

# INTEGRATED PEST MANAGEMENT



## Integrated Pest Management

Integrated Pest Management (IPM) is an effective and environmentally sensitive approach to pest management that relies on a holistic set of practices.

The goal of IPM is to manage pests at acceptable levels rather than trying to eliminate them. Insecticides and pesticides should not be relied upon as a primary means of pest control. The residuals of these chemicals can remain in the environment for days, weeks, or months. IPM involves an understanding of all factors in plant growth such as soil, water, air, nutrients, weather, and insects.

The main principles of IPM are prevention and monitoring. Many pest control problems in a garden are a result of pre-existing stressors. Pests are not always the cause of a plant's decline, but are usually a symptom of poor plant selection, placement, insufficient nutrients, or lack of or too much moisture.

## Prevention

Stressed plants are more susceptible to insects, fungi, and viruses. Select plants that will grow well in the Washington, DC region and under the soil, water, and light conditions of the site. To prevent unwanted guests in the garden:

- Select native and disease resistant varieties
- Water and fertilize plants according to their individual species needs
- Remove problem or disease plants
- Increase air circulation to minimize certain diseases
- Build soil fertility by using plenty of organic matter and avoid over-fertilization with synthetic fertilizers
- Mulch to help retain moisture, suppress weeds, and prevent soil erosion

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## Monitoring

Monitor plants each week and be familiar with the insects, bacteria, and fungi. Examine leaves, stems, and the crevices of bark. Look for organisms by appearance and their effect on plants. Try to identify pests in each stage of its life cycle. Pest identification assistance is available through the Maryland Home and Garden Information Center at <http://extension.umd.edu/hgic>.

## Know beneficial insects from harmful insects

Many organisms do not harm plants and should not be eliminated. Other organism considered pests are not harmful in small numbers. These pests should be monitored to ensure their populations do not “explode.” For example, a small infestation of scale will not prevent azaleas from thriving. Some organisms are beneficial because they consume pest species. When beneficial organisms are present, do not apply a pesticide.

## Plants can thrive with insects, fungi, and bacteria for a long time

- A tree can lose up to 30% of its leaf canopy because it experiences stress
- Roses are highly tolerant to Powdery Mildew

## When to act

Organism populations may reach a point at which the plant cannot tolerate damage. Through careful monitoring, each homeowner can determine an action threshold based on individual needs and health of their plants.

## What to do

If monitoring and action thresholds indicate that pest control is required, choose a control method based on effectiveness and risk.

### Mechanical Controls

- Physical removal – pick pests off by hand or remove by pinning infected branches
- Pheromone and sticky strip traps – trap pests in their flying stage

### Biological controls

- Beneficial organisms – release beneficial organisms such as ladybugs and nematodes to prey on harmful insects
- Bt (*Bacillus thuringiensis*) – this bacteria releases toxins in the stomachs of susceptible insects

### Chemical Controls

- Insecticidal soap – soap penetrates the insect’s outer covering and causes the cells to collapse
- Horticultural oil – the oil coats and suffocates insects