disease control. This ensures that any possible disease or virus that is attached to a particular

plant species, and has survived the winter in the soil; is not allowed to pass back to that plant thereby completing a cycle of destruction!

By changing around the plant species, you are not only preventing the spread of that particular disease, but also growing a plant that has different nutritional requirements – the very heart of proper crop rotation.

Barriers:

Once your plants have broken through the ground, preventing animals such as birds, rabbits, and a host of others; is usually an on-going trial of wits versus nature!

Thinking ahead however allows you to get one step ahead of the game, and ensure that the battle is not all on the side of the critters. If you live in an area where rabbits are a real problem, then the only effective way that I have found is to surround the whole area with rabbit-proof fencing.

This can be expensive, granted. However if done properly it will last for years, and totally eradicate the problem of these voracious animals ravaging your vegetables. This is to be compared to running around like a headless chicken trying out the many methods that are only partially effective at best – and totally hopeless at worst!

I have tried everything from fox urine to sonic deterrents – most with very poor results. This leads to endless anger and frustration, and a huge amount of time wasted that should otherwise be expended tending to your plot – or sipping on a cold beer!

A rabbit fence is more work at first perhaps, but it only has to be around 24-30 inches high, with at least 6 inches of the 1” - 19 gauge wire sunk into the ground. This will deter the most determined rabbit from chewing on your veggies!

Birds can be are another potential problem with your veggies, but most especially your berry bushes. Apart from the pigeons and crows eating your seedlings that is! There will be more about birds and **the good they can do for you**, later in this book; however the two main ways to control them are simply to scare them off, or protect your plants with bird-netting.

A simple frame erected around your plot (this is easy with the Raised Bed system), is all you need to throw some netting around it and protect your plants.

Scaring can be done by a number of noisy devices widely available through online stores such as Amazon. They can range from scarers that produce the calls of raptors, to balloons with large predator eyes on them.

Traditional Scarecrows? They make me laugh! They are usually effective for a matter of days, but the birds soon ‘suss them out’ and it is not unusual in the least to see crows perched on them, contemplating the next meal!

The same can be said for a dummy hawk or owl perched on a stick in the garden. Birds are not as stupid as you may think, and in a matter of days will soon realize that

it is no threat.

Whatever your methods, it always pays to think ahead and be prepared well before the planting season begins. This way you are not unprepared and helpless, as your carrots disappear down the necks of the voracious rabbits.

Gardeners Fleece:

This has really taken the commercial farmers by storm in recent years. This fleece allows 85% of the sunlight through, as well as the water needed, and is ideal protection against flying insects like cabbage moth.

It also helps protect against a late frost that may damage your young seedlings.

Be sure that the fleece is properly sunk into the ground around the edges of your bed, otherwise the critters may get inside and become trapped in a vegetable buffet!

Carrot Fly Fence?



A simple fence about 18-24 inches high around your carrots will help prevent the carrot fly from gaining access, as they do not fly over 24 inches generally.

Some garden fleece or fine fly-mesh tacked on to 2 x 2 posts and frame is usually adequate for the job. In the above example it would be a simple matter to cover the whole with bird-netting, if you were growing strawberries for instance.

Second Step – Seek & Destroy!

Once your precious plants are growing lustily, you need to be able to control any infestations or diseases that come along to attack them. If your plant is being singled out for treatment from destructive pests, the symptoms will show in any number of ways, from drooping foliage (possible red mite attack) to chewed leaves (caterpillar attack?).

This is a sign that action must be taken to seek out and destroy the insects or other predators that are responsible.

There are a number of simple ways to do this, probably the most obvious being the many sprays and powders that are readily available to purchase, or indeed to make yourself using simple organic ingredients.

As a general rule always test sprays on a few leaves first, as some of the ingredients can damage more tender plants, especially in hot conditions.

A word of Caution!

Sprays in general are fairly indiscriminate regarding the insects they drive away. Be aware that you do not want to kill or chase away the beneficial insects along with the destructive pests if it can be helped.

A close examination of the plant and its hosts should be carried out before spraying, to be sure that you are indeed doing more good than harm before spraying the plant!

Avoid spraying the flowers (unless they are infested), as this will result in chasing away or destroying the pollinating insects that are beneficial to the garden.

DIY Sprays & Solutions:

Pest Control Sprays:

A good tip is to keep a few hand-held plant sprayers set aside and clearly labelled. These will usually be just fine re-charged occasionally, and will assure you of a constant deterrent close at hand.



These sprays are good for controlling aphids, greenfly, blackfly and other soft bodied sap-sucking insects. As a general rule do not spray before heavy rain forecast, and remember to spray topside and underneath the leaves of the plant.

Garlic water spray:

Add one or two large cloves of garlic peeled and chopped in half, to a 1 pint spray container and leave for 2-3 days to infuse. Spray the plant liberally to kill the bugs.

This spray also makes a good fungal treatment for your plants, effective against powdery mildew, and will deter many species of insects.

Lemon rind spray:

Peel the rind from two large lemons and add to 1 pint of boiling water. Stir and leave to cool before spraying on your plants.

This is very effective against aphids and gooseberry sawfly.

Vinegar Spray:

Fill your water spray bottle $\frac{3}{4}$ full with water and the rest with distilled white vinegar. This will kill aphids and larvae on contact, and other critters over a short time.

Test a small area though, at least a day before you use it on the whole plant as some plants will react badly to the acetic acid in the vinegar. If so, try diluting the mixture.

Hot Pepper spray:

Chop a few hot peppers into your spray bottle and leave to infuse with water for a few days. Spray directly onto the insects.

This is a general purpose spray that is very effective against a whole range of bugs. Be careful not to get any in your eyes though!

The Bug Bomb!

This is a bug-busting spray that can be extremely effective against aphids and most leaf-chewers in general.

Combining the hot pepper with the garlic deterrent ensures a good all-round deterrent, whilst the liquid soap clings to the plant giving it a longer active life-span.

Check it out on a small surface before use though – just in case the plant cannot tolerate it well. And remember to protect your skin and eyes from the spray.

Take about 1 quart of water and chop one garlic bulb into four pieces and add to the liquid.

Add a teaspoon of cayenne pepper, one hot chilli (chopped).

Mix thoroughly and let steep for about 4 hours. Strain the liquid through cheesecloth or similar, and add 1 tablespoon of liquid soap to the mixture.

Store for a few days to infuse before use.

Apple Cider & Herb Spray:

This was a concoction allegedly used in medieval times to ward off the black death – and apparently it worked!

Stinks like blazes whilst it is still wet, but the smell soon retreats as it dries. This makes a good general insect repellent – but test on plants first to be sure they do not get damaged by the vinegar.

Add the following ingredients to 1 quart (2 pints) of water.

1 – 32oz bottle of apple cider vinegar.

2 TBSP each of dried Sage, Rosemary, Lavender, Thyme and Mint.

Add two cloves.

Mix thoroughly and leave for two weeks in an air-tight container, before straining out the liquid and adding to your hand sprayer.

Geranium Spray:

The smell of geraniums is known to chase away many destructive insects, and so this mixture can make a good deterrent spray, and is generally well tolerated by the plants.

Take a large bunch of geranium clippings and place into a blender with about 1 pint of water. Blend until smooth then strain the liquid through a fine strainer.

Add about 1 tablespoon of the liquid to a 1 pint hand sprayer and spray the plants thoroughly.

This idea will also work with a garlic or marigold substitute.

Horseradish Insecticide:

Bring 3 quarts of water to the boil; add 2 cups of cayenne peppers, a 1 inch piece of chopped horseradish root. Add 2 cups of packed scented geranium leaves (if you have them but not essential). Let mixture steep for 1 hour, cool, strain and spray.

This is effective against Aphids, blister beetles, caterpillars, Colorado beetles, whiteflies and other soft-bodied insects.

Store-Bought Solutions:

Food-Grade Diatomaceous Earth: This is a natural product made from tiny crushed fossilised water plants. It is very effective against a number of plant predators including sawfly, codling moth, twig borer, thrips, mites, cockroach, cutworms, slugs, snails and many other insects.

This food-grade diatomaceous earth is non-toxic to animals and humans so is safe to use. It can also be mixed with water and sprayed to get the underside of the leaves.

Do not spread on flowering plants as this earth is an indiscriminate killer of many insects – including friendly pollinators.

Insecticidal Soap:

Not to be confused with herbicidal soap – which will effectively kill your plants! Insecticidal soap is mixed with water and sprayed directly onto the insects to kill them.

This only works whilst the spray is wet and by direct contact with the bugs. Mix a solution of about 1 tablespoon of liquid to your plant sprayer and spray a few infested leaves. Wait for a day or two to be sure the plant suffers no ill effects, before spraying the rest of the plant.

This is effective against most soft-bodied bugs such as aphids, and the early larvae of other tougher bugs.

Derris Dust:

Although this is a naturally occurring compound from tropical vine and other plants (active ingredient rotenone), there is some debate as to the wisdom of using it as it can be slightly toxic to humans and animals if accidentally ingested.

It is however very effective against leaf-chewing caterpillars, potato beetles, cucumber beetles, flea beetles, cabbage worms, earwigs, raspberry beetles, and asparagus beetles.

The powder should be scattered onto or around the affected area as the bugs will die upon making contact with it. As in the case with diatomaceous earth, do not spread on flowering plants.

As an added precaution, food should not be harvested within two weeks, and should be thoroughly washed before use.

Neem Oil:

This is mixed with water according to the instructions, and sprayed onto the plant to remove sucking pests such as spider mite and aphids.

Nosema locustae:

This is organic bait which can be purchased. This affects the digestive system of the **grasshopper** leading to death. When healthy grasshoppers consume their dead

friends, they too will become sick and die.

Encourage Birds!?

This is where some people (especially fruit growers) may think I have gone completely crazy! Birds after all can do a lot of damage to young seedling as well as soft fruits like strawberries or the like.

While of course this is true in many cases, it is also true that many birds are a gardener's best friend when it comes to insect and slug control particularly.

A fine balance has to be reached in order to get the benefits of insect-eating birds, while reducing the damage that they may cause if left unchecked.

Before we go further however let's look at some beneficial birds for the gardener with respect to bug control.

Blackbird:

Although a major culprit when it comes to strawberries! The Blackbird consumes a host of bugs and beetles as it hops about the veggie patch. Just watch out for the soft fruits and berries!

Bluebird:

This bird eats almost exclusively insects, and will happily munch away at grasshoppers, caterpillars, centipedes, crickets and snails.

Chickadee:



This beautiful little bird is a champion bug-eater and will consume large quantities of bugs including moths, caterpillars, flies, beetles, plant lice and leaf hoppers.

Cuckoo:

This remarkable bird (the scourge of the smaller finches), is a real benefit as it loves to snack on hairy caterpillars – a critter that most birds will not touch. The Cuckoo will happily munch its way through a whole colony of these avaricious bugs.

Nuthatch:



Whilst this bird feeds on nuts and seeds over the winter period, they feed almost exclusively on insects over the spring and summer. They feed their young exclusively on insects and are a real benefit for the gardener, as they hunt down a huge variety of bugs and grubs, caterpillars and cocoons in all the crevasses and hiding places for insects.

Native Sparrow:

Although they feed mainly on weed seeds (another great benefit to the organic gardener), these most popular birds are an excellent weapon against grasshoppers, caterpillars, beetles, and leafhoppers.

Robin:



The Robin loves nothing better than to pounce on its prey of small caterpillars and other destructive pests, from a perch on high. Often they will come right down to the

gardener, as they till the soil and expose a good meal for this attractive garden visitor.

Song thrush:



This welcome visitor to the garden loves to snack on snails, and the knock-knocking of snails against a hard stone, as they smash through the shells, is music to the ears of the gardener – as indeed is their birdsong.

Wren:

This most secretive **tiny** bird, has a **large** appetite for insects, and is constantly on the hunt for a good meal of caterpillars, ants, millipedes, grasshoppers and flies. You will often catch a quick glimpse of it rooting around the undergrowth for its insect prey – Though it is usually heard before it is seen, as it is usually the noisiest bird in the garden!

Yellow Warbler:

Apart from the beautiful song that this bird can bring to your garden, the warbler eats a diet of some 60% caterpillars as well as moths, beetles and several other destructive bugs.

Summary:

Admittedly some of these 'little friends' it is true, will happily feast on soft fruits and berries over the summer season, as well as their diet of bugs.

However, as long as you are aware of this then action can be taken to prevent damage and loss by simply placing suitable bird-netting over your fruits. In my opinion the benefits of encouraging birds into your garden far outweigh the potential downsides – but only if you are prepared for it!

On the subject of netting – be sure that it is small enough so that the birds will not become entangled trying to get through it. Also it is best pulled tightly around a framework, as loose netting can also become a snare to them.

It really is quite distressing for a nature lover to witness the untimely demise of a small bird, owing to these simple precautions not being taken.

Also, do not leave any old cuttings of netting hanging around that they may become entangled in. I once saw a dead Blackbird hanging from its feet from a thorn branch, after becoming first entangled in some loose net that had been left lying around. It was a distressing sight, and a bitter lesson to learn!

Insect Beating Plants:

As briefly mentioned earlier, Companion Planting techniques can be hugely effective in an organic garden. Not only will the proper plants give added nutrition to the ground, but they will attract and distract in equal measure, insects that will benefit or harm your plants.

Strictly speaking, Companion Planting incorporates both the prevention and cure for your insect problems – as will be seen by the following examples of good and bad companions for their relative vegetable ‘partners.’

Basil:

Deter flies and aphids.

Borage:

Attracts predatory wasps and helps strengthen resistance to disease.

Chives:

Chives and garlic distract many insects, and is especially useful against the carrot fly.

Dill or Thyme:

Known to repel weevils, and Dill especially is a good deterrent against tomato hornworm.

French Marigold:

French marigold planted alongside your plants will deter squash bugs, tomato hornworm and flea beetles. They will also attract hover flies, whose larvae will happily consume aphids.

Garlic:

Garlic and indeed chives, onions and leeks, can be grown near carrots to deter the carrot fly.

Geraniums:

This plant is known to poison the Japanese Beetle, which will happily munch away at the leaves, only to fall over paralysed some 30 minutes later! Sometimes it will recover in 24 hours or so, but often will die as a result of being eaten by predators!

Horseradish:

Horseradish planted between your vegetables gives a good overall protection against many insects.

Nasturtiums:

These can be grown around and between your vegetables as a sacrificial plant, to encourage aphids away from your vegetables and on to this instead.

Oregano:

Good protection against beetles.

Petunia:

Good to plant around the tomato plants as it repels tomato hornworm.

Rosemary:

Nasturtium and rosemary are planted to deter bean beetles & cabbage moth.

Sage:

Rosemary and sage are known to deter the cabbage moth as well as the carrot fly, by masking the scent of the carrots.

Squash:

This can be used very effectively as a sacrificial plant to draw cucumber beetles away from melons.

More detailed information on Companion Planting techniques in general can be found in my book on the subject, a link to which I will include at the beginning of this work.

Misc Solutions:

Slug Beer Traps: This is the time-honoured way to control slugs as they just can't resist the smell of the beer – like some humans I know!

Sink a small jar into the ground slightly away from your plants and half fill with beer. The slugs will simply drown themselves in the beer. The downside is that it is a yucky job clearing them out!

Copper Deterrent:

Another way to control these slimy pests is copper! Slugs & snails do not like to cross copper, as the slime reacts to the metal and produces an effect that is highly corrosive to them. It is also thought to produce a slight electrical charge which they do not like.

If you are using a raised bed or SFG method of planting, this is an excellent solution to any slug problem. Simply nail some copper pipe or tape around the edge of your framework to act as a great deterrent to slugs – however, make sure there are none already within the perimeter before you do so.

Hand Picking: With larger critters such as the tomato hornworm and other large caterpillars (as well as slugs and snails), hand picking is as effective as anything else.

Careful inspection is needed especially on the underside of leaves where they hide out in the daytime. Signs of their presence (apart from half-eaten foliage), is black droppings on your veggies, which is fairly easily spotted.

Any leaves with egg sacs hanging underneath, have to be removed and burned.

Ant Killer:

Cornmeal makes a great ant-killer. Simply put small piles around the area (cover to keep dry preferably), and the ants will eat the meal (which is indigestible to them) and die.

This can take several days, but the advantage is that it is totally safe if you have children and/or pets around.

Encourage Slug-Eaters!

If you stay in Europe then you will have the added advantage of the Hedgehog – one of the most voracious slug-eaters on the planet! The downside is perhaps that they do have an appetite for soft fruit.

Frogs and toads are also great insect and slug eaters, though they will eat both 'good' and 'bad' insects with equal gusto. They like to hide away especially during daylight hours so a little hideout somewhere dark and damp, can encourage them to stay around.

Cutworms:

Protect your peas and beans from these critters, by growing them up inside a cardboard tube 4 inches long – a toilet paper roll will do ideally for this job. Just sink one end slightly into the soil for good protection.

Composting:

Even though composting may sound like an unlikely subject when it comes to controlling insects, good quality compost does in fact play an important role – that of helping you to produce healthy plants that are more able to withstand attack by insect or disease.

For this reason I have included some material here borrowed from my book (co-wrote with Norman J Stone), on Square Foot Gardening.

About Compost:

In a nutshell, compost is the term used for organic matter that has been decomposed (rotted) and recycled as a soil conditioner, to improve crop growth performance.

This is something that you must think about long before you need the compost, in most cases a year at least. Your SFG needs compost that is well rotted and crumbly to the feel. If it is still smelly then it is not ready for the garden yet.

The process of making your own compost is simple enough, as it is basically a load of organic material such as vegetable trimmings, grass cuttings, fallen leaves etc, that are dumped into a bin or wooden framework and left to decompose in a process that can take months or even years. That's the simple answer; however there are certain things that you **should not add** to a compost heap such as..

Inorganic material: Plastic and polythene will not break down to form compost. Obvious I know, but it had to be said!

Pet Poop: Never add dog or cat droppings to the compost heap, as this can add several disease organisms that can turn your compost toxic.

Fish, fats, meat, bones and dairy: These should not be added as they can just attract vermin, and cause your compost to smell badly.

Coal ash: timber ash is fine for compost as it adds valuable potash, but coal ash is not as it can add high levels of sulphur to your compost.

Coloured paper: Coloured paper can contain heavy metals and other toxic materials. These should not be added to your compost.

Diseased plants: Any diseased or infested plants that you have to lift up should be burned or otherwise disposed of. Do not add to the compost as they will most likely end up back in your garden to repeat the cycle all over again!

Making Good Compost:

If you pile up vegetable matter and let it rot over a period of time, then you will get compost. However if you want to make good compost over a shorter time then there are certain steps you have to follow.

Compost is basically formed when vegetable or organic matter is broken down by aerobic organisms. These are fungi and bacteria, which need oxygen to live. In order for the bacteria to break down the cellulose in plant matter they need nitrogen, and the more nitrogen they get the quicker they will do their job and the quicker you can achieve good compost.

Typical Compost Bin Layout



Compost Ingredients:

Carbon (Dried Matter): Dried leaves, straw, wood chips, grass, small twigs.

Nitrogen (fresh matter): Vegetable scraps, lawn clippings, weeds, manure.

Soil: The addition of good soil adds minerals and micro-organisms to the compost, thereby stimulating aerobic composition

This layering process – including watering well between layers - generates significant heat which also kills disease organisms and weed seeds etc, in effect making it suitable for use in the garden. If there is a shortage of nitrogen then the whole process is lengthened. The job of the good compost maker is to see that this is not the case and provide suitable quantities of air, moisture and nitrogen to the mix.

With all this in mind a good composter should be constructed in such a way as to ensure good ventilation to the mix; as well as allow for turning the compost (for aeration).

Traditionally Nitrogen can be added to the mix by adding fresh dung as the nitrogen is in the urine; or by adding suitable plants such as nettles (without the roots) and grass clippings which are rich in nitrogen.

As different materials decay at different times, it is also advisable to have not just one composter, but three at least if you have the space for them. This way you can really take control over your composting efforts.

Here is a good example of home-made compost bins from pallets acquired from the local DIY store for free. The fronts of the bins are set in place in such a way that they can easily be removed for turning the compost.



Although this model will work just fine as it allows the air to circulate well; the addition of 1" chicken mesh stapled to the sides will help to keep in the compost as well as keep out unwanted vermin. With this in mind you may also want to consider a cover for your bins – though remember to water periodically to stop the compost drying out completely.

Every-Day Composting:

Whilst composting is generally carried out in a process involving turning and compost rotation, there is also what I like to call 'Every-day' compost.

This is composting in its simplest form, designed with the householder in mind who has to keep it basic and simply wants to recycle their organic waste products such as kitchen vegetable waste, as and when they have them available.

Modern composting bins like the one below are ok but are not designed to be turned over; indeed to do so would add the new material to the old and mess up the composting process. This design therefore is intended to make a little compost at a time and the rotted material to be removed from the bottom of the bin via the access panel provided.

The fact that the dark green plastic warms up quickly helps speed up the composting process.



Composters can be made from many kinds of material, the main thing being that they allow the circulation of air and easy access for maintenance.

Positioning Compost Bins:

As for the siting of the composters themselves; the obvious answer is do not use up valuable growing space if you can avoid it. As long as your composter gets enough sunshine to warm it up slightly but not dry it out, then this will do perfectly well. Keep the bins at least 6 feet away from overhanging trees, and position where they get adequate light and a free flow of air.

How Long?

As for how long you will have to wait before you get great compost for your efforts, I'm afraid there is no definite answer! This is because of several factors that will influence the time it takes for the material to break down.

The actual material itself – grass cuttings break down faster than fallen leaves for instance which can certainly take over 1 year and need a fair amount of turning.

The amount of nitrogen in the mix. Low nitrogen-rich plants or lack of manure will slow down the process.

Ventilation. A well ventilated composter will work much faster than one that does not allow for an adequate flow of air.

Turning your compost regularly will increase the composting process.

Moisture content is also very important in speeding up the process. The compost should be damp like a wrung-out cloth in order to operate properly.

With all that said; in general terms rough mulching compost, ideal for setting around shrubs and bushes, or putting in the bottom of a planting hole, can usually be achieved in 3-4 months.

A smoother compost, for adding to your SFG or growing seedlings for instance, will usually take no less than 6 months to achieve – usually much longer. If conditions are not ideal then composting can take several years to achieve; making it worth that little bit extra effort to speed up the process!

Composting Materials Time-line:

Here is a short list of composting materials and the time taken to compost in ideal conditions.

Materials taking 6 months +

Kitchen vegetable trimmings (beware - stems and stalks take 2-3 years or more), annual weeds, fruit peel, lawn trimmings (no more than 15cm thick).

Material taking 1 – 2 years

Hedge clippings and prunings (except conifers and evergreens which will take more than 3 years to break down completely), paper and cardboard, autumn leaves.

Material taking 3 years +

Thick stalks and stems of plants, evergreens including holly or conifers, eggshells, sawdust & wood shavings, or thick layers of grass clippings.

Any other organic material that is large and bulky will naturally take longer to compost.

Another Option?

Finally, if you have no space to compost, or no time or whatever – consider your local authority! Many municipal authorities are composting as part of their environmental efforts, this is highly regulated and usually excellent quality – and it is often given away free or for very little cost!

If that option is not available or you would like to get started growing your vegetables immediately; then you can certainly go for store-bought compost – perhaps while your own compost is a ‘work in progress.’

Authors Note:

Finally - a huge thanks for purchasing this book, your support is appreciated. If you can spare the time, and have the inclination, a good honest review on Amazon would also be much appreciated – you can **CLICK ON THIS LINK** to go direct to the Amazon page.

If you would like more details on **Companion Planting** methods that go hand-in-hand with pest control, then please check out my book on the subject, a link to which I have included below along with links to my other works in the vegetable gardening genre.

Thanks again.

James

For further reading, you can see the full range of books that I have on offer – including some **great value ‘Book Bundle’ deals** - on my [Amazon author page](#).

Relevant Books by Same Author

[Raised Bed Gardening 5 Book Bundle](#)

[Raised Bed Gardening 3 Book Bundle](#)

[Companion Planting](#)

[Square Foot Gardening](#)

[Growing Berries](#)

Recommended Reading By Other Authors:

This is a selection of works which I believe may benefit the vegetable gardening enthusiast, and perhaps shed a bit more light on the subjects I have covered in this book.

I receive no commissions from these books, and offer this list for your information only.

[The Complete Composting Guide for Beginners](#): **Linda Marsden**

[The Vegetable Gardeners Bible](#): **Edward C Smith**

[Organic Square Foot Gardening](#): **Gaia Rodale**

[A Beginners Guide To Companion Planting](#): **Mel Jeffries**

[Pest Control For Organic Gardening](#): **Amber Richards**

