

Welcome to ProIPM, the Green Gardening Program's series of quick reference IPM fact sheets for landscaping professionals. We designed this series both to assist you in the field and to explain to your clients the IPM approach you use on their landscapes. Each sheet in the series gives you the essential facts you need to know about an important Northwest pest or disease problem: identification, life cycle, monitoring, damage threshold, and treatments. Use these fact sheets for easy reference, and feel free to hand them out to your clients as well. We have also included sample monitoring records for your use. Please feel free to photocopy these monitoring sheets if you need additional copies. **These fact sheets are available at www.seattle.gov/util/ProIPM**

IPM Steps

- 1) Correctly identify the pest (weed, insect, disease, etc.) and understand its life cycle.
- 2) Establish tolerance/action thresholds: accept some pests, weeds etc.
- 3) Monitor regularly to detect pest problems.
- 4) Modify maintenance program to promote plant health and discourage pests.
- 5) If pests exceed tolerance/action threshold, use cultural, physical, mechanical or biological controls first. If those prove insufficient, use the least-toxic chemical control and application method with least non-target impact, at the most effective time.
- 6) Evaluate & record effectiveness of control, and modify maintenance or plant choices to support recovery and prevent recurrence.

What is IPM? Integrated Pest Management (IPM) is an approach to pest control that utilizes regular monitoring to determine if and when treatments are needed. IPM employs physical, mechanical, cultural, biological and educational tactics to keep pest numbers low enough to prevent intolerable damage or annoyance. Chemical controls are used as a last resort, and the least-toxic chemicals are preferred. IPM originated in the late 1950s out of research to find predators for introduced agricultural pests. In the intervening years, IPM has evolved and gained acceptance in non-agricultural pest control as well. Now it is widely recognized and utilized in landscaping and structural pest control, as well as agriculture.

Why Use IPM? IPM protects the natural enemies that help to keep pests in check and avoids unnecessary chemical use that may endanger human health and the environment. IPM has been gaining acceptance worldwide and is now mandated by many governmental agencies. For example, IPM has dramatically reduced pesticide use in our National Parks, while maintaining effective pest control. IPM represents the future for the landscaping industry because it is the best long term solution to pest management and plant health. Demand for IPM services is increasing as concern over pesticides grows. Companies that provide IPM services are in an excellent position to prosper in the future. When a client hires an IPM practitioner, they receive expertise, careful monitoring, and labor-intensive cultural practices instead of just chemicals.

What's wrong with a calendar-based spray service?

If insecticides and fungicides are applied to the landscape at regular intervals, won't this reduce pest problems? People tend to think of these sprays as "booster shots", as a practice that helps keep plants invulnerable to problems. These calendar sprays, however logical they may seem, are generally ineffective at reducing plant problems. Why?

Most plant difficulties, over 2/3 of them, aren't caused by any living pathogen. They result from soil conditions, watering practices, nutrient imbalance, heat, freezing, or other cultural problems. Sprays, designed to kill living organisms like fungal spores and insects, are wasted on these problems.

If a pathogen or pest is present, it must be treated at the correct time during its life cycle. Many fungal diseases, dogwood anthracnose for instance, require fungicide treatment very early in the season as leaf and flower buds begin to open and at 10 day intervals until full leaf. If a calendar fungicide spray were used on March 15 and June 15, the March 15 spray might be too early and the June 15 spray would undoubtedly be too late. Scale insects, common on many fruit trees and landscape plants, are vulnerable to treatment with insecticides when the eggs hatch into "crawlers" but not at other stages in the life cycle. Remember, disease organisms and insects grow with light, temperature, and moisture, not by watching the calendar.

Spraying every plant in the garden endangers beneficial insects and birds. Broad-spectrum sprays, such as many insecticides, kill many different types of insects, including the larval and adult lady bug, a great muncher of aphids. Healthy, balanced landscapes provide food and shelter for many different creatures. Timed sprays applied to plants "just in case" actually make problems worse when they kill beneficials. *Even if some pests are present, treatment may not be needed.* Most plants can tolerate some damage and just "grow out of it." Using sprays unnecessarily wastes time, money, and materials, but its primary problem is the disruption of a natural garden ecosystem.

Learning when and how to manage garden problems requires more effort and attention than simply spraying by a schedule. See factsheets on monitoring and specific problems and solutions at www.seattle.gov/util/ProIPM

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Fertilizers and IPM

Plants need nutrients in order to grow, and healthy plants are better able to withstand pest and disease attacks. Although some plant species can remain healthy using only the food naturally present in the soil, most plants in home landscapes require at least some additional nutrients. These extra nutrients are provided by soil amendments such as compost and fertilizer. Although not pest controls themselves, fertilizers do affect a plant's susceptibility to pests and diseases, and they can have effects on the environment as well. So the choice of when and how to fertilize is an important component of IPM. The three most important practices for lawn and garden fertilizers are: don't over-fertilize, use slow-release fertilizers, and avoid fertilizer/herbicide mixtures.

Don't over-fertilize. Applying too much fertilizer is harmful in two ways. First, it over-stimulates plant growth. In the case of turf, rapid growth means more mowing and more thatch buildup. Overfertilization can increase aphid problems in susceptible plants, too. The second problem with excess fertilizer is that it can leach or run off into surface water or ground water. For turfgrass, WSU Cooperative Extension recommends no more than 4 pounds of nitrogen per 1000 square feet of lawn per year. This amount of nitrogen can be spread out over four separate applications. Up to one-third to one-half of this nitrogen can be supplied by grasscycling (leaving the clippings), reducing the need for commercial fertilizer.

Use slow-release fertilizers. Slow release fertilizers are designed to provide a slow, steady supply of nutrients. They can be either naturally derived (organic) or synthetically derived. Slow release fertilizers are generally not very soluble in water, so they are less likely to pollute water by runoff or leaching. Top dressing with compost provides soil fertility and helps increase water retention. For turfgrass, WSU recommends a 3-1-2 (N-P-K) ratio. Controlled release fertilizers are preferred to water soluble fertilizers.

Avoid fertilizer/herbicide mixtures (such as "weed and feed" products). Fertilizers with built in weed control are popular because they are convenient, but they are not recommended by WSU Cooperative Extension or the Green Gardening Program. These products are designed to be used whether or not a weed problem exists, and they are broadcast over the entire lawn area. That approach short-circuits the IPM process by ignoring the monitoring step, assuming a

zero tolerance for weeds, and not targeting the pest problem. The herbicide ingredients in weed and feed mixtures are highly mobile and inclined to move with water. We suggest keeping fertilization separate from weeding, so that each component can be performed in the optimal manner. Weeds should be removed mechanically if possible, or spot treated with the most appropriate chemical if mechanical methods are impractical. Some tolerance for weeds helps to minimize chemical use.

Disposal of Pesticide Products

Unwanted pesticide products are considered hazardous wastes. They must either be used up as directed (provided the products are still currently registered) or disposed of at a hazardous waste collection facility. Disposal down the drain or in the trash is illegal in Washington State, despite instructions to the contrary on many product labels.

Residents can dispose of unwanted household pesticides free of charge in King County. Collection sites available include the South Transfer Station, the North Seattle and Factoria Haz Sites, or the roving Wastemobile. For information regarding times of operation, location and products accepted, see the website below or call the **Household Hazards Line at 206-296-4692**.

Pesticides generated by small businesses may be eligible for disposal at some household hazardous waste sites. For information on hazardous waste disposal for businesses, call the **Business Waste Line at 206-263-8899**. Disposal information for both households and small and large businesses is available at www.LHWMP.org

What is the Green Gardening Program?

The Green Gardening Program is sponsored by Seattle Public Utilities and the Local Hazardous Waste Management Program in King County. The program promotes environmentally-sensitive landscaping practices, with particular emphasis on reducing pesticide use, conserving water, and reusing/recycling landscaping waste. Green Gardening activities have included slide show presentations and brochures for homeowners, professional trainings and resources for landscapers, designers, and nursery staff, and garden tours. For more information, call the Green Gardening Program at 206-343-9759, extension 101.

See the ProIPM factsheets at www.seattle.gov/util/ProIPM

Questions about a landscape pests, problems and solutions?

Call the Garden Hotline 206-633-0224, or email help@gardenhotline.org