

# REDUCING PESTICIDES

it's perfectly natural.



## CONTROLLING INSECTS WITHOUT PESTICIDES: AN OVERVIEW

All gardens contain insects. At any given time, there are dozens of different species of insects thriving among your trees, shrubs, flowers, vegetables and lawn grasses. Most of these insects are beneficial. But a few, when present in large numbers, can cause physical damage or spread disease.

Insects are a normal part of a garden and some cosmetic damage over the growing season is also normal. However, if the plant's health is at risk, the gardener should control the pest, remembering that the cost of controlling the problem should not exceed the cost of replacing the affected plant. Target the pest when it is most vulnerable and, preferably, before it reproduces. Organic controls should be applied carefully to avoid killing beneficial insects. Combine organic controls with good gardening practices to maintain the health and vigour of the host plant and others around it.

Insect pests and the ways they cause injury to plants include:

**Defoliators** eat or “mine” whole leaves or parts of leaves between veins. This affects photosynthesis and the plant's ability to grow and reproduce. Common perpetrators are caterpillars, leaf eating beetles such as the viburnum beetle, leafminers and sawflies.

**Sucking insects** suck the sap of plants and/or inject damaging secretions. Leaves appear whole but may be mottled, change colour, or be twisted or curled up; flowers may be malformed; and foliage and young shoots may wilt. These include aphids, leafhoppers, thrips, scale and mealybugs.

**Borers** tunnel into buds, shoots, bark or wood of trees. Signs of damage include the sudden death of whole branches, sawdust on the ground and sap. They are usually the larvae of beetles and moths.

**Gall makers** cause abnormal growths in a plant by laying eggs or feeding on it. The galls protect the insects which are usually midges and gall wasps. Trees are a favourite food.

**Soil pests** can cause immense damage to roots and ultimately the death of lawns, evergreens and strawberries before the gardener is aware that they are present. Common soil pests are *the larvae of Japanese Beetles, European Chafers and weevils.*



This fact sheet has been prepared by the Toronto Master Gardeners



To discourage undesirable insects from making themselves at home in your garden you may wish to adopt the following gardening practices:

**Select the right plant for the right place.** Match the specific conditions in your garden to ensure plant health is maintained. Locate plants carefully so that they receive the correct sun or shade conditions. Certain plants need specific conditions such as shelter from winds, morning rather than afternoon sun, acidic or alkaline soils, fertile clay soils or well drained porous soils. It is often the absence of these specific requirements that leads to the plants' failure to thrive, making them prone to insect damage and ultimately death.

**Select plants that are hardy.** In Toronto, this generally means plants that are hardy to Zone 6 (or lower), although each garden will contain various microclimates depending on their exposure and shelter. For plants that are border-line hardy, mulch should be applied before the winter is well under way.

**Water evergreens** until the soil has frozen, especially if there is little rain in the fall or early winter. They can also be burlapped in winter *the first year they have been planted* to prevent desiccation or if they are liable to salt damage.

**Select insect and disease-resistant varieties** of plants and vegetables.

**Avoid overcrowding plants.** Many gardens are packed too full, preventing the flow of air around plants. This is an important factor in the spread of insects and plant diseases. Aphids in particular are encouraged to multiply where there is inadequate air circulation. *Remember* at planting time that almost all plants will expand considerably. By maturity, most plants will not only be taller, but also much wider, than when they were planted. Give them enough room to develop comfortably. Plant tags usually provide mature height and spread – believe them *while* spacing your plants, even if things look too far apart at the beginning.

**Grow many types of plants** and avoid monocultures or the mass plantings of one type of plant. Insect infestations tend to get out of control in monoculture environments.

**Examine plants frequently for early signs of insect and disease damage.** Examine leaves, looking on both the surfaces and the undersides. Often, all that is needed is to remove the affected leaves from a plant or give them a squirt of insecticidal soap. Act promptly to gain control of insect pests. When insects have spread to many plants, they are much harder to eliminate. (See the companion fact sheet “How to Combat Common Insect Pests Organically” for specific suggestions.)

**Maintain the health and vigour of your plants.** Most need a bit of “tender loving care” after planting until they are established. Remember – healthy plants are strong plants. The fitter the inhabitants of your garden are, the better equipped they will be to fight off the advances of annoying pests.