

## Educational Programs

Following is an incomplete list of educational programs available for landscape professionals this winter into next summer. (*Phil Nixon*)

*December 2004 to May 2005: Commercial Pesticide Training and Certification Clinics*, located throughout Illinois. Cost: \$30 per 1- or 2-day clinic. Schedule of clinics available after November 1 at <http://www.pesticidesafety.uiuc.edu/training/training.html> or (800)644-2123.

*November 29 to December 2, 2004: Illinois Professional Turf Conference*, formerly known as the North Central Turfgrass Expo (NCTE), Pheasant Run and Resort, St. Charles, IL. Educational programs by in-state and out-of-state presenters, Spanish language general standards pesticide training, and a large trade show. Contact <http://www.illinoisturfgrassfoundation.org/index.asp> or (630)243-91TF for registration information.

*January 19 to 21, 2005: Mid Am Trade Show and Mid Winter Conference*, 2005 McCormick Place, Lakeside, Chicago, IL. For more information, visit [www.midam.org](http://www.midam.org).

*February 1 and 2, 2005: 2005 ProHort Symposium*, Holiday Inn at I-74, Peoria, IL. Hours: 8:30 a.m. to 4:35 p.m., February 1, and 8:30 a.m. to 3:30 p.m., February 2. For more information, visit [www.prohort.org](http://www.prohort.org).

*February 17, 2005: Spanish/English Grounds Maintenance Program*, Barber and Oberwortmann Center, Joliet, IL. Cost: \$20/person. To register, contact the Will County Extension Office at (815)727-9296.

### Spanish Language Program

7:00 a.m. Registration and coffee/rolls  
7:30 a.m. Pruning Evergreens  
8:45 a.m. Plant Problems, Jim Schuster  
10:00 a.m. Break  
10:15 a.m. Reducing Injury in the Hort. Industry, Bob Ahren\*

11:30 Evaluation and adjourn

\*This session cosponsored by Great Lakes Center for Occupational Environmental Safety and Health.

### English Language Program

7:00 a.m. Registration and coffee/rolls  
7:45 a.m. Plant Problems, Jim Schuster  
8:45 a.m. Pruning Evergreens  
9:45 a.m. Break  
10:00 a.m. Spring and Summer Turf Care  
11:30 a.m. Evaluation and adjourn

*February 22 and 23, 2005: Southern Illinois Grounds Maintenance School*, Gateway Convention Center, Collinsville, IL. For more information, call the Madison County Extension unit at (618)650-7050.

*April 6 and 7, 2005: Spanish Pesticide Applicator Training*, site in DuPage County, IL., to be determined. General standards training will be spread over 2 days from 8:30 a.m. to 12:30 p.m. Cost: ~\$50. To register, contact the DuPage County Extension Office at (630)653-4114.

*August 10, 2005: Spanish/English Grounds Maintenance Program*, site in McHenry County, IL., to be determined. Cost: \$20/person. To register, contact the McHenry County Extension Office at (815)338-4755.

## PLANT DISEASES

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### Viburnum Problem Scenario

We had several complaints of viburnum problems at the University of Illinois Plant Clinic toward the end of the summer. Usually, the descriptions included branch decline, plants that looked like they were dying, and early defoliation. We rarely hear of problems on viburnum, so it was odd to receive several such complaints on this host. This article describes some of the problems that may appear on viburnum, with comments on how you might use this information to work through a diagnosis. Solving plant problems requires information about the symptom development, the plant site, and the environment ... really!

It helps to know what diseases are possible on a given host. Viburnums sometimes have problems with

foliar diseases, including bacterial leaf spot, downy mildew, and powdery mildew. Bacterial leaf spot is a disease present in cool, wet weather. It causes angular leaf spots that appear water-soaked. The reported problem appeared in hot, dry weather of late summer. In addition, leaf spots were not apparent. The leaves were dying but not spotted. Downy mildew is another disease that is favored by cool, moist conditions. It causes angular leaf spots much like bacterial leaf spot; but lesions start out yellow, become brown, and may coalesce to form large brown blotches. Downy mildew also forms a fine, downy growth on the underside of these lesions. Again, no leaf spots were reported on the injured plants. Powdery mildew causes a white, dry, powdery growth on the leaves and certainly could be a problem in late summer. Severe cases can cause some leaf deformation and even some leaf drop, but stems should remain alive. Growers reported that stems were dying. Powdery mildew is also a disease that most growers recognize. None of these foliar diseases seemed likely, based on the problem description. Often, however, the description of the problem does not always match the actual symptoms. We received one suspect viburnum sample. In fact, it did not contain any leaf spots. Leaves were sectioned and found to be free of bacteria. Lab incubations of leaves did not yield any fungal pathogens.

Despite the fact that I am a pathologist, I am quick to point out that not all plant problems are caused by disease. It seemed logical to suspect a water deficit or heat problems. It also seemed logical to question root injury, insect borer activity in the stems, and time of planting (to rule out transplant shock). Further questioning revealed that this was an established bed of viburnums and that most of the plants in the front row were affected, while the back row appeared better.

Viburnums are susceptible to *Verticillium* wilt. The wood submitted was cultured in our lab when it arrived. There was no vascular discoloration. Eventually, cultures proved negative for this vascular pathogen. We could rule out *Verticillium* wilt.

Lower stems were cankered. These cankers were not extremely obvious, but they were present on the sample. Incubated tissue yielded a form of the *Botryosphaeria* fungus. Yes, the diagnosis was *Botryosphaeria* canker, but that is not the entire story. The back row of plants was not yet affected. As is often the case, the fungal pathogen was not able to cause a problem on its own. *Botryosphaeria* is a stress pathogen. When I looked in the literature, I found that the most common stress factor associated with viburnums and *Botryosphaeria* was drought. Discussion with the grower revealed that this area had been very dry. Management of the problem was not a matter of

spraying a fungicide. In this case, we recommended removal of dead wood, supplemental watering until the ground freezes, and a light application of fertilizer. The grower realizes that he needs to monitor water deficits more closely in the future. Plant problem management depends on an accurate assessment of the problem (site stress and disease in this case) followed by alteration of factors that can be corrected. (Nancy Pataky)

### Oak Wilt: Note on Sampling

Oak wilt was discussed in issue no. 9 of this newsletter. Recently, the Plant Clinic was asked to test some wood for the presence of oak wilt on a tree that had been injected with Alamo. The cultures were negative, as we suspected, but this brings up several points about working with oak wilt.

One option for oak wilt control is the use of fungicide injections to prevent disease development. Alamo (propiconazole) is registered for use on oaks. The label states that it is registered as a preventive or therapeutic treatment for oak wilt and that oaks exhibiting less than 20% crown loss from oak wilt have the best chance of responding to treatment by Alamo. Often, the oaks around an infected tree are the ones targeted for these injections because they have 20% or less crown loss.

This decision to use an injection is probably one that is made quickly because injections need to be made before the disease can spread. Cultures to prove the presence of the oak wilt fungus require 10 to 14 days of incubation in a lab, and applicators often do not have time to wait for culture results before injecting a tree. On the other hand, sampling a tree after it is injected is probably a useless task. Propiconazole is a sterol biosynthesis inhibitor (SBI). This means it inhibits the production of sterols in the oak wilt fungus. Sterols are necessary for growth of this fungus, so simply put, propiconazole inhibits fungal growth. If a wood sample submitted for oak wilt testing contains Alamo, then the fungus in that wood will not grow. The label suggests considering possible retreatment 12 to 36 months after the initial injection, so culturing from an injected tree is probably of little value for at least a year after the last injection.

If you want to know whether a tree is infected with the oak wilt fungus, sample the tree before it is injected. That is the bottom line. (Nancy Pataky)

### A "New" Disease of Impatiens

Recently, I attended a workshop with plant disease diagnosticians representing many areas of the United States. This disease of impatiens was discussed briefly and may become a problem for some of our growers.

**Impatiens downy mildew** is a new disease to this country. It was reported as a problem in the United Kingdom in 2003 and was found in greenhouse production areas in the United States starting in the spring of 2004. The pathogen is *Plasmopara obducens*. Symptoms include stunted plants with yellow leaves. The leaves may be curled or distorted. Wilted leaves may be present among normal leaves. Often, the leaves have a yellow, speckled appearance. Margery Daughtrey, plant pathologist at the Long Island horticultural research and Extension center, states that infected plants appear similar to those with a spider mite infestation, so look closely for spider mites before you treat with a miticide. The downy mildew pathogen produces a white, fuzzy growth on the underside of leaves as a result of the development of sporangia. Diagnostic labs can view these sporangia and make a positive diagnosis on the spot.

This Web site by Daughtrey at Cornell University discusses the problem and includes a photo of the upper leaf surface of an infected impatiens plant: <http://www.hort.cornell.edu/greenhouse/Ralstonia3.8.04.html>. Another Web site by Mary Hausbeck at Michigan State University shows photos of the underside of infected leaves: <http://www.plantpathology.msu.edu/labs/hausbeck/hausbeckDownyMildew.htm>. Both sites should be helpful. (*Nancy Pataky*)

## INSECTS

### Itch Mites Associated with Gall Insects

A tiny mite, aptly called an “itch mite,” is responsible for the mysterious, itchy red bites reported by a number of eastern Nebraska residents recently, although we have not heard of it occurring in Illinois.

The Pyemotes mite is preying on small fly maggots that cause the “leaf edge” galls on pin oak leaves. The galls on pin oak leaves are unusually abundant this year, and in many cases the maggots that caused the galls have matured and are emerging in the millions and dropping to the ground.

Although the galls are harmless, in examining empty galls (in which one or more maggots were killed), large numbers of the itch mites, a predator of the maggots, were found. These microscopic mites, carried by the wind, are tiny enough to penetrate the mesh of a standard window screen and may be completely overlooked because of their very small size. People sleeping with windows open could easily be bitten at night, giving the impression that something is infesting the bedroom. Bites of this type are usually caused by fleas, pirate bugs, chiggers, and mosquitoes; but this year, itch mites are also involved.

The mites have been reported in several eastern Nebraska communities, but Lincoln seems to have been hardest hit. The mystery bites are being reported mostly by people who spend time outdoors, but also by others who remain indoors. No one is seeing insects or associating them with these lesions, but several have reported they were working outdoors, often standing in the shade of pin oak trees.

Nebraska authorities are recommending that people keep windows closed and limit outdoor activity until the problem subsides, which should occur in the next 7 to 10 days. After working outside, it is recommended to take a hot shower, lathering generously. Also, be sure to launder clothing after wearing and not wear the same clothing for more than one day.

To reduce itching, apply calamine lotion, hydrocortisone cream or an antihistamine cream such as Benadryl cream. Also, wash the bites often with soap and use an antiseptic or antibiotic ointment to keep the wounds clean and promote healing. Avoid scratching the intensely itchy bites because scratching provides little relief and actually causes pain and tenderness.

The bites don't hurt when they occur; but after a bite, one or more red spots usually appear. The red spots vary in size from 1/4 to 1 inch in diameter. In the middle of the red spot is a small, raised “pimple” or blister. The itch mite bites may occur in clusters, forming a rash that may last for several days. Most bites occur on the upper torso, abdomen, back and neck, shoulders and arms. With most people, there are no apparent secondary effects, but some people have reported headache, fever, nausea or asthmatic symptoms. Unlike chigger bites, the bites are not confined to ankles, feet, legs and the belt line. (*Modified slightly by Phil Nixon; source: David Keith, University of Nebraska*)

### Natural, Indeed: Are Natural Insecticides Safer and Better Than Conventional Insecticides?

Plants growing in nature, in order to survive, produce a host of chemical-defensive compounds (often called allelochemicals) that are used to ward off attack by potential herbivores (plant-feeding insects and mites). These compounds may be directly harmful to herbivores or modify (that is, slow down) their development, thus increasing their susceptibility to natural enemies such as parasitic wasps (= parasitoids) and/or predators. Humans have made use of these naturally derived compounds for many years, and a number of botanical insecticides have been formulated for use by professionals and homeowners. These

botanical insecticides are processed in one of three ways: (1) preparations of the crude plant material, which are ground up into a dust or powder, (2) extracts obtained from plant resins formulated into liquid concentrations, and (3) isolation of the pure chemicals obtained from plants by extraction or distillation.

There is a common misconception that natural, or botanical, insecticides are always safer than synthetically derived insecticides. Nothing could be further from the truth because a number of registered botanicals are toxic to fish, beneficial insects and mites, and mammals. This is based on the  $LD_{50}$ , which is a term used to describe the lethal dose required to kill 50% of the test animals (mainly mice and rabbits), expressed as milligrams (mg) of toxicant per kilogram (kg) of body weight. The lower the  $LD_{50}$ , the more toxic the compound is to humans. In fact, several botanical insecticides have a lower  $LD_{50}$  than the synthetically derived insecticides carbaryl (Sevin) and malathion. Although naturally occurring insect toxins are extracted from plants, “natural” does not necessarily imply “safe” or “non-toxic.” Bottom line: Natural compounds derived from plants are not inherently less toxic to humans than synthetically derived compounds.

Many botanical insecticides, particularly those containing pyrethrin, are formulated with a “synergist,” which is a compound that increases the effective toxicity of botanical insecticides. This prevents insects from “coming back to life” by inhibiting detoxifica-

tion enzymes such as mixed-function oxidases (MFOs) or by deactivating enzymes. This blocks the ability of insects and mites to break down the toxin. The most commonly used synergist is piperonyl butoxide, or PBO.

In most cases, botanical insecticides are less toxic to humans than synthetically derived insecticides. There are a number of advantages and disadvantages when using botanical insecticides to manage plant-feeding insects and mites in landscapes and gardens. The botanical insecticides that have primarily been or are commercially available include pyrethrin/pyrethrum, rotenone, sabadilla, ryania, nicotine, citrus oil extracts, and neem. (*Raymond A. Cloyd*)

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*Home, Yard, and Garden Pest Newsletter* is prepared by Extension specialists from the University of Illinois at Urbana-Champaign and the Illinois Natural History Survey. Information for this newsletter is gathered with the help of staff members, Extension field staff, and others. Karel Jacobs and Donna Danielson of The Morton Arboretum also provide information and articles.

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