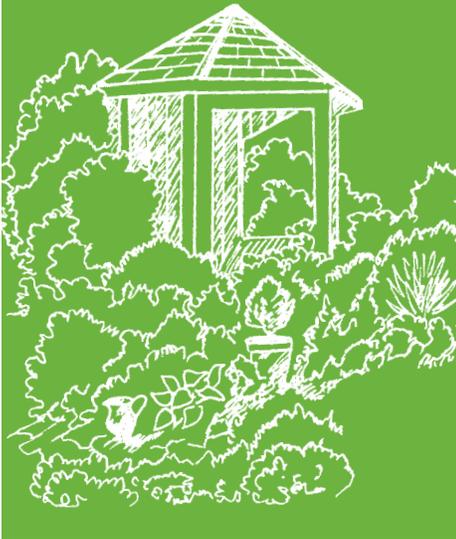


Creating Healthy Landscapes

INTRODUCTION



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Penn State College of Agricultural Sciences research, extension, and resident education programs are funded in part by Pennsylvania counties, the Commonwealth of Pennsylvania, and the U.S. Department of Agriculture.

This publication is available from the Publications Distribution Center, The Pennsylvania State University, 112 Agricultural Administration Building, University Park, PA 16802. For information telephone 814-865-6713.

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Produced by Ag Communications and Marketing

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Code # UJ237

6M5/08mpc4202

When a plant looks unhealthy or has been injured by an insect or a mite, often our first impulse is to apply a pesticide. But that solution might be a waste of time and money. Applying the wrong pesticide could destroy the pest's natural enemies, which sometimes take care of the problem without any intervention.

A better approach is to manage the health and beauty of trees, shrubs, and flowers with minimal pesticide use. Some call this method integrated pest management (IPM); others call it plant health care (PHC). It involves looking at the total landscape; identifying the insect, mite, disease, or growing condition that appears to be causing a problem; and if any action needs to be taken, choosing from a variety of sound management strategies. This approach takes into account that only 3 to 5 percent of insect species are harmful and that most pests have natural enemies such as birds, toads, and beneficial insects to keep them in check.

Penn State Cooperative Extension and well-informed horticulture professionals in the landscape and nursery business suggest using IPM practices. The five steps outlined in this fact sheet will help you take better care of your landscape plants and evaluate the services of professional landscape maintenance companies.

FIVE STEPS TO TAKE...

1. CHOOSE PLANTS WISELY

Select plants that are suited to the conditions in your landscape. For instance, if the soil is acidic, choose plants that prefer acid conditions. If most of the area is shaded, then you need plants that prefer shade. Plants placed in the wrong location will not thrive and will be susceptible to many problems in the future. Select plant cultivars that are known to be less susceptible to insects, mites, and diseases. Also, consider growing plants that are native to your area or an area with similar growing conditions.

2. PLANT WITH CARE

Help plants get a good start by installing them correctly. Mistakes made when planting or when applying mulch can result in weakened plants that are prone to problems.

3. PROMOTE PLANT HEALTH

Healthy, vigorous plants are less vulnerable to damage caused by insects, mites, and diseases. Provide the best growing conditions by testing the pH and nutrient level of your soil, preparing soil well before planting, and then using fertilizers only as needed. Water plants regularly until they become established. Use mulches correctly and follow proper pruning recommendations.

4. KEEP PLANTS WELL GROOMED

Debris that builds up in the landscape may harbor pests and plant diseases. Remove dead or dying plants. Rake and remove leaves that drop off plants. If a branch is broken or diseased, prune it. Use organic mulches that have been composted properly. Apply a layer no deeper than two or three inches, making sure the mulch does not touch the trunk or main stem of the plant.

5. MONITOR PESTS

Inspect plants regularly for insects, mites, diseases, or any unusual changes in appearance that might indicate a problem. Accurate identification of the cause is essential for evaluating the situation and determining what, if any, management tactics are needed. Be aware that if a pest shows up, natural enemies that prey on it often appear as well. To monitor the health of plants in a landscape, you also must be able to recognize these beneficial insects. You may need to tolerate some plant injury before populations of beneficial insects and mites build up enough to keep a pest in check.

It is important to understand the biology of many different plants. Additionally, knowing how pests and plants are affected by weather is important. Professionals who have this knowledge often are called IPM scouts or PHC technicians. Whether you

develop this expertise for your location or hire a skilled professional to provide assistance, you soon will realize that the knowledge needed to monitor the health of a landscape is almost as sophisticated as that required of a physician.

HOW THE PROGRAM WORKS

This approach is based on an understanding that pests are part of the environment and that trying to eradicate them is usually unrealistic. The idea is to manage the situation by keeping plants healthy, monitoring conditions in the landscape, encouraging natural pest controls, and if a pest is detected, determining whether damage levels are high enough to require treatment. If treatment is needed, physical or biological controls are recommended first. As a last resort, conventional pesticides may be used judiciously to manage the problem.

PEST MANAGEMENT METHODS

Physical. Pests can be removed from plants physically. For example, some species of aphids can be removed with a forceful water spray, and bagworms can be picked off infested plants. Traps and barriers can be used to keep insects away from plants. Some diseases are best managed by physically removing the infected plant part.

Biorational. Often, pests can be controlled by enlisting the help of their natural enemies. These strategies sometimes are called biorational. For example, lady beetles, one group of beneficial insects, eat aphids and other soft-bodied insects. In an IPM program, grounds managers may encourage populations of beneficial insects and even will introduce them into the landscape.

Another biorational method uses a naturally occurring bacterium called *Bacillus thuringiensis* (Bt). Bt produces a protein that is toxic to some insect pests but harmless to most other organisms.

Chemical. Sometimes pesticides provide the best control. In many cases, environmentally safe pesticides such as horticultural oil or insecticidal soap can control pests. In IPM programs, the least toxic pesticides are used first. Apply registered pesticides according to label directions and at a time when the pest is most susceptible. If possible, apply them only to the affected parts of infested plants.

KEEPING RECORDS

When monitoring plants in a landscape, you should keep records of each plant inspection. Observations should include the date, time, weather, major problems on each plant species, presence of beneficials, management decisions made, control techniques used, and an evaluation of control effectiveness. Whether you maintain your own landscape plants or hire a professional, you should ensure that good records are kept during the growing season. A landscape management service that does not keep good records is not providing an IPM program.

Records are invaluable for management not only during the current season but also for anticipating future problems. Records also may demonstrate the need to move or replace a plant that has persistent, high-maintenance problems.

BENEFITS OF AN IPM PROGRAM

- Beautiful, healthy landscape plants
- Long-term effectiveness
- Use of least toxic pest and disease management methods
- Lower cost over time

FOR MORE INFORMATION

Penn State Cooperative Extension, Delaware Cooperative Extension, and the Southeast Pennsylvania IPM Research Group have been working together to provide information and educational materials on IPM and landscaping.

This fact sheet, *Creating Healthy Landscapes—Introduction*, is part of a series of educational fact sheets about understanding and using integrated pest management. Other topics in the series include:

- Choose Plants Wisely
- Plant with Care
- Promote Plant Health
- Keep Plants Well Groomed
- Monitor Pests and Keep Records
- Pest Management Methods
- Recognize and Conserve Natural Enemies
- Use Nature's Signals to Manage Landscape Pests

Copies are available from your local extension office.

The Southeast Pennsylvania IPM Research Group is a collaboration of university and industry horticulture professionals who are inspecting landscapes across the region to monitor pest populations and share current IPM data. The group is partially supported by the Pennsylvania IPM Program (PAIPM). For more information about the research group, contact Penn State Cooperative Extension, Montgomery County, 1015 Bridge Road, Suite H, Collegetown, PA 19426-1179; phone: 610-489-4315.

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