



RESPONSIBLE CHEMICAL USE



Learning how to manage and handle chemicals safely and responsibly not only ensures your personal protection, but also provides environmental protection for our precious natural resources, like water, soils, native plants and animals, marine and coastal environments.



Mulching in the garden is one alternative way to control weeds

This fact sheet is part of a series designed to help you:

- increase your awareness of correct and responsible use of all chemical types
- gain the knowledge required to effectively control weeds, pest insects and diseases without damaging, contaminating or polluting our environment
- adopt best practice to minimise chemical use and maximise personal safety, and
- play a part in improving water quality and environmental health.

Reducing Reliance on Chemicals

Spraying with a chemical is one option for controlling weeds, insects and fungi. While it appears to offer an easy option, effective pest control with chemicals requires planning, knowledge, application skills and a high level of management.

However, there are many other options available to landholders and home gardeners that reduce their reliance on chemicals, and which can be much safer to you, your family and the environment.

These alternative, more 'natural' and non-chemical approaches to pest control could include:

- encouraging birds or lizards into your garden to control the insects – make your garden attractive to them by providing safe habitat and bird attracting plants
- trapping, lures and even squirting with water to reduce insect numbers
- using milk to kill fungus diseases, or
- mulching to smother weeds.

Integrated Pest Management

Using a combination of chemical and non-chemical control methods – or Integrated Pest Management (IPM) – can provide effective pest control of a sustainable nature.

In commercial production systems, IPM is increasingly being adopted to reduce spraying, cut costs and minimise the risk of chemicals entering our water supply or harming the environment.

While the methods will be different for each pest, the principles underlying IPM control are the same for weeds, insects, fungi or animals.

Weed Control

Weeds can be smothered by a dense cover crop or by a mulch, and slashing or mowing can provide good weed control in some circumstances.

Allowing annual weeds to germinate, then killing them early by tractor cultivating before sowing or planting, will reduce the number of weed seeds that germinate in the crop.

If you have a high population of a particular weed, consider growing it as a cover crop then slashing before the weed crop sets seed to establish a mulch. Alternatively, dig it in as a green manure. Either method will break the weed's lifecycle by preventing seed set and will also improve soil condition.

Rural landholders could choose to slash or green manure a paddock, but should also spray along fence lines where it is not possible to cultivate or slash.

In a home garden, a lawn mower or whipper snipper will effectively do the same job as a tractor and slasher.

Other non-chemical weed control methods for garden situations include solarisation – covering moist soil with a sheet of plastic for several weeks during summer. Alternatively lay a sheet of solid material over the surface of moist soil so any weeds that germinate die from lack of light.

These are in addition to the traditional control measures of cultivation (by machine or by hand), chipping (either with hoe or shovel) and hand weeding.

Other fact sheets in this series

- Accuracy and Effectiveness
- Bait Station Safety
- Best Time to Spray
- Calibrating Spray Equipment
- Personal Safety
- Understanding Product Labels #1
- Understanding Product Labels #2
- Using Glyphosate
- Weeds Near Water





Adhesive traps (sticky pads) and pheromone tags are other ways to control insect pests

Insect Control

The starting point for insect control is to identify the pest. The next step is to decide whether or not it is doing enough damage to warrant some form of control action. If you decide the answer is yes, the next decision is what to do. Here are a few alternatives.

In a home garden, caterpillars and many other damaging insects can be controlled by hand-picking them from affected plants on a regular basis.

Pest problems can often be avoided by growing crops and plants at the right time of the year. Cabbage White Butterfly, for example, is not an issue in the cooler months, but presents real problems in late spring.

A variety of trapping options is also available, from yellow adhesive traps for White Fly and Aphids, to traps baited with pheromones or other attractants for Codling Moth.

Refuge traps are also an option for some insect pests. One type consists of corrugated cardboard wrapped around the trunks of apple and pear trees to provide a hiding place for over-wintering Codling Moth larvae. During winter the cardboard – with the pupae “trapped” inside – is removed and destroyed, eliminating or reducing the population for the next season.

Providing shelters for slugs and snails, which are then collected and destroyed, uses the same principle. Alternatively, sprinkling sawdust, crushed eggshells or bran around young plants and shoots in the home garden will help keep these pests away.

Insects are subject to natural predators, parasites and diseases, and many pest insects can be controlled by these biological control agents. Unfortunately, many beneficial biological agents are killed by chemical sprays designed to control the pests. However there are some sprays, with short efficacy time-frames, that can be used effectively in conjunction with biological methods for insect control.

Fungus Control

Most fungus control relies on management or spraying. The risk of fungal infection can be reduced by good management.

For example, pruning a vine or tree into an open canopy can increase airflow to speed drying and minimise humidity build-up that encourages many fungi.

Similarly, watering under a crop rather than overhead can eliminate foliage wetting that can open the way for some diseases.

Options for disease control also include spraying with “soft” products such as dilute milk or milk products, oils, and traditional inorganic copper and sulphur sprays.

Hygiene Maintenance and Plant Nutrition

Good garden and property hygiene maintenance is often overlooked as a form of pest control. However when it is understood and then used correctly, it is one of the most effective methods of control, simply by using the core prevention techniques.

Some simple practices will go a long way towards minimising many pest and disease problems. These can include:

- clearing up fallen fruit and leaves from under trees
- pruning and destroying infected wood, and
- pulling old fruit “mummies” off trees and destroying them,

So too will good plant nutrition. Healthy plants are usually less attractive to insect pests and have greater resistance to pest attack.

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When using chemicals more is not better!

If you are uncertain about any aspect of chemical use, please seek professional advice from the place of purchase or the manufacturer before proceeding.

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