

Organic techniques

Resistant varieties—if you have a regular pest or disease problem try growing a resistant variety. For example ‘Lakeland’ lettuce is less susceptible to powdery mildew and root aphid.

Soil pH—changing the soil pH can have an impact on how badly some diseases affect your plants. For example potato scab is less severe in acid soils. Clubroot on cabbages is not as bad in alkaline conditions.

Rotation—growing the same vegetables in the same place year after year can lead to a build up of pests and diseases. To help avoid this, each vegetable should be grown on a different part of the vegetable garden each year. They should not return to the original site for at least three years.

See Crop rotation leaflet

Sowing—problems with pests can often be avoided if you time the seed sowing carefully. For example sowing peas early or late avoids the pea flowering coinciding with the egg laying time of the pea moth.

Breaking the cycle - if diseased plant waste is left in the garden, pests and diseases can infect healthy plants. All infected plant debris should be removed from the garden. You could compost the material but some diseases will survive the composting process. If you are unsure always put the diseased material in the dustbin.

Winter digging—some pests overwinter in the soil. Their numbers can be reduced by turning the ground over in winter. This brings pests to the surface where they will be killed by cold and eaten by birds.

Barriers—physical barriers can be put in place to prevent pest attacks. Why not try the following:

Nets—flying pests can be kept out by netting. Make sure that you choose the right mesh size for the pest involved and put in place immediately.

Cloches—use plastic bottles, with the tops and bottoms removed, as mini-cloches to protect plants from slugs and caterpillars.

Fleece—carrots can be grown underneath fleece to protect them against carrot root fly.

Collars—12cm squares of rubber carpet underlay or some other material fitted around the stem-base of cabbages as soon as they are planted can protect against cabbage rootfly.

Traps—sunken traps filled with beer or milk will trap slugs.

Hand picking—pick off pests and infected leaves when seen. Never allow problems to get out of hand.

Controlling Pests and Diseases



**A teacher's guide to
controlling pests and diseases
in the garden
without using chemicals.**



**DUCHY ORIGINALS HDRA
Organic Gardens for Schools**

How to control pests and diseases in your garden

Organic gardeners keep their plants healthy without using chemicals. Organic methods concentrate on preventing pests and diseases. There are many organic ways of dealing with pests and diseases when they do occur in an organic garden.

It is important to remember that the presence of a pest or disease does not always require action. The aim in an organic garden is not to kill all pests, but to keep them at an acceptable level. So how can you do this?

Working with nature

Nature will, if allowed, reach its own natural balance. Pests and diseases are unlikely to get out of hand where there are predators and parasites to keep them in check. Organic gardeners encourage this balance by working with nature rather than against it.

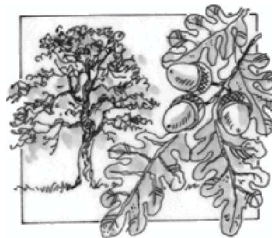


Creating the balance

Attracting predators

A small pond can provide a home for frogs, toads and other creatures that eat pests.

Native species of plants, trees and shrubs, especially broad-leaved varieties will support a wider range of creatures than exotic plants. For example fennel can support many different insect and bird species



Birds, which eat all sorts of pests, can be encouraged by providing nesting sites and food plants.

Creatures need cover to hide in. Create hiding places such as a pile of stones or logs. Don't tidy away all dead plants.

A healthy soil

Healthy, fertile soil is the basis of all organic growing and is the most important aspect of organic gardening. It can be improved by using garden compost and rotted manure. This material feeds the soils micro-organisms. Soil structure and fertility will also be improved.



A well-fed soil gives plants a balanced diet, making them more resistant to pests and diseases.

Controlling pests & diseases — A Teacher's guide

A good healthy start

Make sure that the plants you buy or grow from seed are suited to the conditions in the garden. A plant in the wrong place will not thrive.

Before buying plants, or if they are given to you, check that they are pest and disease free.

Know your problem

If a plant is unhealthy it is important to work out why in order to deal with it effectively. A pest and disease book will help you analyse the problem. It will also help you decide if the problem is serious and really needs attention.

Further Reading

Gardening with beneficial insects for pest control
—*HDRA Step-by-Step booklet*

The Living Garden
—*M. Chinery, Dorling Kindersley.*

All about Compost
— *P.Pears, Search Press*

Collins Guide to the Pests, Diseases and Disorders of Garden Plants
—*S. Buszacki and K.Harris*

How to control vegetable and fruit pests
—*P. Pears and B. Sherman Search Press.*

Organic techniques

Resistant varieties—if you have a pest or disease problem in one plant all the time you could try growing a **resistant** variety. For example 'Lakeland' lettuce is resistant to powdery mildew and root aphid.

Soil pH—changing the **pH** can affect how bad some diseases are. For example potato scab is less severe in acid soils. Clubroot on cabbages is not as bad in alkaline conditions.

Rotation—growing the same vegetables in the same place year after year can lead to a build up of pests and diseases. To avoid this each vegetable, should be grown on a different part of the garden each year. They should not return to the original site for at least three years.

Sowing—problems with pests can often be avoided if you time the sowing of plants carefully. For example sowing peas early or late avoids the pea flowering during the egg laying time of the pea moth.

Breaking the cycle - if diseased plant waste is left in the garden pests and diseases can move on to healthy plants. All infected plant debris should be removed from the garden. You may want to compost the material but some diseases will survive composting. If you are unsure always put the diseased material in the dustbin.

Winter digging—some pests overwinter in the soil. Their numbers can be reduced by turning the ground over in winter to bring the pests to the surface where they will be killed by cold and eaten by birds.

Barriers—physical barriers can be put in place before the problem arises. Why not try some of the following:

Nets—flying pests can be kept out by netting. Make sure that you choose the right mesh size for the pest involved.

Cloches—use plastic bottles, with the tops removed and bottoms cut off, as mini-cloches to protect plants from slugs and caterpillars.

Fleece—carrots can be grown under fleece to protect them against carrot root fly.

Collars—a 12cm square of rubber carpet underlay or some other material fitted around the stem-base of cabbages as soon as they are planted can protect against cabbage rootfly.

Traps—sunken traps filled with beer and milk can be used to trap slugs.

Hand picking—pick off pests and infected leaves when you see them. Never allow problems to take hold.

Controlling Pests and Diseases



**A student's guide to
controlling pests and diseases
in the garden
without using chemicals.**



**DUCHY ORIGINALS HDRA
Organic Gardens for Schools**

How to control pests and diseases in your garden

Organic gardeners keep plants healthy without using chemicals. Organic methods try to stop the problems happening. However, there are many organic ways of dealing with the pests and diseases that do occur in an organic garden.

The aim in an organic garden is not to kill all pests, but to keep them at a level that isn't causing too much damage. So how can you do this?

Working with nature

Nature if left alone, will reach its own natural balance. This means that pests and diseases are unlikely to get out of control. Organic gardeners need to try to get this balance in their gardens. The most important features are food and shelter for **predators**.



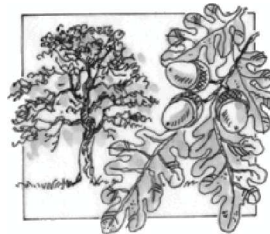
Creating the balance

Attracting predators

A small pond can provide a home for frogs, toads and other creatures which eat pests.



Native species of plants, trees and shrubs, especially broad-leaved varieties will support a wider range of creatures than exotic plants. For example fennel can support many different insect and bird species



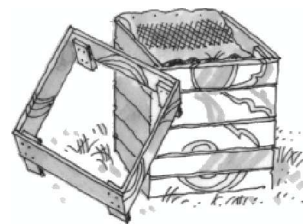
Birds, which eat all sorts of pests, can be encouraged by providing nesting sites and food plants.



Wild creatures need cover to hide in. Create hiding places such as a pile of stones or logs.

A healthy soil

Soil is the most important part of the organic garden. It can be improved by using garden compost and rotted manure. These feed the soil micro-organisms. Soil structure and fertility will also be improved.



A well-fed soil will give plants a balanced diet, making them more **resistant** to pests and diseases.

A good healthy start

Make sure that the plants you buy or grow from seed are right for the conditions—weather and soil - in your garden. A plant that is in the wrong place will not grow well.

Before buying plants, or if they are given to you, check that they are pest and disease free.

Know your problem

If a plant is unhealthy it is important to work out what is wrong in order to deal with it. A pest and disease book will help you work out what the problem is. It will also help you decide if the problem is serious and needs attention.

Glossary

Native

- a plant that has grown in this country for hundreds of years.

Predators

- creatures that eat pests in the garden.

pH

- whether the soil is acid or alkaline

Resistant

- is less likely to be attacked by pests and diseases.