UNIVERSITY OF ILLINOIS EXTENSION
HOME, YARD & GARDEN PEST NEWSLETTER
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PLANT DISEASES

Plant Clinic Up and Running

The University of Illinois Plant Clinic is a seasonal clinic, open each year from May 1 through mid-September. The 2006 season has begun with samples, telephone calls, and digital inquiries already arriving. We welcome your plant problems. There aren't too many who make that statement!

Basic clinic services include identification of diseases, insects, and plants, as well as diagnosis of injury from insects and some chemicals. In addition, the clinic can provide nematode assays, and help with nutrient-related problems, as well as recommendations involving all diagnoses. Microscopic examinations, laboratory culturing, virus assays (limited), and nematode assays are some of the techniques used in the clinic. For additional details, visit the Plant Clinic Web site, http://plantclinic.cropsci.uiuc.edu/.

Our plant clinic is managed through the Crop Sciences Department but relies on input from many departments, including research and Extension components. Most of the diagnostic work is done at the clinic, but specialists are consulted in botany, entomology, horticulture, mycology, plant pathology, soils, soil fertility, and weed science, among others. This clinic is interdisciplinary, not only a disease lab.

One very specific method of identifying some pathogens is to perform an ELISA test. These initials stand for enzyme linked immunosorbent assay. ELISA tests rely on very specific antibody to pathogen bonds that are detected via color reactions. The University of Illinois Plant Clinic offers ELISA tests for *Phytophthora* (to genus only), tomato spotted wilt virus (TSWV), impatiens necrotic spot virus (INSV), *Xanthomonas campestris* pv *pelargonii* (Xcp), cucumber mosaic virus (CMV), and *Clavibacter michiganensis* subsp *michiganensis* (Cmm). Additional tests may be added as the season progresses and demand warrants. Call first if you have specific needs. The Plant Clinic telephone number is (217)333-0519. *(Nancy Pataky)*

What Are Those Spots on My Ivy?

English ivy, *Hedera helix*, is very common in shady, landscaped areas in Illinois. As ivy growth become dense, diseases can become a problem, especially during wet or humid weather in shady locations. Several of these diseases are discussed here.

Bacterial leaf spot and stem canker is more common in Illinois. Logically, it is also harder to control. This disease thrives in warm, wet weather and can be easily spread from plant to plant by splashing water. Bacterial leaf spot first appears as small, circular, dark green, and water-soaked (oily-looking) areas on ivy leaves. These spots enlarge and have a red–brown to black center with a water-soaked margin. Sometimes, a yellow halo appears around the lesion. Look at suspect leaves with back lighting to see the halo more clearly. The bacterial spots dry and crack as they age. The bacterial pathogen can also cause black cankers on stems and petioles, causing stems to die.

There are many **fungal pathogens** that can cause leaf spots on English ivy. They all require water droplets for growth, therefore all of the fungal leaf spots are also spread by splashing water. Initially, fungal leaf spots may appear very similar to bacterial leaf spots on *Hedera helix.* In general, fungal leaf spots are red to brown in color and irregular in shape. Certain fungal species may cause lesions to have concentric rings or depressed centers. Fungal leaf spots form fruiting bodies containing spores. These fruiting bodies are small (pinhead-sized), black, and embedded within the leaf spot .

Anthracnose of ivy is one of the fungal diseases. It has already appeared at the clinic this season. The pathogen that infects *Hedera helix* is a *Colletotrichum* species. This disease often occurs after injury, including injury from environmental stress.

For more information about these diseases, refer to *Report on Plant Disease (RPD),* no. 652, "Leaf Spot Diseases of English Ivy," available at http://www.ag.uiuc.edu/~vista/horticul.htm or in printed form at University of Illinois Extension offices.

Before introducing English ivy into your landscape, carefully inspect it for any sign of disease. Remove any questionable leaves from new plants and old leaves or debris from established plants each spring to protect new growth. Avoid working with wet plants. Both bacterial and fungal leaf pathogens require moisture for infection, so try to water ivy beds from below and early in the day.

If leaf spots are severe, fungicides may be applied when new leaf growth begins in the spring. Follow label directions for repeat applications. This protects new growth as it emerges. Registered chemicals are listed in the *Illinois Commercial Landscape and Turfgrass Pest Management Handbook* and the *Home, Yard and Garden Pest Guide*.

If you cannot distinguish between fungal and bacterial pathogens, choose a product that controls both, such as one of the copper fungicides. The chemical mobility is listed at the end of the disease chapters in the pest guides listed above. Protectant fungicides may have to be repeated if wet weather persists. *(Stephanie Porter;* Note: Stephanie has written for us before, as Stephanie Satterlee.)

Deep Planting and Girdling Roots Still a Problem

For several years now, I have been warning of the woes of planting trees too deeply. I have explained that we need to locate the first major root coming off the trunk and place it just below the soil line. A flare of the trunk should be visible above the soil line. It is really a pretty simple concept: Roots are below ground, and everything else is above the ground.

I have a few stressed-looking trees in my yard. Last fall, my arborist did root collar excavations on these trees to assess the possibility of girdling roots and signs of deep planting. All of the trees had one or both problems. I was surprised at our findings because my trees are all about 25 years old and I thought I would see the consequences of deep planting much earlier in the life of the tree. My arborist pointed out that it often takes that long for roots growing around the tree to become girdling. He also pointed out that trees that are planted too deeply can limp along for many, many years. I did not plant the trees, so I am not going to take the blame for this problem, but I have to put up with the consequences. The message to remember is to make certain that you are planting trees correctly. You would be surprised at how many so called "diseased trees" are actually those stressed by deep planting and girdling roots.

Diagnosing tree problems can be rewarding, but often frustrating, because we often see only a part of the problem. Besides observing leaves and stems, it is helpful to see the entire tree, the pattern of injury, the condition of surrounding plants, the lay of the land, and the activities that go on around a tree. At this time of year, we see tree twig dieback and leaf spotting commonly at the Plant Clinic. Observing branch terminals helps us determine how long the tree has been stressed. You can make this observation, too. The idea is to look at stem growth in length over several years. The terminal bud each year leaves a scar on the stem, seen as multiple rings around the stem, as if a rubberband had been tightly wrapped at that point. Distance between terminal bud scars from two successive years is the amount of growth for that year. Multiple years of 1 to 2 inches of stem growth clearly indicate a stressed tree. Compare growth of shady areas of the tree with sunny areas to get a true picture of growth. Often tree identification books such as Dirr's *Manual of Woody Landscape Plants* indicate a normal amount of growth for a species.

Many deciduous tree samples we receive at the clinic show scorching, wind tatter, and perhaps cold injury. Often, these same trees exhibit poor stem growth for at least the last 3 to 5 years. Follow-up questioning and photographs of the lower trunk frequently show the tree was planted too deeply. Deep planting can cause slow decline over many years. It may not kill the tree but does not allow it to thrive. Does a tree that is planted too deeply need to be removed? That is not usually the case, but arborists to help the tree grow better. Deep planting is a major problem in our landscapes and one that is completely avoidable.

The International Society of Arboriculture (ISA) created www.treesaregood.com to provide high-quality information on tree care to the public. A section on planting new trees explains the planting process and has a helpful diagram to illustrate major points. One crucial mistake often made in planting is placing the root ball in the soil exactly as it came from the nursery. Because nurseries use cultivation to cut down on weeds (and avoid herbicides), and becausue cultivation often throws soil up around the base of the tree, some of this soil may need to be removed before planting. Identify the trunk flare (where the roots cause the trunk to widen) and be certain this flare is partially visible when the tree is planted. The tree should be planted so the first root is just below the soil surface. Do not bury this flare with mulch once the tree is planted. Other details such as digging the correct hole, mulching, and follow-up care are discussed on the ISA Web site.

Taking the time to plant your tree correctly helps ensure its health for years to come. Deep planting causes years of tree decline and frustration in tree care. Now, I know from experience. *(Nancy Pataky)*

INSECTS

Scouting Watch

Bridal wreath spirea or Vanhoutte spirea *(Spiraea x vanhouttei)* is blooming in southern and central Illinois. This is a major phenology plant in Don Orton's book *Coincide,* available from the publisher, Labor of Love Conservatory, 468 S. President, Suite 103, Carol Stream, IL 80188-2894; (630)668-8597. When a phenological event predicts that a pest is susceptible to control, one needs to scout to verify that the pest is indeed present and in a susceptible stage before using a control measure. Following are the most common pests that are in susceptible treatment stages during Vanhoutte spirea bloom. *(Phil Nixon)*

Full Bloom
Birch leafminer young larvae
Elm leaf beetle young larvae
European pine sawfly feeding larvae
Gypsy moth feeding larvae
Pine needle scale crawlers (first generation)

Full to Late Bloom
Lilac (ash) borer newly hatched larvae
Oystershell scale crawlers (brown race)

Finishing Bloom
Bronze birch borer newly hatched larvae

Most Blossoms Brown, Still a Few White
Flat-headed appletree borer larval hatch
Peach tree borer newly hatched larvae
Viburnum borer newly hatched larvae

Bloom Finished
Oystershell scale crawlers (gray race)

Bronze Birch Borer

As Vanhoutte spirea, *Spiraea* x *vanhouttei,* nears the completion of blooming, European white birch, gray birch, paper birch, and yellow birch trees in landscapes are susceptible to the bronze birch borer, *Agrilus anxius*. Adult bronze birch borers are coppery brown to black in color, with a boat-shaped abdomen. Adult females are strong fliers and tend to lay eggs near the tops of trees in cracks, crevices, or under loose bark. Egg-laying sites are typically located on the sunny side of host trees. After about 2 weeks, eggs hatch into larvae that tunnel directly into the bark (cambium) and begin creating feeding galleries. These galleries may be 3 to 5 inches in length and packed with excrement. The larvae are nearly 1.5 inches long, ivory-colored, and flat, with a head that is wider than the body. Larval feeding can result in girdling of the trunk or branches. Infested trees typically have ridged or swollen bark where the larvae have created a zigzag pattern under the bark during feeding. Bronze birch borer overwinters as a late-instar larva underneath the tree trunk. The larvae pupate near the bark surface. Adult emerge in late May through early June, by chewing a D-shaped hole in the bark (this is the same size of hole as the emerald ash borer creates). Adults feed on the leaves of alder, birch, and poplar. There is only one generation per year in Illinois.

The primary way of managing bronze birch borer is by prevention. Bronze birch borer prefers to attack "stressed" trees because the borers are unable to survive in healthy trees. As a result, proper watering, fertility, mulching, and pruning are practices that go a long way in reducing problems with bronze birch borer. Birches should not be pruned between May 1 and August 1 because this is the general flight period of the bronze birch borer adults, and females are attracted to the volatiles emitted from pruning cuts. In addition, selecting less susceptible varieties of birch *(Betula* spp.), such as 'Heritage' and 'Whitespire' may result in fewer problems with bronze birch borer.

The insecticide recommended for managing bronze birch borer is imidacloprid (for example, Merit). Imidicloprid may be applied as a drench (= soil incorporation) to the soil, where it is taken up by the roots and distributed throughout the tree. The active ingredient contacts larvae in the cambium and/or kills adults that feed on foliage. Imidacloprid may also be applied by direct injection into the tree. This is referred to as "microinjection." There are a number products containing imidacloprid and application systems (techniques for applying them) available. Contact an arborist or tree-care professional on the timing of injecting imidacloprid into trees. It is important to understand that the movement of imidacloprid, regardless of the application technique, is reduced if trees are stressed. *(Raymond A. Cloyd)*

Lilac or Ash Borer

Now is when that plants such as ash, lilac, and privet are prone to attack from the lilac or ash borer, *Podosesia syringae*. Adults are brown, clearwing moths that resemble paper wasps. Peak moth flight or activity occurs in late May to early June. Adult females lay oval, tan eggs in cracks, crevices, or wounds at the base of plant stems. A single mated female lives about one week and can lay up to 400 eggs.

The eggs of lilac or ash borer hatch into cream-colored larvae, about 1.5 inches long when full grown, with brown heads. Larvae cause plant injury by creating tunnels and feeding within the bark (cambium). The larvae bore further into the wood and feed within the sapwood and heartwood. Larval feeding restricts the flow of water and nutrients, causing shoot dieback. Lilac or ash borer typically feeds near the base

of plant stems. As the larvae feed, they create swollen areas or cracks at the base of plants and where major branches attach to the trunk. Evidence of larval feeding is the light-colored sawdust below infected areas. Lilac or ash borer overwinters as late-instar larvae located in feeding tunnels.

Lilac or ash borer larvae eventually partially tunnel out through the bark before pupating. The moth that emerges from the pupae is unable to chew, so it simply pushes out the thin layer of bark remaining. When the moth emerges, the brown pupa shell is usually left behind and protrudes from the hole. Sometimes this is barely visible, but commonly the pupa case extrudes out about ½ inch. Male moths emerge first, with females emerging later. Moths are 1.0 inch long, with a brown-colored body, and are very active fliers. In Illinois, there is only one generation per year.

As with most wood-boring insects, the primary means of managing or preventing problems with lilac or ash borer is to avoid plant "stress" by properly implementing cultural practices such as watering, fertility, pruning, and mulching. Stressed plants are much more susceptible to attack from lilac or ash borer than healthy plants. A 2-to-3-foot-wide mulched area around the base of trees and shrubs prevents injury from lawn mowers and weed-trimmers. In addition, avoid pruning plants in late spring through early summer, which is when moths are present.

If necessary, the insecticide permethrin (Astro) can be applied to control lilac or ash borer larvae before they enter the plant. Pheromone traps are available that capture adult males, which indicates that females will eventually be laying eggs. This helps in timing insecticide applications. Check the traps two to three times per week and record the number of newly caught males. Spray 2 weeks after peak male capture. Another potential option is the use of entomopathogenic (= beneficial) nematodes. The nematodes are applied as a heavy spray or are injected into the larval entry points. Nematodes enter the entry points, search out, and attack larvae feeding within the tunnels. *(Raymond A. Cloyd)*

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