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PLANT DISEASES

Deep Planting Still a Major Problem

Diagnosing tree problems can be rewarding but often frustrating because we often see only a part of the problem. In addition to 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 commonly see tree twig dieback and leaf spotting at the Plant Clinic. Observing branch terminals helps us determine how long the tree has actually 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 rubber band had been tightly wrapped at that point. The 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 of the deciduous tree samples we have received at the Plant Clinic this spring have shown scorching, wind tatter, and perhaps cold injury. Often these same trees have shown poor stem growth for at least 3 to 5 years. Follow-up questioning and photographs of the lower trunk frequently show that the tree was planted too deeply. Deep planting can cause slow decline of a tree over many years. It may not kill the tree but does not allow the tree to thrive. Does a tree that is planted too deeply need to be removed? That is not usually the case, but arborists can 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 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 comes from the

nursery. Because nurseries use cultivation to cut down on weeds (and avoid herbicides), and because 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 Website.

Taking the time to plant your tree correctly can help ensure a healthy tree for many years to come. Deep planting only causes years of tree decline and frustration in tree care. (Nancy Pataky)

Hosta Leaf Necrosis

Hostas have recently shown some leaf necrosis. The Plant Clinic received one such sample from the Chicago area and has received reports of two from the central part of the state. Leaves show necrosis at margins or scattered in irregular blotches on the leaves. These symptoms are most likely caused by an environmental stress such as cold injury or possibly wind damage to tender foliage. Anthracnose would be a common secondary invader.

Anthracnose is a fungal leaf disease of hosta that has been prevalent for the last several years. The pathogen is a *Colletotrichum* species that thrives in warm, wet weather. We have seen it this year, so the warm spell of late has sufficed to allow this fungus to infect. Symptoms include large irregular spots with darker borders. The centers of spots often fall out and leaves become tattered and torn. I have not seen this disease kill plants, but it certainly has contributed to their aesthetic decline. There is not a great deal of information available about disease management, but a fungicide effective against leaf spots and having a general ornamental label should provide protection of new growth. Fungicides would be recommended on sites where this has been a problem, although I do not treat my plants that have anthracnose. The disease usually follows a stress. Often, plants exposed to sun and sun-

scald become infected with anthracnose. The thiophanate methyl fungicides would probably be a good starting point if you are looking for fungicide help. Read the label to be certain it is registered for your crop and to be certain there are no toxicity warnings.

Sclerotium blight has become a serious disease of hostas. Initially, lower leaves wilt and brown. In a short time, the upper leaves also wilt; and close inspection shows a soft, brown rot of the base of petioles. This disease is much different than anthracnose. In this case, the entire leaf collapses. The fungus, *Sclerotium rolfsii*, appears as a fluffy, white mass of mycelium on the petioles and surrounding soil. Tiny, mustardseed-sized, tan sclerotia (fungal structures) can be seen in this mycelium and on the soil. This disease has historically been a problem in the southern states, but not in Illinois. It has invaded our state, probably on transplants and with the open exchange and popularity of hostas. It was thought that the fungus would not overwinter in our cold climate, but that too has been shown to be false. The fungus does overwinter when protected under mulch and snow in mild winters. Pull mulch back from the base of plants before winter. Current research at Iowa State University is investigating the possibility of resistant hosta cultivars. There are differences in levels of susceptibility but nothing with high levels of resistance yet. Iowa State University has a very good publication on Sclerotium blight available at <http://www.extension.iastate.edu/Publications/SUL8pdf>. I suspect we will see this disease in June if warm temperatures and rains continue.

Foliar nematodes on hosta are also relatively new to our area. At this time, we are not seeing a big problem in Illinois but the possibility is real. Nematodes are microscopic roundworms that cause disease. They are pathogens much like a fungus or bacterium, but they require moisture to infect; and they live within the plant. The foliar nematodes are in the genus *Aphelenchoides*. On hosta, the nematode feeds in the leaf, producing brown areas between veins. It is thought to overwinter in the crown. You cannot see the nematode with the naked eye, so watch for brown areas between veins, giving the plant a striped appearance. The brown areas in the foliage may take on various shapes, usually limited by veins. This problem does not cross veins like anthracnose. Go to this site for some good photos of foliar nematodes on hosta: <http://www.hostalibrary.org/diseases/nematodes.html>. Foliar nematodes may occur on other perennial hosts, including anemone, creeping phlox, ground ivy, windflower, heuchera, and others. (Nancy Pataky)

Oak Tatters

I have not yet seen a case of oak tatters for 2004, but it is time to watch for this problem. The symptoms include a lack of interveinal leaf tissue, leaving foliage with only the major veins and a bit of tissue around the veins. We have seen this problem on white oaks for at least 10 years (probably longer) in Illinois. It has been reported in other states as well, including Iowa, Indiana, Ohio, Michigan, Wisconsin, Minnesota, and Missouri.

We do not know the cause of this injury. No disease problem has been implicated. Likewise insects are not the cause. The suspects at this time are environmental stress as leaves emerge, cold damage, and herbicide drift. One fact is known. The affected trees eventually produce healthy new leaves. It is possible that repeated injury could cause tree decline. That is another unknown. You can help your trees by following good horticultural practices to promote tree health, especially watering in periods of drought stress.

Some questions and answers about this problem are listed at <http://www.extension.uiuc.edu/mg/oaktatters.htm>. This site was developed to assist Illinois Master Gardeners in identifying suspect trees. Photos are posted as well. Another helpful site is the US Forest Service pest alert on tatters at http://www.na.fs.fed.us/spfo/pubs/pest_al/oaktatters/oaktatters.htm. (Nancy Pataky)

Slime Molds in Mulch

The frequent spring rains in many parts of Illinois have prompted growth of slime molds. The funguslike slime molds prefer warm, moist conditions. Look for them on bark mulches, on wood chips in play areas, on low-lying objects, or growing on any object that can be used as a perch. We usually see species of *Physarum*, *Fuligo*, and *Stemonitis*.

Although slime molds cause much concern to the homeowner, they do not absorb nutrients from live plant material. They feed on decaying organic matter, fungi, and bacteria in the soil and the turfgrass thatch layer. Even bark mulches decompose and produce materials that the slime molds "consume." The slimy, amoeba-like stage may be watery-white, gray, cream to light yellow, violet, blue, green, or purple-brown greasy masses as large as 1 to 2 feet in diameter. This stage soon develops into colorful, crusty fruiting bodies filled with masses of dusty spores. Slime molds are primitive organisms that flow (too slowly to watch) over low-lying objects such as mulches, sidewalks, or driveways, or over vegetation such as turfgrasses, strawberries, flowers, ground covers, weeds, and the base of woody plants.

Most gardeners want to know what to put on slime molds to kill them. Chemicals do not provide control. Instead, for abundant molds, remove the spore masses in a plastic bag and break up the remaining masses by vigorous raking or brushing. Although some like to hose down the spores with a stream of water, keep in mind that water can also spread the problem by spreading around the swimming spores. Raking affected mulch or wood chips helps the area dry out more quickly. Mowing the lawn usually removes the spore masses in turfgrasses. For more information about slime molds, read *Report on Plant Disease*, no. 401, "Slime Molds of Turfgrass." The publication is available in Illinois Extension offices or at <http://www.ag.uiuc.edu/%7Evista/> and then clicking on publications, horticulture. The publications are listed alphabetically. An excellent site with images of slime molds is by a Wisconsin mycologist and is at http://botit.botany.wisc.edu/toms_fungi/june99.html. (Nancy Pataky)

INSECTS

Borers Currently Susceptible to Control

Bronze birch borer is now susceptible to imidacloprid (Merit, Imicide, Pointer) application. Either spraying the bark or injecting beneath the bark with the Mauge, Wedgle, or another injection system should be effective. In either case, the imidacloprid should enter the cambium area in time to control any young larvae before much damage is done. Although it is not too early to treat in northern Illinois due to this insecticide's longevity, treatment can be delayed for 2 to 3 weeks in that area if necessary. Heritage and other river birch varieties, as well as whitespire, are much less susceptible to this borer than other birches and should not require treatment. Early evidence of borer attack is dead branches at the top of the tree. This dieback progresses down the tree until the tree is dead. Infested trees also have meandering ridges in the bark associated with tunneling in the cambium and 1/8-inch D-shaped borer-emergence holes.

Peachtree borers can be treated at this time in southern and central Illinois with permethrin (Astro, Pounce). Treatment will be timely in northern Illinois in about 2 weeks. Peachtree borer attacks at the base of stressed ornamental *Prunus*, flowering plum, peach, and cherry trees, causing a thick sap flow near ground level called gummosis. The activity of these borers in the cambium area causes dieback in this area and associated branches on the tree. Lesser peachtree borer also attacks stressed *Prunus*, producing holes, gummosis, and dieback higher on the trunk and at branch

crotches. Although peachtree borer emerges earlier than lesser peachtree borer, permethrin typically lasts long enough to control both species with one application.

Viburnum borers are controlled at the same time and with the same treatment as peachtree borers. There are at least two or three species of viburnum borer in Illinois. The larva feeds in the cambium at and below ground level. Most viburnums are susceptible to attack, but *Viburnum opulus compacta* is typically the most susceptible. These borers are most prevalent in nurseries and in new landscapes. It is uncommon to find active viburnum borers in established landscape plants, but they commonly have old, round emergence holes near the soil line from previous attacks. (Phil Nixon)

Scouting Watch

Maple petiole borer has been reported from Douglas and Shelby counties. This is a sawfly that tunnels into the petiole of various maple species. The larva feeds on the inside of the petiole until the petiole breaks near the leaf blade, resulting in the ground becoming littered with fallen leaves having short petiole stumps. The sawfly larva continues to develop in the leafless petiole on the tree, dropping later in the season to the ground to pupate. Although clients become alarmed about the number of fallen leaves, they represent a small proportion of the leaves on the tree with little impact on its health. There is no practical control for this pest. Realize that many trees drop leaves at this time of year in response to hot, dry weather. Those fallen leaves have complete, intact petioles.

Gypsy moth treatments by the Illinois Department of Agriculture and USDA APHIS are scheduled for the next 2 to 3 weeks in portions of Cook, DuPage, Kane, McHenry, and Will counties. Applications are scheduled to start on May 18, depending on the weather. (Phil Nixon, Suzanne Bissonette, Dave Shiley, Susan Grupp, and Jim Cavanaugh)

Euonymus Scale

The blooming of beautybush, *Kolkwitzia amabilis*, throughout portions of Illinois indicates that Euonymus scale, *Unaspis euonymi*, crawlers should be out and about on plants such as evergreen euonymus or pachysandra—their primary hosts in Illinois.

Crawlers resemble tiny yellow spots that move around on leaves and stems. Stressed plants (as with other insect and mite pests) are more susceptible to attack than plants that are receiving proper irrigation and fertility.

Euonymus scale overwinters as a mated female on plant stems. Eggs develop beneath the scale and then hatch over a 2- to 3-week period. Many of the newly hatched crawlers that migrate on the stem generally start feeding near the base of plants. Crawlers may also infect nearby plants by being blown around on air currents. As a result, infestations often go undetected until populations and damage are noticeable. Leaves become spotted with yellow or white areas. Plants that are growing near structures and along foundations appear to be more susceptible than those in open areas with sufficient air movement. In addition, variegated forms of euonymus are more susceptible to attack than are the green forms.

Heavy infestations of euonymus scale can cause complete defoliation or death of a plant. Euonymus scale females are dark brown, flattened, and shaped like an oystershell, whereas the males are elongated, ridged, and white in color. Males are commonly found on leaves, whereas females are located on stems and along leaf veins. There are two generations per year in Illinois.

Pruning out heavily infested branches is an effective means of quickly reducing the population. Avoid planting *Euonymus japonica* in landscapes because it is extremely susceptible to euonymus scale. *Euonymus alata* is resistant (or tolerant) to euonymus scale even when nearby plants are infested. Spraying an insecticide in late May through early June, when the crawlers are active, can minimize problems later in the season. Insecticides recommended for euonymus scale include acephate (Orthene), insecticidal soap, and/or summer

oil. Be sure to check plants regularly for the presence of crawlers, which can help to time insecticide applications. Four applications at 10- to 12-day intervals may be warranted, depending on the infestation level.

Euonymus scale, like many scale species, is susceptible to a variety of natural enemies, including parasitoids and predators. These include braconid and ichneumon wasps, lady beetles, green lacewing, and predatory mites. However, natural enemies generally don't cause enough mortality to affect a large infestation. (Raymond A. Cloyd)

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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