

## Sources for information on IPM

For reliable, unbiased information on IPM or any horticultural topic, consult university or government publications and websites. These sources provide information on research-based techniques. Gardening magazines and books can also provide information on current IPM practices. Information provided by pest control companies, garden chemical manufacturers, box stores, and others in the business of selling pest control products and services is not always accurate.

Don't restrict IPM practices to the garden only—use them for household and pet pest problems as well.

Learning about and using IPM is an ongoing educational process that is necessary for the health of our environment.

For more information, visit the PA IPM Web site:

<http://paipm.cas.psu.edu>

If you have a question about any gardening problem or procedure, call the Penn State Extension Office. We'll be happy to answer your questions.

Happy gardening!

One in a series of informational brochures produced by the Penn State Extension Master Gardeners of Chester County, sponsored by Penn State University's Cooperative Extension. Penn State Extension Master Gardeners are volunteers who educate the public on best practices in consumer horticulture and environmental stewardship. They receive horticultural training from Penn State University's College of Agricultural Sciences Cooperative Extension.

For answers on any home gardening issue, call the Master Gardener Hotline at 610-696-3500 or email [chestermg@psu.edu](mailto:chestermg@psu.edu).

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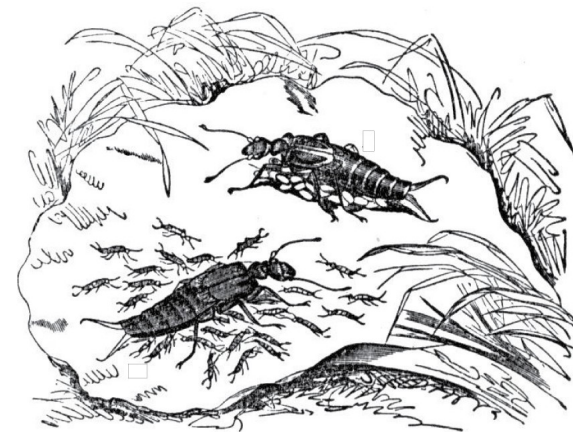
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# Penn State **Extension**

# Integrated Pest Management

**[extension.psu.edu](http://extension.psu.edu)**



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## **What is Integrated Pest Management?**

Integrated Pest Management (IPM) is a decision-making process that seeks the least toxic method for controlling pests. IPM does not mean the total eradication or extermination of a pest. Past experience has shown that regular applications of pesticides will result in populations of insects that are pesticide resistant. Gardeners can best manage pest populations by using a variety of control methods.

### **Four Basic Steps of IPM in the Home and Garden:**

#### **1. Observation**

Gardeners have a rather close relationship with their plants and routinely inspect them. If you notice a decline in the health or a physical change in a plant, the next step to take is:

#### **2. Identification and Diagnosis**

Identify the problem. Determine if it is caused by insects, diseases, or environmental conditions. Look under leaves for pests, but don't assume that any insect you find is a pest. Learn to identify beneficial insects.

#### **3. Select Appropriate Control Methods**

Once again, "control" does not mean extermination. Through various means, you will keep the "pest" population to a level below what is considered harmful.

#### **4. Observe Results**

Record your results for future reference.

## **Methods of Controlling Pests:**

### **Biological Control**

- Encourage beneficial insects such as ladybugs, lacewings, spiders, and parasitic wasps to take up residence in your garden.
- Use biological sprays, such as *Bacillus thuringiensis* (Bt), for chewing insects.

### **Cultural Control**

- Clean up weeds and dead plants that can harbor insects and diseases.
- Allow adequate space between plants and prune for good air circulation.
- Time plantings to avoid the peak of insect infestations.

### **Physical Control**

- Hand pick insects off plants.
- Use sticky traps to monitor the onset of an insect infestation.
- Prevent weed growth by using mulches.
- Surround tender plant stems with wire fencing or other mechanical barriers to keep out chewing animals.

### **Genetic Control**

- Choose plant varieties that are resistant to pests.

### **Chemical Control**

- Choose pesticides that offer the widest margin of safety for you, your children, your pets, and local wildlife.
- Carefully read and follow the label directions before applying any pesticide.

## **STOP!**

### **Before You Use a Chemical...**

#### **Be sure you have a problem.**

Know what plant you have, what is typical for the plant, and common signs and symptoms that would indicate a problem.

#### **Determine the cause of the problem.**

Remember that 80% of all plant problems are caused by cultural and conditional factors (lack of water, plant in the wrong place, etc.), not by living organisms, such as insects, fungi, bacteria, and rodents. It is futile to treat an infestation without correcting the conditions that led to it.

#### **Determine whether the identified problem merits treatment.**

- Is the infestation or disease threatening the health of the plant?
- Can you tolerate minor imperfection as a trade-off for overall balance in the landscape?
- Does the threat justify the possible peripheral and residual effects of treatment?
- Is the plant so compromised that replacement (or transplanting) is the wiser option?

#### **Determine the correct timing for treatment.**

Most insects and infectious agents have complicated lifecycles with dormant or protected phases during which treatment is useless. Information to help you target treatment effectively is available from Penn State Cooperative Extension.