

## **IPM Modules: Turfgrass**

Note: IPM learned and practiced in this module should be successfully reinforced with a field trip to a local golf course, athletic field, cemetery, or other facility where turf maintenance is important. Additionally, an interview with a trained and qualified turf management person will help the students understand IPM more completely. Turfgrass IPM presents a particular problem in which pesticides play a predominant role as an integral strategy. It is important in this module to become familiar with proper and safe use of pesticides as the students interact with turfgrass professionals.

### **Resources**

University of California – UC IPM Online  
<http://www.ipm.ucdavis.edu/index.html>

Maryland Cooperative Extension  
<http://www.agnr.umd.edu/users/hgic/pubs/online/hg63.pdf>

IPM Report Card for School grounds – a self assessment tool  
<http://www.pestmanagement.rutgers.edu/IPM/SchoolIPM/ReportCardTurf.pdf>

Alabama IPM – Turf and Landscape IPM  
<http://www.aces.edu/department/ipm/turfipm.htm>

Michigan State University – Turf Library, IPM Monitoring article  
<http://turf.lib.msu.edu/1990s/1995/950510.pdf>

Guelph Turf grass Institute  
<http://www.uoguelph.ca/GTI/linkfram.htm?http://www.uoguelph.ca/GTI/links/relix10>

### **Objectives**

The students will:

- Observe local school area for turf pests
- Be introduced to professional turf IPM
- Research insect, disease, and weed pests of turf
- Learn pest name, host, damage, monitoring methods, and be able to provide management recommendations
- Scout and monitor for a specific turf pest
- Collect and identify pests
- Evaluate management methods
- Present pest information

## Vocabulary

Turf grass	Cutworms	Clover
Golf course	Chinch bugs	Resistant variety
Lawn	White grubs	Drench test
Lawn insects	Dollar spot	Root zone
Landscape pests	Leaf spot	Blade
Pathogens	Rhizoctonia blight	Leaf
Disease	Crabgrass	Nematode
Weeds	Spurge	Prevention
Armyworms	Dandelion	Cultural controls

## Activity

### Step One, Discussion:

Ask students:

- What their lawn looks like in the springtime. Help them to visualize a healthy green lawn with very little problems.
- If they have ever been to a golf course, baseball game or football game.
- What does the grass look like? Is it very green?
- Does it have of unwanted plants or weeds?
- Are there brown patches or dead looking patches?

### Step Two, The schoolyard:

Take the students around the school yard assist them in identifying the difference between healthy grass and damaged grass. Damaged grass may be considered as thinned areas, and brown or yellow patches, etc. This observation requires **hand lenses**. Have students work in pairs, taking notes about healthy long, green blades in patches, and thin brown or yellow patches of grass, blades of grass with yellow blotches, brown spots, or black speckled areas. If they are having trouble, inform them that they should be looking for:

- chewed blades of grass
- brown thin spots
- grass with few roots
- spots on the blades
- yellowish patches
- odd weeds that stand out

### Step Three, the professional lawn:

Taking students on a field trip to see a professional lawn and talking with a knowledgeable turf management professional or having a professional visit the class will emphasize the importance of IPM in turfgrass management. Another or alternative person that should meet with students is a turf extension specialist. Have the professional address his or her IPM program and how he or she implements it, what pests do they monitor for and how, and what management tactics do they employ and how. Or have, if possible, students interview the person (see IPM lesson 1 – Discovering IPM). **Note:** ask the turf management person to emphasize and define tactics and methods used in turf

IPM, such as soap flushes, ELISA kits, or floatation methods. Ask the turf professionals to explain how and which pesticides are safely and effectively incorporated into the IPM program.

- What pest prevention techniques are used?
- What pest insects are common to turf?
- How are pest insects monitored?
- How are insects managed?
- What diseases are common in turf?
- How are diseases monitored?
- How are diseases managed?
- What weeds are problems in turf?
- How are they monitored?
- How are they managed?
- What other IPM strategies are used?

#### Step Four, Turf IPM discovery:

Working in groups, students should research more about the pest problems of turf. Allow groups to study insect, disease, or weed pests. This is to ensure a variety of pests are covered. Encourage your students to find pesticides that are used in turf IPM programs. Students may use Internet resources, extension information, and information provided by the turf management person. Students must discover and then present to the class:

- Name of the Pest
- Pest Host
- Pest Biology
- Pest Damage
- Monitoring methods
- At least one management method used to manage the pest or disease
- If student choose a pesticide:
- What pesticide is used in turf IPM?
- For hat is the pesticide used?
- How is the pesticide used?
- When is the pesticide used?
- What are the safety concerns associated with the pesticide?

You may choose to have your students investigate pests they find interesting (that they may have found in the schoolyard) or pests mentioned by the management professional. However, if you were unable to visit with a turf management professional, below is an abbreviated list of common pests your students could investigate.

*Insects:* armyworms, cutworms, chinch bugs, white grubs

*Diseases:* Dollar spot, leaf spot, Rhizoctonia blight

*Weeds:* Crabgrass, spurge, dandelion, clover

#### Step Five, Turf IPM in practice:

Now that your students are more familiar with a specific pest, allow them to go out into the schoolyard, baseball or football field and begin looking for their specific pest. They

should implement the scouting and monitoring techniques they have researched. Be sure they take detailed notes about what they find (location, number, and damage type and damage severity). Have them collect samples to bring back to the classroom for further identification.

Once they have returned to the classroom, students must use the information they have researched (pictures, descriptions, etc.) to correctly identify their pest. Students should also use **microscopes and slides, hand lenses, and rulers** to aid in pest identification.

After students have verified their pest, they should be allowed to scout the area once again to make more notes about pest quantities, life stage, location, damage caused, and location on host plants. Then they should present a scouting report to the class. Their scouting report should include if they found their pest, how many of their pests were present, what life stage was their pest in, and what was the location of their pest. The students' scouting report should also include if management tactics are necessary and their recommends.

#### Step Six, Take Action:

Implementing management measures for turfgrass is considerably different than in other situations (such as greenhouse or urban IPM). Therefore, this step may not be available to all teachers. However, if it is possible allow students to observe management practices at a golf course, athletic facility or some other turfgrass environment. Students should write a short essay about which management practices they would implement for their pest and why. Allow the students to continue scouting and making notes at regular intervals about pest densities, life stages, and lawn conditions. Discuss with students their management plan and have them report their management plan and findings to the class.

#### **Materials**

Hand lenses

Microscopes

Microscope slides

Pencils

Paper

Rulers

Collecting materials: jars, bags, etc

Scissors

Forceps (tweezers)

Probes

Internet resources

Transportation for a field trip

Guest speaker