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Last Biweekly Issue for 2007

This is the last biweekly issue of the *Home, Yard, and Garden Pest Newsletter* for 2007. It is also the eighteenth issue of twenty that will be produced this year. The two remaining issues will be monthly and will probably be posted to the Internet site during the third full week of October and November. Mailed issues will probably arrive later that week or during the next week. *(Phil Nixon)*

PLANT DISEASES

Walnut Anthracnose

Black walnut trees experiencing premature defoliation may be suffering from an anthracnose disease. Black walnut *(Juglans nigra),* butternut *(J. cinerea),* and other species of *Juglans* are susceptible. Anthracnose is a general term used to refer to diseases caused by fungi that produce spores in specific fruiting structures called acervuli. In the case of *Juglans* spp., anthracnose is caused by the fungus *Gnomonia leptostyla*. This is not the same fungus that causes anthracnose on sycamore, oaks, ash, and other shade trees.

The primary symptom on black walnut is circular brown lesions on the leaves. While first visible only on the underside of the leaf, lesions eventually can be seen on both upper and lower leaf surfaces. The spots range in size from tiny pinpoints up to 5 mm in diameter. Later symptoms include yellowing of the leaves, marginal browning, and casting of leaflets, all visible now on moderately susceptible trees. Temperature and moisture are the most important factors in disease development. In wet seasons, infected walnut tress may defoliate by late July or August.

In addition to infecting the leaves, this fungus may also infect petioles, rachises, twigs, and fruit. Affected trees often drop their fruit prematurely or produce nuts with dark, shriveled meat. While obviously a concern for nut producers, this disease most often does not cause long-term harm to the tree in the residential landscape and does not require control measures. However, trees experiencing consecutive years of early defoliation may be seriously weakened. Defoliation that occurs after the tree has completed its growth for the season is not a serious concern.

The walnut anthracnose fungus primarily overwinters in fallen leaves but may also survive in infected fruit and twig lesions. During favorable weather conditions in the spring, spores germinate and are disseminated to new foliage by wind and rain. With ample moisture, germinated spores infect the new leaves, and the disease cycle begins. Asexual spores of this fungus are released from the new lesions and continue to infect new sites throughout the tree. Logically, raking and removal of infected leaves and fruit is the most effective way to reduce future infections. Do this as a normal part of fall cleanup. Root-zone applications of nitrogen fertilizers in spring have demonstrated enhanced growth and reduced disease severity. *(Shanyn Siegel, Plant Clinic diagnostician)*

Avoiding Monocultures

A monoculture is a planting of one species in a large area. As I look out the window of the Plant Clinic, I see monocultures of corn and soybeans. It is both efficient and productive to grow monocultures of a crop that is seasonal and of high value. On the other hand, use of monocultures comes with risk. If a pathogen, insect, or environmental stress becomes a problem, the entire planting is threatened. Southern corn leaf blight was devastating to corn in the 1970s. We have also seen problems in Illinois landscapes, such as the death of most elms from Dutch elm disease in the 1950s or losses from chestnut blight in the early 1900s. Dutch elm disease remains a threat to elms. Other established pathogens, such as pinewood nematode, the oak wilt fungus, and *Verticillium* (wilt), preclude the use of monocultures in city plantings. In addition, there are new pathogens of concern, such as the *Phytophthora* species that causes sudden oak death or the bacterium that causes bacterial leaf scorch. The same concerns exist for insect threats such as emerald ash borer.

Rotation of crops is one method of avoiding some risk associated with monoculture. A year of corn production is followed by a year of soybeans, then corn, then soybeans, to avoid many disease and insect problems. This method works with many vegetables, annuals, and even some perenniels. Rotation, however, is not possible with established trees.

Many municipalities have guidelines for planting trees—guidelines for diversity. Bill Vander Weit, city ar-

borist in Champaign, Illinois, states that many cities use a tree-planting guideline that states: no more than 10% of a single species, no more than 20% of any genus, and no more than 30% of any tree family. These percents indicate city totals. This diversity guideline is used by the Champaign foresters, but it is only a guideline.

Vander Weit explains that other considerations may make these guidelines impractical. For those interested in this issue, he recommends a paper by Norman A, Richards, "Reasonable Guidelines for Street Tree Diversity," *Journal of Arboriculture,* 19(6): November 1993. Dr. Richards makes the point that city trees are often selected for their adaptation to the target site. Imposing strict planting percents may result in planting species that are not as well adapted to that site.

Vander Weit said that his foresters would like to adhere to the guidelines but are sometimes hindered by tree availability. It is not always possible to obtain a wide range of species when needed.

A point in case is the current situation with emerald ash borer. There is a very high percentage of ash species in most Illinois communities. This species adapts better than most to disturbed soils typical of new subdivisions. With the loss of ash as a choice, other less adaptable species will be planted.

Before becoming too critical of overuse of some trees, consider a few other concerns as stated here and in Richards's journal article. *(Nancy Pataky)*

Fungal Wilts of Trees, 2007

Three major fungi cause wilt and death to trees in Illinois. The diseases of concern are Dutch elm disease, oak wilt, and Verticillium wilt. Refer to issues no. 5 and 13 (2007) to read about Verticillium wilt. Oak wilt is discussed in issues no. 7 and 11.

The following summaries of Plant Clinic fungal wilts for 2007 may be of value to many. There are still cultures incubating, so numbers are not final for the year; but this information may alert some of you to the presence of these diseases in your area.

Oak wilt positives are based on isolations of the causal fungus. As of September 21, the U of I Plant Clinic has confirmed oak wilt in the following counties in 2007: Champaign (3), DuPage (1), Ford (1), Menard (1), Monroe (1), Ogle (1), Sangamon (1), and Warren (1).

Although most American elms were killed by **Dutch elm disease** (DED) nearly five decades ago, each year we still isolate the causal fungus from elms through laboratory culturing at the U of I Plant Clinic. In 2007, positive cases of DED, based on isolation of the pathogen, were detected in the following counties: Boone (1), Cook (7), DuPage (1), and Kane (2).

Verticillium wilt is more widespread than oak wilt or Dutch elm disease, in both geography and host range. Based on positive isolations of the *Verticillium* fungus, Plant Clinic staff found positive cases of Verticillium wilt in the following counties in 2007: Champaign, Cook, DuPage, Hancock, Lake, and Lee. Most involved maples species. Magnolia, fragrant sumac, and redbud were also infected.

This information is not intended to show trends. It is not survey information but merely a record of information on unsolicited plant samples. *(Nancy Pataky)*

INSECTS

Scouting Watch

Magnolia scale is a pest of yellow poplar and other magnolias. It is more common in northern Illinois than in other parts of the state. Crawlers are present from now until spring and susceptible to insecticide applications at this time. As winter approaches, many will move into protected locations—such as into bark crevices, making them less susceptible to control. Acephate (Orthene), insecticidal soap, and summer oil are effective at this time, as well as in early spring when the buds are opening.

Cooley spruce gall adelgid and **Eastern spruce gall adelgid** are exposed now and in early spring. They can be controlled at these times with carbaryl (Sevin), imidacloprid (Merit), insecticidal soap, and summer oil.

Spruce spider mite becomes active and controllable in the fall after being in the egg stage during most of the summer. Acequinocyl (Shuttle), bifenthrin (Astro, Talstar), insecticidal soap, spiromesifen (Forbid), and summer oil are effective now, as well as in early spring. Scout for active mites before treating by holding a white sheet of paper under a suspected branch and striking the branch sharply to dislodge the mites onto the paper, where they can be easily seen. Spider mites streak green when smashed. Beneficial predatory mites streak red. If predatory mites are common on a tree, spraying for spider mites will probably be unnecessary. *(Phil Nixon)*

Lacebugs

Lacebugs become obvious at this time of year. Lacebugs tend to be relatively specific to their hosts, so most of them are named for the host on which they are found. Those that attack trees tend to be similar in appearance and are even in the same genus, *Corythucha.* Adults are black, with clear whitish, flat-topped wings. These 1/8-inch-long bugs are found on the undersides of leaves, primarily along the major veins. Observation with a hand lens reveals that their front wings look like lace. The wing veins are white and form a fine network, with the wing tissue being clear between them.

Usually nearby, one can see patches of tiny black eggs that look like stalagmites on the leaf surface. Typically,

they extend well away from the leaf veins. These eggs hatch into blackish nymphs that are somewhat diamond-shaped. Older, larger nymphs are spiny and have light areas interspersed with black coloration. Like the adults, they tend to sit along the leaf veins on the leaf underside.

These are sucking insects that feed on the sap of the leaf. Although not obvious on the underside, a stippling will usually show on the upperside of infested leaves through much of the central portion of the leaf. These small, whitish dots are very obvious when the leaf is examined close-up but is not very noticeable from a distance. The fecal matter of lacebugs is black and tarlike, causing it to adhere to the leaf underside. Much more obvious than the adults, nymphs, and eggs of these small insects is their fecal matter, which makes the leaf underside look like it has been sprinkled with fine black pepper.

Lacebugs overwinter as adults in protected areas, such as beneath loose pieces of bark, and move out onto the leaves in spring. The adults are quite long-lived, allowing all stages—eggs, nymphs, and adults—to be typically present on the same leaves at the same time. Several generations per year are produced.

Although lacebugs are present throughout the growing season, their numbers typically do not become numerous enough for them, their stippling damage, or their fecal matter to be noticeable until late summer. It appears that heavily infested leaves tend to drop sooner than others; but for most tree species, they do not drop so early as to be noticeable. For these reasons, control is usually not needed. If desired, acephate (Orthene), carbaryl (Sevin), cyfluthrin (Tempo), insecticidal soap, thiamethoxam (Flagship, Meridian), or other labeled insecticides are effective. Be sure to get good coverage on the leaf undersides where the bugs are located.

Common Illinois lacebug species include these:

Sycamore lacebug is probably the most common lacebug in Illinois. It can be found on almost every sycamore in the state from June through leaf drop. The central area of the leaf upperside of many leaves shows whitish stippling injury near the end of the growing season. Although very numerous, sycamore lacebugs appear to cause little damage to tree health, and their damage is not usually noticed by passersby. As a result, treatment is rarely necessary.

Oak lacebug is much less common in large numbers than sycamore lacebug in Illinois. Even though it causes stippling on the central area of leaf uppersides, it is typically not heavy enough to be very noticeable. An interesting feature is that attacked white oak and burr oak leaves tend to cup downward along the long axis to the midvein, looking similar to phenoxy herbicide injury. White oak appears to be more prone to this type of injury than burr oak.

Hackberry lacebug is smaller than many other lacebugs, being about 3/32 inch long. Its size, along with a lighter color than other lacebug species, makes it easily missed during scouting. However, of the common lacebugs in Illinois, hackberry lacebug is probably the most damaging. Heavily infested leaves turn yellow and curl down lengthwise along the midvein and then usually fall from the tree. This species tends to build up to high numbers earlier than other species, causing essentially all of the leaves on heavily attacked hackberries to be curled, yellow, and dropping by late June. It seems to be more common in dry springs. Because this lacebug attacks so early and causes leaf drop, treatment is more likely to be warranted than with other lacebug species. However, in most Illinois sites, the resiliency of the hackberry allows it to easily recover from such attacks without any serious, obvious health effects. Refoliated hackberries typically are not attacked because this lacebug species tends to be present in high numbers only during the first half of the growing season.

Walnut lacebug is very common, being found on the leaflet undersides of almost every walnut tree. Even though it is common, it is rarely very numerous. There is rarely more than a few scattered spots of stippling on attacked leaflets.

Azalea lacebug is perhaps the most damaging lacebug in the United States but is rarely a problem in Illinois, probably due to the unsuitability of Illinois soils for growing azaleas. This lacebug is in a different genus and causes grayish splotches on the leaf upperside. Its fecal matter is brownish, causing leaf undersides to appear rusty until examined closely. Not only are the leaves more unsightly, but this lacebug commonly causes repeated leaf drop through the growing season, seriously impacting the vitality of the plant. *(Phil Nixon)*

Ag Health Study Update

It is estimated that 1.8 billion people worldwide use pesticides in their occupation. Research also indicates that everyone in the United States is exposed at least indirectly to pesticides. Of the pesticides and their components, only arsenic and dioxin are listed as known human carcinogens. The National Agricultural Health Study was initiated in 1993 to determine the incidence of cancer and other health problems associated with pesticides, other agrichemicals, and agricultural practices in the United States

The National Agricultural Health Study is a federally funded, long-term study focusing primarily on cancer rates among farmers. However, a large portion of the participants from Iowa are professional agricultural pesticide applicators; and many of the results are applicable to landscape applicators. The 89,658 participants in

the study are all agricultural workers, their spouses, and their children—from North Carolina and Iowa.

Many studies of the effects of agricultural chemicals and other practices rely primarily on the long-term memory of the participant or surviving family members to determine exposures. As a result, these backward-looking studies have some inherent problems in the data that they collect, causing some concerns about the conclusions that are drawn from that data. The Agricultural Health Study relies on memory for the practices of participants prior to 1993, but since then has been tracking agricultural practices and health effects as they occur. Included in some of the studies has been the collection of genetic, urine, and blood samples, as well as on-site observations of the agricultural activities of the participants. The study is expected to continue at least through 2013. All of the participants are interviewed every 5 years. Their third interviews have just been completed and provide some interesting information.

It was determined that 14% of pesticide applicators have had an acute exposure to pesticides in their lifetime. Concerning chronic exposure to pesticides, it was determined that there is a 66 to 75% reduction in pesticide exposure to applicators who wear chemical resistant gloves. There is a 33 to 51% reduction in pesticide exposure when using a broadcast boom sprayer, compared to using a hand sprayer. This survey exposure information was verified through measurements of pesticides in urine samples, exposure patches on the skin, and air measurement during application.

Personal practices were also surveyed. After using pesticides, 37% take a shower or bath, whereas 63% do not. Of those surveyed, 5% wear the same clothing that they wore on the previous day when they applied pesticides without it being washed; 95% wear clean clothing the next day.

Other studies have shown that a major source of contamination indoors is due to tracking in pesticide residues on shoes. In this study, 78% take off their work boots before entering their home; 21% do not. Clothes worn during pesticide application are washed separately by 74%; 26% do not wash pesticide contaminated clothes as a separate laundry load. Agricultural or commercial pesticides were stored in the home by 13% of the applicators; 87% do not.

Studies in the past have shown that exposure to pesticides during application is greatly reduced if the applicator is in a tractor cab or is similarly protected. In this study, 64% of the applicators were in an enclosed cab during pesticide application; 36% did not use an enclosed cab. Almost all, 93%, of the applicators repaired their own pesticide application equipment; 7% did not repair their own equipment. *(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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