



# The Fundamentals of Integrated Pest Management

Affectionately Known As IPM

What is IPM and why is it an effective tool in keeping your plants healthy?

Integrated Pest Management (IPM)- puts your power of observation to task, it is a common sense approach to pest management in the ornamental landscape. IPM is the best way to keep your plants healthy and free from diseases and insects while also reducing the use of pesticides. The basic principles of I.P.M. are as follows:

- 'Right Plant, Right Place'
- Monitoring
- Cultural Control
- Physical/Mechanical Control
- Biological Controls
- Chemical Controls (least desirable)

**'Right Plant, Right Place'**- Planting the right plant in the proper hardiness zone, sun exposure, and desirable soil conditions are the cornerstone of good horticultural practices. Adhering to the basic needs of the plant is the best way to keep it healthy and free from undue stress which can make it more susceptible to diseases and insect damage.

**Monitoring**- Early identification and interception of the problem ensures unnecessary treatments are avoided. Identifying the pest and setting action thresholds are the most important steps in this process. The use of monitoring techniques requires recurring trips to the property throughout the growing season. It is important to learn the lifecycles of insects and diseases as evidence of disease or insect activity will change throughout the year.

- Winter- Locate overwintering egg masses. When the leaves have gone from deciduous plants and the entire structure of the plant are visible (for example, Spotted Lanternfly eggs) it is easier to find these masses.
- Spring- Look out for egg masses hatching and insect activity beginning. Examine leaf and flower buds for any deformities in structure. Look for any chewing or fungal activity as the plant begins to leaf out. Always check the underside of leaves for evidence of insect activity or the insects themselves.
- Summer- Insect and Fungal activity is most prevalent in the warmer months of the year. At this point activity will be most apparent.
- Autumn- Insects are preparing to lay egg masses, and cooler temperatures may lead to more fungal activity.

**Cultural Controls**- Keeping happy and healthy plants through proper cultural methods is the best prevention.

- Proper soil preparation when planting
- Proper watering practices throughout the season
- Applying mulch at the proper depth and away from the trunk. (No mulch volcanoes)
- Proper & timely fertilization and soil amendments.
- Removing diseased leaves that have dropped from beneath troubled plants before the spores reach the root system.
- Keep your tools and equipment sharp and clean to avoid damaging the plant material and spreading diseases.

**Physical/Mechanical Controls**- this process consists of handpicking, or mechanical traps (spotted lanternfly), crushing, banding trees and trunk collars just to name a few. This method of IPM kills the pests directly or makes the environment unsuitable for the pest. This is not limited to insects, it includes deer fencing to control browsing, chicken wire to prevent destructive animals from entering vegetable or other desirable crops. Proper pruning to remove dead and diseased branches. The use of high-pressure water to physically remove aphids or mites by spraying the foliage. Keep turf grasses at proper height to maintain a healthy lawn. Hand cultivate weeds, or even burn weeds on hardscape areas.



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**Biological Controls-** Use natural predators (beneficial insects), parasites, or diseases of the pest to control populations. Lady bugs (ladybird beetles) are an example of natural predators of aphids and certain types of scale insects. Biological controls use natural enemies of pests to control them.

**Chemical Controls-** This is where setting of action thresholds come into effect. Once the level of infestation leaves no other option you turn to a chemical control. Choosing the right pesticide for the pest and knowing the proper time to apply it is the key to success. One should target the pest rather than choosing a broad-spectrum remedy. Many chemicals are targeted at altering the lifecycle of the insect or pathogen, these should be strongly considered, properly timed, and safely applied. Read all label instructions, including safety precautions, before applying any pesticides.

Some great references:

<https://www.epa.gov/safepestcontrol/integrated-pest-management-ipm-principles#what>

<https://cpe.rutgers.edu/landscape/integrated-pest-management>

<https://ipm.ucanr.edu/PMG/menu.homegarden.html>

<https://biocontrol.entomology.cornell.edu/what.php>