

Many of us are aware of the impacts of using chemicals in our garden and the harm that both pesticides and herbicides can do to not only the environment, beneficial insects such as bees and to ourselves. Many of us are trying to grow a more ecofriendly garden but if we want to go truly organic it is a considerable investment in time and/or money. Another option is Integrated Pest Management (IPM) a kind of middle ground.

IPM is a strategy which encourages a variety of pest control methods specifically biological controls, cultural controls and chemical controls, used harmoniously to reduce the use of pesticides not only on farms, plant growers and nurseries but also in our gardens.

The basic tenants of IPM are:

- Proactively avoid problems
- Keep plants healthy
- Accept that insects are part of a healthy garden
- Use natural methods of pest control whenever possible.
- Choosing chemical pesticides as a last resort

Biological Control

This refers to the use of predators, parasites, and diseases that are the enemies of pests. An IPM strategy aims to encourage beneficial species by not using pesticides and by growing plants that attract and are a suitable place for them to live.

There are basically two categories of pests and beneficial invertebrates; transient and resident. Transient refers to species that moves in from outside the garden usually in spring and autumn, peak times for many species to become active. Examples of transient beneficial insects include ladybugs, brown lacewings, hover flies and parasitic wasps. Examples of transient pests include aphids, thrips, whitefly and cabbage white butterfly. Resident species are invertebrates that are often found in the soil and live in the garden year round. Examples include predatory ground beetles, predatory soil mites as well as pests such as slugs, snails and earwigs.

Some beneficial species are commercially available to release into the garden if required. A good resource can be found at

<http://www.goodbugs.org.au/suppliers.html> including a very useful table, *Common garden pests and suitable natural enemies available for purchase.*

Cultural Control

These are any management methods that either enhances beneficial insect populations or disrupts pest populations. Some examples include timing of planting, weed control, crop rotation, physical barriers, sanitation, soil management practices and quarantine and growing plants that can sustain populations of beneficial insects

Chemical Control

Chemical controls should be used only in a supportive role or as a last resort and should be selective and not broad spectrum. Some pesticides are not synthetic chemicals and include naturally occurring bacterial, viral and fungal pathogens that are used in the same way as chemical pesticides.

Monitoring

In IPM the monitoring is to check whether any pests are present and, if so, whether they are being controlled by beneficial or cultural practices. If not additional biological or cultural practices are required. It is not difficult to monitor just by observation. Pheromone traps and sticky traps can be useful tools. It is better to do a little monitoring often than none at all.

Invertebrates

Invertebrates include slugs, snails, earthworms, millipedes, centipedes, insects, spiders, mites and many others.

A small number of these are beneficial in terms of helping to control pests, but are a part of food-web that involves being food for other species, nutrient cycling, pollination and decomposition processes.

(Sources: <https://mysmartgarden.org.au/resources/habitat/ipm-workshop-notes/>, <http://www.goodbugs.org.au/IPMnotes>, <https://www.australianplantsonline.com.au/blog/post/good-bugs-beneficial-insects/>).