

GARDENING

HOW TO CONTROL PESTS AND DISEASE

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Diseases and insects can ruin a plant, and all your hard work. So it's important that you know what to do to help protect your garden. This guide will help you identify the main culprits, treat the diseases, and keep your garden in good health.

UNDERSTANDING PESTICIDES

Pesticides are chemicals that are broken down into three main segments:

- **Fungicides** are chemicals that are used to kill fungus and bacteria infections.
- **Insecticides** are used to specifically target and kill insects.
- **Herbicides** are used to kill undesirable plants or "weeds". Some herbicides will kill all the plants they touch, while others are designed to target one species.

CONTROL METHODS

Here are some control methods for pests and diseases.

Cultural Control

The best way of controlling pests and disease in your garden without using insecticides or fungicides is to have excellent garden hygiene:

- Keep your garden clear of long grass and weeds as they often harbour pests.
- Diseased plants, fallen leaves, fruit, and pruning wood should be removed as they harbour spores which can reinfest your plants.
- Plants suffering from moisture stress (either too little or too much) are more susceptible to infections and infestations.
- Choose disease resistant varieties of plants and choose plants suited to your local soil and conditions.
- A well-fed healthy plant is less likely to get attacked by diseases or insect pests

Mechanical control

- **Tree bands:** These easy to use, eco-friendly and poison free traps will stop pest insects from climbing your trees from the soil to lay eggs and feed; damaging your trees and fruits. The sticky surface acts as a barrier, stopping these pests in their tracks!



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Insect sticky traps:

The bright yellow colour of the traps attracts damaging insects away from your plants, permanently trapping them in the sticky coating once they land.



Pheromone traps:

These attract male moths like the Guava or Codling Moth, and helps break their breeding cycle. Trapping the male Moth will reduce breeding fewer eggs laid means fewer maggots to attack your fruit.



Slug and snail traps:

Fill the dishes with snail lure (or beer) to attract slugs and snails. They will then drown themselves.



Natural & Biological Control

- **Natural predators:** Introduce natural enemies to pests. Birds feed on insects, while lacewings feed on aphids and whitefly. Ladybirds, frogs, lizards, spiders, and wasps all feed on insects. Welcome and conserve as many of these creatures as possible in your garden. For example, a single frog can eat as many as 10,000 insects in a three-month period.

- **Companion planting:** This is a natural form of pest control. Include herbs that deter garden pests (e.g. chives and garlic planted under roses deter aphids; marigolds combat whitefly) and shrubs, which attract insect-eating birds. There is a detailed list of companion plants on our website:

www.mitre10.co.nz/gardenclub/article/companion-planting



Chemical Control

Fungicides and pesticides are the quickest and most effective method of preventing and controlling pests and diseases. Insecticides and fungicides are chemicals, so it is extremely important to understand how to use them properly, and keep safe.

- A guide to the toxicity of a product can be found on the front label of the container. Those marked 'Poison' are the most toxic compounds. Slightly less toxic are those marked 'Caution'. Those products which have low toxicity with a higher degree of safety for humans are simply marked, 'Keep out of Reach of Children' and/or 'Read Safety Directions' and/or nothing.

- Wear rubber gloves and a mask when spraying.
- Avoid contact with exposed parts of the body, especially eyes. Avoid breathing in spray or dust. If you splash anything on you wash with clean water immediately.
- Keep children and pets away when using chemicals.
- Do not spray in windy conditions. Coverage will be spotty and spray drift can be dangerous.
- Spray in the early morning or late afternoon. Midday spraying can result in serious burning of plant tissue by the sun.
- Store chemicals in a cool, dry, safe place away from children and pets.
- Some chemicals do not mix. Use ready to use products to make life simple if you don't like diluting your own sprays.
- Use a separate sprayer for fertilising, insecticides, fungicides, and herbicides. Make sure these are labelled.
- Set aside a shelf or garden bench, preferably outside, to mix garden chemicals.
- To help protect pollinator insects like bees, do not spray plants in flower, and spray in early morning or in the evening when these insects are not active.
- Food crops need different sprays compared to ornamentals. Sprays and dusts for edible crops are prepared to dissipate quickly.
- Always follow label instructions and time your last spray before harvest carefully. Wash fruit and vegetables before eating.

Withholding Period

- The withholding period is the time that must pass after application of a pesticide before the crop can be harvested and eaten.
- If a product registered for application to fruit or vegetables does not show a withholding period it means that the fruit or vegetables can be eaten straight away.
- All sprays that can be used on edibles will have a withholding period stated, some may say 0 days withholding, not showing a withholding means the product can only be used on non edibles.



COMMON PESTS IN THE GARDEN

Image	Pest	Harm Caused	How Common	Difficulty of Control	Best Control Method
	Aphids	Transmit disease to plants, stress plants. Infestations will cause leaves to curl, wilt or yellow and stunt plant growth	Very common, numerous.	Rapid breeding requires constant vigilance.	Insecticide
	Scale Insects & Mealybugs	Damage by sucking the juice from their host plants. Transmit disease to plants, stress plants.	Common	Difficult to control due to protective coating on sedentary adults.	Insecticide
	Thrips	Damage plants by sucking their juices and scraping at fruits, flowers and leaves. Transmit disease to plants, stress plants.	Very common, numerous.	Rapid breeding requires constant vigilance.	Insecticide
	Mites	Damage by sucking cell contents from leaves. Stresses plant.	Common	Very thorough treatment required.	Insecticide
	Psyllids	Symptoms include tiny lumps or dimples on the leaves of the plant, distorted shoots, tip dieback and sooty mould.	Common	Difficult to prevent disease transmission and damage.	Insecticide
	Whitefly	Seriously injure plants by sucking juices from them, causing leaves to yellow, shrivel, and drop prematurely. Stresses Plant.	Common in edibles, house plants and greenhouses.	Can be very difficult to control if conditions suit the whitefly.	Insecticide or Sticky Trap
	Slugs / Snails	Damages and destroyed plants by consumption.	Common	Relatively easy to control.	Slug Bait or Trap
	Plant Hoppers	Light-colored speckling on plant leaves caused by the leafhoppers sucking sap and plant juices from within the plant tissue.	Common	Hard to control.	Insecticide
	Codling Moth	Visible damage occurs to fruit when the young codling moth caterpillars burrow through the skin. In apples they can consume the seeds and much of the core.	Common	Difficult to prevent damage to fruit.	-
	Caterpillars	Damages plants by eating flowers and leaves.	Very common	Relatively easy to control.	Insecticide
	Chewing Insects*	Damage from insects with chewing mouth parts typically appears on leaves or stems as ragged edges, holes, or other missing tissue.	Very common	Relatively easy to control.	Insecticide
	Grass Grub	Lawn damage to grass and other plant roots shows as patchy areas of dead grass. Will also attack the roots of other plants in containers.	Common	Relatively easy to control.	Insecticide
	Possums	Eat roses, fruit and damage shoots of garden plants.	Common in rural areas.	Can be difficult to control if not on own property.	Insecticide or Electronic Control
	Porina Caterpillar	Damage lawns.	Common	Relatively easy to control.	Soil Insecticide
	Lemon Tree Borer	Tunnel and feed under the bark in living wood, destroying plants which causes girdling, branch die back.	Common	Relatively easy to control.	Insecticide

COMMON DISEASES IN THE GARDEN

Image	Disease	Harm Caused	How Common	Difficulty of Control	Best Control Method
	Camellia Flower Blight	Flowers of Camellia prematurely brown off and drop.	Very common	Fungicides are not effective.	Fungicide
	Powdery Mildews	Forms a white or grey powdery coating of spots, which gets larger and denser as more spores spread over the surface of the plant.	Very common in warm humid conditions.	Relatively easily controlled with fungicides. Appears on the leaves and stems of a wide range of edible and ornamental plants.	Fungicide
	Rusts	Forms rust-like orange patches, called pustules, this species-specific fungal infection. Cause twisted, distorted leaves and shoots.	Common on a wide range of host plants.	Can be controlled though early application of fungicide and cultural controls.	Fungicide
	Peach Leaf Curl	Causes leaf curl and premature drop affecting crop yield.	Common	Prevention through winter spray programme required.	Fungicide
	Cankers	Affect the stems and branches of trees and shrubs.	Common in wet weather and when limbs are damaged.	Can be controlled though early application of fungicide and cultural controls.	Fungicide
	Root Rot	Causes severe dieback of trees, shrubs and other plants.	Common when soils are waterlogged.	Can be controlled though early application of fungicide and cultural controls.	Fungicide
	Brown Rot	This fungal disease attacks tree fruit, turning it brown with white spots. Brown rot infects through wounds in the fruit caused by birds and insects.	Common	As this disease spreads by contact, pick off any affected fruits and burn them. And don't forget to collect any that drop onto the ground and burn them too. It's a good idea to prune away any touching branches as they can harvest spores, which will affect the tree again the following year.	Fungicide
	Red Thread	Causes mottled brown patches on lawns.	Common in damp conditions.	Responds to lawn fungicide and addition of nitrogen fertiliser.	Fungicide
	Buxus Blight	Causes dieback of Buxus.	Common	Can be prevented though protectant fungicide and cultural controls.	Fungicide
	Tomato and potato blight	Problem for potatoes and outdoor grown tomatoes, especially during wet summers. Causes leaves to shrivel and brown rotting in the tomatoes and potatoes.	Common in damp conditions.	Maximise airflow between the plants by giving them plenty of space. Tie vines to a trellis or cane support to help keep them off the ground. Avoid watering the plants from above.	Fungicide
	Downy Mildew	Fungal disease of the foliage of many plants.	Common in damp conditions.	Can be controlled though fungicide and cultural controls.	Fungicide
	Leaf Spots	A fungal disease that causes black or dark purple spots to appear, especially on rose leaves.	Common in wet conditions.	Relatively easily controlled with fungicides. Spores can lay in the soil or on fallen leaves, so always add a fresh layer of mulch and feed each spring to encourage stronger, healthier growth. Requires control of sap sucking insects.	Fungicide
	Sooty Mould	Black mould growing on leaf surfaces. Can shade light from leaf.	Very common where plants are infested with sap sucking insects.	Requires control of sap sucking insects.	Fungicide
	Grey Mould	Affects leaves and fruit of plants. The mould is often seen on plants grown in a greenhouse or where conditions are humid and the plants overcrowded.	Common in densely planted greenhouses.	Can be controlled though early application of fungicide and cultural or hygiene controls such as improving the ventilation in a greenhouse should help reduce the risk of mould.	Cultural

