

How to Start an
Organic Garden



How to Start an **Organic Garden**



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CONTROLLING PESTS

For the natural gardener, pest control might seem like a daunting task. After all, you're committed to not using harmful chemicals in your garden, yet these chemicals can get rid of pests quickly and easily.

There are still many ways you can take control of your garden without resorting to chemical treatments. Natural pest control is actually quite easy.

We certainly understand that many gardeners become anxious when they see pests on their plants and want to react decisively when they see their plants damaged. But we must remind you of the central principle of organic gardening: growing plants in harmony with Nature. And insects, even those that eat your plants, are a crucial part of that system.

When you see insects in your garden, take some time to really watch what they're doing. Are they actually destroying the plant or just nibbling it a bit? Many plants can outgrow minor damage.

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Also, in many cases, insects attack stressed out plants. Do you have enough healthy plants to spare the sickly ones? Can you restore sickly plants to robust health so they can resist insect attack?

The best defenses against insect attack are preventative measures. Grow plants suited to the site and they'll be less stressed out. Don't let them be too wet, too dry or too shaded. Design a diverse garden, so that pests of a particular plant won't decimate an entire section of the garden. Healthy soil will naturally produce plants that are resistant to insects and disease, but pests are a part of gardening.

There are different ways you can control pests naturally.

SPRAYS AND POWDERS

There are a number of natural botanical sprays and powders available in garden centers. These are derived from plants and not made in a lab. We'll look at a few of the more common ones available to you.

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Insecticidal soap is sodium or potassium salts combined with fatty acids. If you use soap, it must come in direct contact with the insect and it must be wet. It is no longer effective once it has dried.

The fatty acids in the soap penetrate the insect's outer covering and cause the cells to collapse. This is one of the safest organic pesticides to use because there is no residue, it is non-toxic to animals, and you can use it on your vegetables all the way up to harvest. Be cautious, however, soap can burn or stress plants, so don't use it in full sun or high temperatures.

Bacteria spray is also commonly known as Bt (*Bacillus thuringiensis*). There are more than 80 types of Bt used as pesticides. It is a stomach poison that releases toxins in the stomachs of insects that causes them to stop eating and starve to death.

It is generally available in powdered form that is sprinkled or dusted on a plant. It must be eaten by the targeted insect. Bt strains are very host specific and will not harm people, pets, birds or bees, but it can be very slow acting taking days for the insect to completely stop eating and die. It can also kill some of the beneficial insects in your garden.

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Neem is a spray that is derived from the seed kernels of the neem tree fruit. It is sprayed onto the plant's leaves which will upset the insect's hormonal system and prevents it from developing to its mature stage. Neem is most effective on immature insects and species that undergo complete metamorphosis.

Use caution with Neem as it can be damaging to pets, so keep them away from freshly sprayed leaves until the liquid dries. Neem is non-toxic to humans.

Horticultural Oil is highly refined petroleum oil that is mixed with water and sprayed onto foliage. It coats and suffocates insects or disrupts their feeding.

There is a low toxicity to humans, pets, and birds and does not leave behind any toxic residue. Be careful you don't burn the leaves of your plants when you use this oil.

Rotenone and Pyrethrum are most readily available ones and are often used in combination. They are derived from the roots of tropical legumes. It generally comes in powder form that is dusted onto the plant. These will inhibit the cellular process thus depriving insects of oxygen in their tissue

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cells. This is a broad spectrum pesticide and can be used with many types of pests.

If you are using a spray, dilute it in water and use only as needed. Of course, follow application directions on the label. The best time to apply sprays and powders is in the evening or in early morning. And always read the labels of anything you buy commercially. Just because a pesticide is organic doesn't mean it isn't toxic.

You don't HAVE to use anything on your plants if you depend on other animals to help you control pests.

ANIMALS AND BUGS

Birds, ladybugs and praying mantises are the gardener's best friends when it comes to insect control.

Birds can be encouraged into the garden by feeding, hanging a birdhouse providing a bird bath or by planting plants that provide berries for them to eat.

Ladybugs are now for sale by the pint, quart or gallon. The average-sized garden can get by on a quart or less, as there will be about 25 to 30

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thousand bugs per quart. The cost is generally less than five dollars a quart. The average adult ladybug consumes between 40 and 50 aphids a day.

Praying mantis cases are also available and each one hatches up to 400 young. The cost is rather nominal for a case. A few gardeners have reported that this insect disappears rather rapidly from the garden, so you might want to experiment with just a few to begin with. They will eat any insect they can catch.

Frogs and lizards can also control pests by eating them. You can make your garden hospitable for your natural allies by keeping a water source – just a dish full - nearby for them and by not wiping out the entire pest population with a pesticide, sending the beneficial elsewhere in search of food. Also, grow plants with small blossoms like sweet alyssum and dill,

which attract predatory insects who feed on flowers' nectar between attacks on pests.

Organic pest control is a comprehensive approach instead of a chemical approach. Create a healthy biodiversity so that the insects and microbes will control themselves. Using natural products and building healthy soil is the best long-term treatment for pests.

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What are the pests you should be looking for?

COMMON GARDEN PESTS

There are literally hundreds of common garden pests that can attack your plants and threaten the viability of your gardening efforts. We couldn't possibly address all of them. There are, however, some that occur in more frequency than others.

Aphids are probably the most common problem in gardens. Aphids are soft, pear-shaped, and very tiny (1/16 to 3/8 inch long). Two short tubes project backward from the tip of their abdomen.

Aphids have long antennae. Some types of aphids have wings, which are transparent, longer than their body, and held like a roof over their back. Aphids may be green, pink, yellowish, black, or powdery gray. Nymphs resemble adults but are smaller and wingless.

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They feed in colonies, so where there's one, there's definitely more. Aphid feeding can cause leaves to curl and become deformed. Once this has happened, the aphids are protected from any treatment you give to the plant, so it's important to attack the problem as soon as possible.

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Many species prefer the underside of leaves, so look there first. Ants are usually present where aphids are, so if there are ants in the garden, there are probably aphids as well. Aphids are the ant's food source, so they will protect that food warding off predators that might threaten them.

To naturally control aphids, first be sure to drench plants with strong sprays of water from a garden hose. Keep your plants as healthy as possible, and spray dormant oil to control over wintering eggs. You can also spray plants with insecticidal soap, summer oil, and homemade garlic sprays. At the end of the book, we'll have some recipes like this for you to make yourself.

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If you will be growing cabbage, broccoli, or cauliflower, you could have cabbage loopers. These pests are light green in color with white stripes running down their back. The larvae can reach approximately 1½ inches long and have three pairs of slender legs near the head and three pairs of larger legs at the rear end. The middle section is legless and is looped when the insect is moving.



The larva is the damaging stage of the cabbage looper. The young larvae feed between the veins on the undersides of leaves. Large larvae make ragged holes in the foliage and move to the center of the plant where feeding generally occurs at the base of the cabbage head. Large loopers can also burrow through three to six layers of tightly wrapped head leaves.

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The best way to control cabbage loopers is to handpick the larvae a few times a week. Attract predatory and parasitic insects to the garden with pollen and nectar plants.

If you find small holes in the leaves of your plants, you may have earwigs. Earwigs are generally dark brown, slender and elongated. They have a pair of "pincers" at the rear of their body and they run more than fly. They have a curved up abdomen and release foul odor when disturbed.

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Earwigs will eat holes in the leaves of plants causing them to wilt and die.



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In general, earwigs can be beneficial to your garden, but they can get out of control, so you should use the general spray we'll give you later in the book. There are a number of ways to control earwigs, but trapping them is probably the best way to eliminate them from your garden.

One way we like is to take a shallow dish and place beer in it. Any beer will do. The earwigs will be attracted to the beer, climb in, drink, and die. You can sift out the dead ones and reuse the beer for trapping again. They are also attracted to corn oil, fish oil, or water and vinegar. You can place these in dishes just like the beer.

If the leaves of your plants are finely speckled with yellow spots or a silvery, metallic sheen, you could have thrips. Thrips are very small – about 1/16" - and difficult to see. There are many varieties of thrips and they are of all different colors.

Thrips are best controlled with sprays as we've described. You can also spray the plants with soapy water. Lady bugs will eat thrips as well, so attract those lady bugs to your garden!

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Tomato hornworms are the largest caterpillars found in this area and can measure up to 4 inches in length. The prominent "horn" on the rear of both gives them their name.

Hornworms are often difficult to see because of their protective coloring which is green. Not much for the heat of direct sunlight, they tend to feed on the interior of the plant during the day and are more easily spotted when they move to the outside of the plant at dawn and dusk

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Hornworm damage usually begins to occur in midsummer and continues throughout the remainder of the growing season. The size of these garden pests allows them to quickly defoliate tomatoes, potatoes, eggplants, and peppers. Occasionally, they may also feed on green fruit. Gardeners are likely to spot the large areas of damage at the top of a plant before they see the culprit.

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Hornworm damage on tomato
[Picture by G. Brust]

The best way to control hornworms is to handpick them off your plants. They are especially susceptible to the Bt bacterial spray we described above, so we strongly suggest using this to control your hornworms.

Slugs are among the most troublesome pests in the garden. They feed on a variety of living plants and decaying plant matter. On plants they chew irregular holes with smooth edges in leaves and can clip succulent plant parts. They can also chew fruit and young plant bark.

Because they prefer succulent foliage, they are primarily pests of seedlings, herbaceous plants, and ripening fruit such as strawberries,

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artichokes, and tomatoes that are close to the ground. However, they will also feed on fruit of some trees, citrus is especially susceptible to damage.



Slugs are nocturnal and come out at night. They slither under rocks and leaves in the day. Holes chomped into leaves and fruits are telltale signs of slug feeding. A more certain sign of slug activity is the silvery trail of dried mucous that these pests leave in their wake. If that's not sufficiently convincing, go out into the garden at night with a flashlight and surprise them.

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Slug control is actually quite easy. They are rather large, so they can be caught by hand and disposed of. This is another garden pest that be caught by setting out a dish of beer.

While possibly cruel, the most effective way to kill a slug is to sprinkle it with salt. You can trap the slugs by placing a plastic bag in the garden containing two decaying lettuce leaves, 2 cups of bran cereal, and pouring beer over the whole mess. Put the bag out before sundown. In the morning, check to see if the slugs are in there and dispose of them.

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Prevent slug infestation by removing dead and decaying leaves. This will remove their primary food source. Coffee grounds and egg shells will also keep slugs away. Just place them around the plants you want to protect at ground level.

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