

FUNCTIONAL INTEGRATED PEST MANAGEMENT FOR PUBLIC GROUNDS

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INTRODUCTION

When I was asked to give a short presentation at this conference, I was told that people would be interested in hearing what a typical, no frills, grounds manager was doing in the area of Integrated Pest Management or IPM.

At conferences such as this, you have the opportunity to hear from a number of very knowledgeable people, experts in their field with the latest information on keeping your landscape healthy and attractive.

In the real world we're pulled in many directions at once and there aren't enough hours in the day. In spite of our best intentions, we may not put into practice all of the things we've learned. What follows is what the Grounds Department at U of M-D does in an effort to maintain attractive grounds with minimum of chemical use.

DEFINITION

Integrated pest management has been around for a long time with documented instances of it going back to the mid 1700's. All of you practice it in one form or another. It is not a standardized program but a concept that continues to evolve.

My definition of Integrated Pest Management means that anything that I do that effects the environment that one of my plants is growing in, be it an individual grass plant or a large tree, will affect the susceptibility of the plant to a pest.

A pest can be an insect, fungus, bird or animal, or on a college campus, anyone who drives on the lawn.

TO BRING OUR PROGRAM INTO PERSPECTIVE, YOU NEED TO KNOW A BIT ABOUT OUR CAMPUS AND ITS GROUNDS DEPARTMENT.

The University of Michigan-Dearborn campus has a student population of just under 6,700 students which equates to a full-time enrollment of about 3,600.

The campus covers 210 acres. Fifty-seven acres are in turf divided into 117 distinct areas. About 10 acres are under irrigation to include the grass in all of these slides. We have a total of an acre of flower beds scattered throughout the campus. Eighty acres are devoted to a natural area of woods and meadows that is part of the Universities Natural Studies program.

The Grounds Department is staffed by myself, two full-time grounds keepers, a full-time gardener, and a full-time mechanic. The mechanic is responsible for all University vehicles and power equipment.

Like Grounds Departments everywhere, we provide a number of services in addition to grounds care. We may be the only Grounds Department in the country to maintain an 80 years old, operating, hydro-electric plant.

Our full-time staff is augmented by student and other temporary help.

HOW WE PRACTICE INTEGRATED PEST MANAGEMENT ON CAMPUS GROUNDS.

We use pesticides and other chemicals as infrequently as possible.

First of all, our personnel assets are so limited we have to do a good job of taking care of the environment our plants grow in when we plant them. After that initial loving care, we know they're pretty much on their own.

Secondly, given the current level of concern that the general public has regarding pesticides and the environmental awareness, on a college campus any obvious application of pesticides is certain to cause some degree of controversy.

Remember that one of the key tenants of IPM is that we have a tolerance for a certain number of inflicting pests. The number you can tolerate will depend in large measure upon your customer. I'm not responsible for a golf green so I can accept a few more pests than some of you.

As these slides show, our grounds are attractive and well kept. The grass is green, the flower beds colorful, and the trees provide a pleasing contrast of shapes and textures. Still there are a large number of insects, fungi and just plain old weeds in the turf seen here but few of my customers notice them.

Of course, we use some chemicals. We regard them as an important tool and part of our IPM program. We contract for one application of an amine formulation of 2,4-D on the turf each year. Our critical areas receive 2 pounds of actual nitrogen per year and we apply other chemicals as required.

Again, we are a university campus. My complete list of lawn weeds consists of dandelions and plantain. I believe that if we have a healthy lawn, we won't have weeds such as spurge. Where I have a lot of spurge, the chances are grass wouldn't do well because of poor soil conditions. A herbicide with a broader spectrum than 2,4-D would likely result in a patch of bare soil.

In this slide we see the feeding damage of the common skilled tradesman or tire ruts alongside a sidewalk.

It seems that we spend most of the growing season repairing vehicular damage. My boss doesn't approve of the vehicular traffic but he does think it's a simple matter to fill the ruts in with top soil and lay new sod. Our concept of turf repair is more complicated.

In repairing damage, I try to stay away from the use of sod. I believe that proper soil preparation, that is deep cultivation of compacted soils and soil interface between added top soil and existing soil, followed by a quality all purpose blend of grass seed will result in a sturdy lawn tolerant to adverse conditions.

Around our new buildings or renovations, we do use a blend of bluegrass sod. Sod makes a dramatic impact and our administrators understandably want to show off their additions with an instant landscape.

With sod just as with seed, soil preparation is of great importance. If in our haste to install a lush green carpet of grass before the regents arrive to dedicate the new facility we take short cuts, no amount of chemicals will maintain that initial deep green. If we do our job right the first time, the grass will be able to take care of itself.

Here's a view of my grounds crew helping a contractor move a large tree across the campus grounds. This slide brings out a number of points.

When we have the time, the hand digging, balling, burlapping, and drum lacing of trees is still my preferred method of moving large trees.

Note also the diameter of the root ball in relation to its depth. A tree's root system is very shallow and it competes with turf for nutrients, moisture and oxygen. Everything that we do to the grass that surrounds the tree will have an impact on the health of the tree. I guess that is one reason for the word integrated in Integrated Pest Management.

This slide also shows laying plywood in the path of the truck as it crosses the lawn area. A few dollars worth of plywood can prevent a lot of expensive turf damage.

This particular slide shows one of my favorite insects, the pine saw fly. When you pass your hand over these larvae, they will all wave their heads in unison like tiny cobras. These are easy to control with insecticides and we do so. They will defoliate all but the current year's needles resulting in a sparse looking tree that I fear would be weakened and thus more susceptible to some other pest.

This is an example of a specific pest that is targeted with a low volume of non-persistent insecticide.

In this next slide I enjoyed watching this male mallard swimming in the lawn at the edge of our natural area. This does point out that we have some drainage problems. When we repaired the ruts you saw in the earlier slide, we installed perforated drain tile parallel to the walk and connected it to a storm drain some distance away. Since we had to dig up that area anyway we were able to reduce mowing problems and create a healthier turf environment.

Here's a view of our chancellor's home which we also maintain. After those earlier slides of tire ruts and mud, it's important to reaffirm that overall we are proud of our grounds.

This slide does prompt me to tell you about one of those times when I failed to follow the basic principles of IMP.

The wife of the first chancellor I worked for was not an enthusiastic supporter of insects. She just didn't like bugs and whenever she spotted one she gave me a call. Since she was a fine lady as well as the wife of our chief executive officer, I responded immediately.

Armed with either a hand held sprayer or our 12 1/2 gallon per minute trailer mount sprayer, I would proceed to fog all shrubs and small bushes with a general purpose insecticide. This treatment quickly bought about the demise of any offending insects.

After a couple of seasons of this approach, I noticed that late each summer the burning bush at the residence would begin to lose their foliage before they could attain their beautiful fall color. With the aid of a hand lens I discovered large numbers of translucent spider mites which were apparently responsible for the premature defoliation.

Again I went on the attack, this time I was armed with miteicides, only this time the pests wouldn't go away. In fact their numbers grew.

We have now eliminated all spraying at the residence. We still use some pesticides for specific pests. The white birch is treated with Disyston for leaf miner, the euonymus climbing the chimney is soiled drenched with Orthene 75S for weevil control and every three years the American Elm receives systemic fungicide. Beyond that, \$18.00 a year worth of lady bugs have happily eaten the rest of my problems.

I'll run through the next series of slides rather quickly.

Here's an Austrian pine that's a candidate for removal. A closer view shows that the small area available for root growth is being further reduced by vehicular traffic and compacted soil.

A large shagbark hickory in its last days and the small poorly drained area its root system is trying to breathe in.

Chlorotic pin oak leaves and a member of my crew installing iron medicaps.

A declining oak and the large mound of soil that has smothered its root system.

I've selected these slides because no matter how much care you lavish on these plants they are doomed.

It is better to plan ahead, consider the requirements of the plant compared to the needs of the public using the same space. Sometimes it makes good sense to cut it down, pave it over and spend the money you save to enhance your landscape nearby. If you must keep an existing plant make the commitment to spend the time to provide drainage and other necessary aids to the plant's survival.

In this last slide we are back at the Chancellors residence. We're proud of this landscape but in this view you'll notice two yews at the corner of the drive that exhibit poor color. This is most likely the result of road salt.

When this happens on campus and we can't change soil conditions, we change the species of plant. Spirea is one of those tolerant to adverse conditions.

At the residence we change the shrubs every couple of years. The customer likes yews and pleasing the customer helps us keep our jobs. That too is part of Integrated Pest Management.