

Appendix IV-B – Example of an Integrated Pest Management Program

Integrated Pest Management is a natural, long-term, ecologically based systems approach to controlling pest populations. This system uses techniques either to reduce pest populations or maintain them at levels below those causing economic injury, or to manipulate the populations they are preventing from causing injury. The goals of Integrated Pest Management are to encourage optimal selective pesticide use (away from prophylactic, broad spectrum use), and to maximize natural controls to minimize the environmental side effects.

A step-by-step comprehensive Integrated Pest Management program is provided below as a guide.

Introduction

This section provides a sound cultural approach to managing lawns and landscapes and minimizing runoff. Many homeowners or property managers will be able to implement most or all of this approach, others will wish to hire these services out. For the do-it yourselfer, an array of resources are available to assist in the effort. Landscaping businesses, agricultural extensions, local agencies, master gardener programs, local nurseries, and the library can all provide assistance. Landscaping professionals (businesses) are particularly encouraged to practice integrated pest management.

Definition

Integrated Pest Management is an approach to pest control that uses regular monitoring to determine if and when treatments are needed, and employs physical, mechanical, cultural, and biological tactics to keep pest numbers low enough to prevent intolerable damage or annoyance. Least-toxic chemical controls are used as a last resort.”

True Integrated Pest Management is a powerful approach that anticipates and prevents most problems through proper cultural practices and careful observation. Knowledge of the life cycles of the host plants and both beneficial and pest organisms is also important. The Integrated Pest Management section of this study guide is adapted from Least Toxic Pest Management for Lawns by Sheila Daar. Following the integrated pest management process gives you the information you need to minimize damage by weeds, diseases, and pests and to treat those problems with the least toxic approaches.

The Integrated Pest Management Process

Step One: Correctly identify problem pests and understand their life cycle.

Learn more about the pest. Observe it and pay attention to any damage that may be occurring. Learn about the life cycle. Many pests are only a problem during certain seasons, or can only be treated effectively in certain phases of the life cycle.

Step Two: Establish tolerance thresholds for pests.

Every landscape has a population of some pest insects, weeds, and diseases.

Beneficial organisms may compete with, eat, or parasitize disease or pest organisms. Decide on the level of infestation that must be exceeded before treatment needs to be considered. Pest populations under this threshold should be monitored but do not need treatment. For instance, European crane flies usually do not do serious damage to a lawn unless there are between 25 to 40 larvae per square foot feeding on the turf in February (in normal weather years). Also, most people consider a lawn healthy and well maintained even with up to 20 percent weed cover, so treatment, other than continuing good maintenance practices, is generally unnecessary.

Step Three: Monitor to detect and prevent pest problems.

Regular monitoring is a key practice to anticipate and prevent major pest outbreaks. It begins with a visual evaluation of the lawn or landscape's condition. Take a few minutes before mowing to walk around and look for problems. Keep a notebook, record when and where a problem occurs, then monitor for it at about the same time in future years. Specific monitoring techniques can be used in the appropriate season for some potential problem pests, such as European crane fly.

Step Four: Modify the maintenance program to promote healthy plants and discourage pests.

Review your landscape maintenance practices to see if they can be modified to prevent or reduce the problem. A healthy landscape is resistant to most pest problems. Lawn aeration and overseeding along with proper mowing height, fertilization, and irrigation will help the grass/lawn-compete with weeds. Correcting drainage problems and letting soil dry out between waterings in the summer may reduce the number of crane-fly larvae that survive.

Step Five: If pests exceed the tolerance thresholds ...

Consider the most effective management options concurrent with reducing impacts to the environment. Use cultural, physical, mechanical, or biological controls first. If those prove insufficient, use the chemical controls described below that have the least non-target impact. When a pest outbreak strikes (or monitoring shows one is imminent), implement integrated pest management then consider control options that are the least toxic, or have the least non-target impact. Here are two examples of an integrated pest management approach:

1. **Red thread disease** is most likely under low nitrogen fertility conditions and most severe during slow growth conditions. Mow and bag the clippings to remove diseased blades. Fertilize lightly to help the grass recover, then begin grass-cycling and change to fall fertilization with a slow-release or natural-organic fertilizer to provide an even supply of nutrients. Chemical fungicides are not recommended because red thread cannot kill the lawn.

Crane fly damage is most prevalent on lawns that stay wet in the winter and are irrigated in the summer. Correct the winter drainage and/or allow the soil to dry between irrigation cycles; larvae are susceptible to drying out, these changes can reduce their numbers. It may also be possible to reduce crane fly larvae numbers by using a power de-thatcher on a cool, cloudy day when feeding is occurring close to the surface. Studies are being conducted using beneficial nematodes that parasitize the crane fly larvae; this type of treatment may eventually be a reasonable alternative.

Only after trying suitable non-chemical control methods, or determining that the pest outbreak is causing too much serious damage, should chemical controls be considered. Study to determine what products are available and choose a product that is the least toxic and has the least non-target impact. Refer to the operational BMPs for the use of pesticides below for guidelines on choosing, storing, and using lawn and garden chemicals.

Step Six: Evaluate and record the effectiveness of the control, and modify maintenance practices to support lawn or landscape recovery and prevent recurrence.

Keep records! Note when, where, and what symptoms occurred, or when monitoring revealed a potential pest problem. Note what controls were applied and when, and the effectiveness of the control. Monitor next year for the same problems. Review your landscape maintenance and cultural practices to see if they can be modified to prevent or reduce the problem.

A comprehensive Integrated Pest Management program should also include the proper use of pesticides as a last resort, and vegetation/fertilizer management to eliminate or minimize the contamination of stormwater.