UNIVERSITY OF ILLINOIS EXTENSION
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College of Agricultural, Consumer and Environmental Sciences, University of Illinois at Urbana-Champaign
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Last Weekly Issue for 2007

This is the last weekly issue of the *Home, Yard, and Garden Pest Newsletter* for 2007. We will continue through the summer with biweekly issues through September, finishing the year with monthly issues in October and November.

We appreciate your continued interest in and support of this newsletter. If you have suggestions about the newsletter or pest sightings to report, please feel free to contact us. *(Phil Nixon)*

Golf Turf Field Day

The 2007 University of Illinois Golf Turf Field Day is scheduled for Wednesday, September 12, 2007, at the Landscape Horticulture Research Center on the South Farms area south of the University of Illinois campus in Urbana. Although the focus will be on golf turf, other turfgrass professionals are welcome to attend. The field day will begin with registration at 9:30 a.m., followed by the program, starting at 9:45 a.m. The day's activities will end with an included lunch from noon to 1:00 p.m. Details concerning registration and the program will be provided later this summer. For more information, contact Carol Preston at preston1@nres.uiuc.edu. *(Tom Voigt and Phil Nixon)*

PLANT DISEASES

Verticillium Wilt of Magnolia

Verticillium wilt is a name associated with death of mature trees, shrubs, perennials, and vegetables alike. Once the causal fungus enters the vascular tissues of the host plant, it is likely to spread quickly, block the water-conducting vessels, and cause plant death. Tips on how to sample for *Verticillium* testing were discussed in issue no. 5 of this newsletter. We have seen several cases of Verticillium wilt in the lab recently, possibly due to heat and moisture stress and because of its association with stressed plants.

One host that seems to be more frequently infected with this fungus in the past several years is magnolia. If your magnolia tree shows branch-by-branch decline or an overall thinning of the branches, cut into a few finger-sized branches and look for staining of the wood. A diagnostic clue for detecting Verticillium wilt is the presence of vascular streaking or vascular discoloration. The disease is common on maple. On that host, the stain is dark green to brown and usually found in a circular pattern when the stem is viewed in cross-section. On redbud (another common host) the staining is darker and very distinct. Infected magnolia stems appear to have more of a general brown color of the sapwood. In a recent Plant Clinic magnolia sample, tissues showing the distinct type of staining and the general discoloration of the sapwood both yielded the *Verticillium* fungus in the lab. Take a close look at your magnolias to be certain you are not missing this wilt disease.

Because Verticillium lives in the soil for many years, even without a host plant, the replacement plant needs to be resistant to this fungus. The list of plants not yet known to be infected by Verticillium is short. Therefore, if you plan to replace the dying plant, it is important to confirm a case of Verticillium wilt.

For information about Verticillium wilt, refer to the *Report on Plant Disease,* no. 1010, "Verticillium Wilt Disease." It is available for downloading from the Internet at http://www.ag.uiuc.edu/%7Evista/horticul.htm. It is also available in Illinois Extension offices. *(Nancy Pataky)*

Sclerotinia White Mold

White mold, a disease caused by the fungus *Sclerotinia*, is a common problem on many vegetable crops. However, this fungus infects more than 370 species of plants, including many common landscape annuals and perennials. Already this year, the Plant Clinic has confirmed white mold on a sample of *Salvia splendens* (bedding salvia). Other ornamentals known to be susceptible are aster, begonia, daisy, delphinium, hydrangea, marigold, pansy, peony, petunia, snapdragon, and zinnia.

Often, the first symptom noticed on infected plants is wilting. Upon closer inspection, a white, fluffy mycelium can be seen on infected plants. This white growth soon (in 7 to 10 days) develops into sclerotia, fungal resting structures specialized to withstand harsh environments such as winter. The sclerotia initially are white but mature as hardened, black structures ranging in size from 1/16 to 1/2 inch. The sclerotia can be found both on external plant parts and also inside the stem. It is these structures that germinate and cause new infections

in future years, so diseased plants should be immediately removed from the garden.

Other characteristic symptoms caused by this disease are water-soaked, brown lesions on stems. The characteristic "white mold" develops only during wet weather and often disappears as the plant dries down, leaving tan (bleached-looking) lesions and stems.

Initial infections need moisture and relatively cool temperatures to occur. However, the microclimate in irrigated flowerbeds can be ideal for disease development even in dry seasons, especially if planting densities are high. There is no control once infections have occurred; remove diseased plants to reduce chances of infections in future years. The sclerotia can survive for 3 to 5 years in the soil, so consider planting nonhost species if an area was heavily infested. *Report on Plant Disease,* no. 1008, "Sclerotinia Disease, White Mold, or Watery Soft Rot," provides a full list of susceptible plant species. This article can be accessed online at http://web.aces.uiuc.edu/vista/pdf_pubs/1008.pdf. It is also available in Illinois Extension offices.

The presence of a white, fluffy mold and dark sclerotia are diagnostic for this disease. This growth is very white and wispy, compared to the dense gray mold of Botrytis. Southern blight, a disease caused by the fungus *Sclerotium rolfsii*, also produces a white mold, usually present on the base of the stem. However, the sclerotia produced by this fungus are small and tan to brown in color, greatly resembling mustard seeds. The Plant Clinic has seen one case of southern blight this year, on a pepper crop in southern Illinois. In home landscape situations, we see *S. rolfsii* most frequently on hostas. This disease does not overwinter well in the north; sclerotia that are unprotected (by mulch or snow cover) generally lose their viability. *(Shanyn Siegel and Nancy Pataky)*

Freeze Injury Aftermath

When we make a diagnosis of freeze injury in July, it causes more than a few heads to turn. The fact of the matter is that in July we are still seeing the aftermath of freeze injury that occurred in March and April or possibly earlier. Admittedly, this past spring was an odd one in the Midwest. Temperatures were summerlike in March, long enough for plants to start their spring growth. Then right about the first week of April, there was a sudden drop to near-freezing temperatures. Cold injury resulted.

Much of this injury was immediately visible (acute injury) as dead stem tips, brown buds, loss of fruit crop, and water soaked foliage. As growth resumed, many plants began to develop new foliage, filling in the dead area. In some cases, however, sections of plants did not recover. If buds survived the freeze, they opened based on stored foods; but something kept water from reaching those leaves. The leaves dried up after they emerged. Cambium and sapwood injury prevented water flow. So what has caused this injury?

Plants deacclimate from winter hardiness slowly as spring temperatures rise. When a late frost occurs, as it did in early April this year, plant tissues are injured because they are no longer winter hardy. This freeze injury is not a hardiness issue. Affected plants are certainly winter hardy. It may be that affected varieties start to deacclimate sooner and are thus more susceptible when low temperatures follow extended warm spells. According to Sinclair and Lyon, in *Diseases of Trees and Shrubs,* "sapwood, cambium, and phloem tissues deacclimate to different degrees." The sapwood is least tolerant of cold, so it freezes first.

The most dramatic cases this year seem to be with evergreens. On one Plant Clinic arborvitae sample, the splits in the wood were severe, blowing open the stems to white wood, showing like exposed bone. An identical case was sent to our lab via e-mail from Iowa asking whether we had seen such injury. Obviously, the foliage above these areas can no longer receive water from the roots, resulting in large areas of brown foliage. In another case on juniper, foliage was brown and Phomopsis tip blight detected. A closer look revealed small fissures in the wood. When the bark was removed, large splits and cankers were revealed, probably the result of earlier frost or freeze injury. In both cases, the client was concerned about plant disease. It is true that canker fungi invade injured tissue. However, in both these cases, there was no fungal pathogen involved. Given time, fungi invade these wounds, but the primary problem is abiotic (noninfectious). *(Nancy Pataky)*

INSECTS

Scouting Watch

Bagworms can still be treated. If the bags are 1 inch long or less, *Bacillus thuringiensis kurstaki* (Dipel, Thuricide) should still be effective. Cyfluthrin (Tempo) is more effective on larger bagworms, as well as being effective against smaller larvae.

Twospotted spidermites and related spidermites are likely to become prevalent with the recurring hot, dry weather. Cotoneaster, honey locust, oak, and maple are likely to show damage first, so keep your eye on them. Older foliage will appear somewhat grayish from a distance. Closer inspection will reveal whitish to brown stippling on the upper leaf surface, and the lower leaf surface will appear dirty. Using a hand lens will verify that the "dirt" on the underside consists of spidermites, their cast skins, and fecal matter. Abamectin (Avid),

acequinocyl (Shuttle), befenthrin (Onyx, Talstar), etoxazole (TetraSan), hexythiazox (Hexygon), insecticidal soap, spiromesifen (Forbid), and summer oil are effective. Insecticidal soap and summer oil require through coverage and two weekly sprays.

Mimosa webworm is an annual problem in southern Illinois and sporadic in central and northern Illinois. Check honey locust for leaflets or leaves that are webbed together and are brownish from feeding damage. In southern Illinois, also check silk tree or mimosa. If infestations are numerous, apply acephate (Orthene), *Bacillus thuringiensis* kurstaki (Dipel, Thuricide), carbaryl (Sevin), or spinosad (Conserve). Spray thoroughly to get the spray inside the webbed leaflets and leaves. Small infestations create large damaged areas later in the summer. *(Phil Nixon)*

Emerald Ash Borer Update

Emerald ash borer has recently been found in the Batavia industrial park at the eastern edge of Kane County, at Fermilab in western DuPage County, and at an intersection of I-80 in Peru in western LaSalle County. These join the find earlier this spring in Skokie as new locations for this pest this year. Other finds this year have consisted of additional infested trees being found in areas of Kane County and northeastern Cook County known to be infested. All of the infestations appear to have been present for at least 3 to 5 years. Both the Fermilab and Peru finds represent ones in new counties outside of current state quarantine areas. These will trigger the designation of new quarantine areas in the next few weeks. All known locations of this pest are in northern Illinois.

The Peru infestation at an Interstate intersection raises the likelihood that this beetle is riding to new locations on commercial and personal vehicles. Both the Illinois Department of Agriculture and USDA–APHIS personnel have been inspecting areas of this type for an extended period. They have also been concentrating on firewood. as well as conducting systematic surveys of trees. The Illinois Department of Natural Resources has been watching campgrounds and other state park areas for this pest.

Firewood is still thought to be the most likely mechanism for the transport of emerald ash borer to new locations and will continue to be the focus of public awareness campaigns. Previous firewood-awareness campaigns have intensified prior to and during the Memorial Day and Fourth of July holidays, and another is being planned for the Labor Day holiday.

Adult emerald ash borers are present at this time but appear to be lower in number than expected. Many dead larvae were found in sampled trees this spring, which may account for the apparent lower beetle emergence. It is possible that the cold weather snap this spring, cold weather during the winter, or disease pathogens may be the cause of this larval mortality. Considering that this insect does very well throughout the lower peninsula of Michigan, it is unlikely that low winter temperatures would greatly impact this pest. The possibility of an important disease pathogen is being studied more closely.

Currently, many of the emerald ash borers that are being found are mature larvae. This insect commonly has a 2-year life cycle; and it is likely that a 2-year life cycle is normal, based on research conducted in Michigan. It is also thought there may be an extended emergence, with additional beetles emerging later in the summer into early fall. The mature larvae that are being found now may pupate and emerge later in this growing season or move deeper into the wood to spend the winter as pupae and emerge next year. *(Phil Nixon)*

Emerald Ash Borer

Emerald Ash Borer, *Agrilus planipennis,* is an exotic, invasive insect in North America that attacks and kills healthy ash trees. All ashes in the genus *Fraxinus* are attacked, including green, white, blue, and black ash. Its native range includes China, Korea, Japan, Mongolia, the Russian Far East, and Taiwan. It was first identified in the Detroit, Michigan, area in July 2002. Since then, it has also been found in other areas of Michigan, as well as Illinois, Indiana, Ohio, other locations outside the Midwest, including the Toronto, Ontario, area in Canada. Ash trees are important in our residential landscapes, towns, cities, and forests in Illinois. In many communities, ash trees comprise 10 to 20 percent of the trees.

Adult beetles are 1/3 to 1/2 inch long and elongate, with metallic emerald green wing covers on a bronze body. The upper surface of the abdomen is bright red, which is only obvious when they fly. They emerge primarily in late spring through 1/8-inch-wide, D-shaped holes in the bark of ashes. Adult beetles are present through June into mid-July. After mating, the female inserts her eggs, one or two at a time, between bark flakes.

The eggs hatch into larvae that tunnel through the bark into the cambium, where the water-, nutrient-, and sugar-conducting tissues, the xylem and phloem, are located. The larvae are white, elongate, and flattened, growing to about 1-1/2 inches long. The larval body appears as flattened beads, and there are two short, dark brown to black spinelike cerci at the posterior end of the body. After feeding for one or two growing seasons, the larvae tunnel as much as 1/2 inch into the sapwood below the cambium to pupate. Adult beetles emerge the following spring.

The larvae create slender, winding tunnels that frequently wind back and forth, creating a series of S-shapes that run into one another. Just as commonly, the tunnels meander under the bark with no particular pattern. As the tunnels become numerous, they effectively girdle the branch, causing the branch to die due to lack of water and nutrients.

Emerald ash borer attacks at the top of the tree first, causing dieback of the top. Attack continues down the tree, resulting in the gradual death of branches, and the entire tree eventually dies. Larvae commonly attack the tree for 2 years or more before branch dieback becomes evident. Once dieback starts to occur, the tree usually dies in 2 to 3 years. The bark on attacked trees separates from the tree trunk, allowing the larval tunnels to be easily seen. Once the tree dies to the ground, suckers form around the base of the trunk, but they do not grow into strong, attractive trees. These suckers are also attacked and killed by the emerald ash borer.

Woodpeckers attack the larvae under the bark, chipping away the bark to reach the larvae. This attack appears as light areas on the bark and is a useful means of identifying potentially attacked trees before dieback becomes evident. The only sure method of detecting emerald ash borer in a recently attacked tree is to remove the tree or some of its branches and strip the bark off to reveal the larval tunnels. Upper branches are most likely to be infested. In practice, a drawknife is typically used to remove the bark, while a pocketknife is used to get the larvae out of the tunnels for identification.

The only sure method to control emerald ash borer is to remove the tree. Imidacloprid (Merit, Imicide, IMA-jet, Pointer) has been shown to control the emerald ash borer enough to prevent tree death for at least a few years. Merit is typically applied as a soil-injected or surface soil application within 2 feet of the trunk. Imicide, IMA-jet, and Pointer are injected into the basal flare or trunk of the tree. Dinotefuran (Safari) applied along with PentraBark to the outside bark surface of the tree is also effective. Applications should be made annually and are most effective after at least 2 years of application. Application is recommended to trees within 15 miles of a known infestation, to allow for undetected infested trees and at least 2 years of application before attack. Even some previously attacked trees exhibiting dieback survive and show signs of recovery in the form of normal stem and leaf growth.

Foliar and bark sprays of bifenthrin (Onyx), cyfluthrin (Tempo), permethrin (Astro), or carbaryl (Sevin) applied monthly from mid-May to mid-July control visiting beetles and hatching larvae. Because emerald ash borers may emerge in smaller numbers later in the season, applications against adults are primarily effective in reducing the spread of the insect rather than protecting attacked trees. The applications of imidacloprid or dinotefuran, which move systemically through the tree, are more likely to provide useful control. *(Phil Nixon)*

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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