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## PLANT DISEASES

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### Ash Anthracnose

Sycamore anthracnose was discussed in issue no. 3 of this newsletter, with a brief reference to other anthracnose diseases of shade trees. We have had reports in the past week of ash anthracnose. Morton Arboretum staff reports many telephone inquiries the past week concerning ash anthracnose. They report that the disease in the Chicago area has been severe enough to cause quite a bit of leaf drop. Common questions by homeowners focus on whether their trees are dying and what action can be taken.

Ash anthracnose appears at about the same time as spring frost damage. Symptoms are similar as well. Look at other trees and shrubs in the area. Frost is likely to affect many species in the area, not just the ash trees. Ash anthracnose affects ash species and has been reported on Chinese fringe tree (*Chionanthus*), but it does not infect other tree and shrub species. Ash anthracnose tends to be worse at the bottom of the tree, where the canopy stays wet longer.

Symptoms include water-soaked spots that spread and turn green-brown. As the tissues dry, the lesions turn tan. There may be some small (quarter-inch) spots, but usually the dead tissue appears as blotches that spread from the edge toward the midrib of a leaflet. The fungus can also infect the leaf petioles. In some years, we see leaf drop with no apparent infection of the leaf blades. Closer inspection usually reveals anthracnose on the petioles.

*Will ash anthracnose kill my tree?* No. This disease infects newly emerging leaves in cool, wet weather. The environment favors the fungus, and leaves are succulent and susceptible to infection. If the next flush of leaves emerges in warmer or drier weather, infection is unlikely. We generally see ash anthracnose in midspring. Leaf drop may follow, but ash trees quickly develop new leaves as temperatures rise. The disease may contribute to tree stress, but it is not known to kill trees.

*What can I do to help the tree?* Provide water in periods of drought, possibly mark your calendar to fertilize in the fall, and otherwise follow sound horticultural practices. One thing I would avoid is the

use of fungicides. Such chemicals protect new growth from infection, but the next flush of growth is unlikely to be infected. For more information, consult *Report on Plant Disease*, no. 621, "Anthracnose Diseases of Shade Trees." This report is available in Extension offices or on the Web at <http://www.ag.uiuc.edu/%7Evista/horticult.htm>. (Nancy Pataky)

### Watch for Rose Downy Mildew

This fungal disease of rose can cause total leaf drop. Don't confuse it with powdery mildew, which is easy to see, causes a white powdery growth on the leaves, and can be controlled with many products. Downy mildew is not seen in the garden very often because it is usually detected and eliminated in the nursery or garden center. Downy mildew is caused by the fungus *Peronospora sparsa*, which grows best in cool conditions (60° to 70°F) where the humidity is about 85%, such as conditions in many greenhouses and polyhouses in the spring.

Downy mildew symptoms on rose include lesions on the leaves, stems, and flowers. The leaf lesions appear purplish to brown, are blocky, and are often accompanied by yellowing of surrounding tissues. I think this symptom looks more like chemical injury than fungal infection. Severe defoliation may occur as a result of infection. The downy mildew fungus forms a downy mass of spores on the underside of leaf lesions. This downy growth is difficult to see without a hand lens or microscope but is visible on the underside of each lesion. In the lab, we place leaves in humidity chambers overnight for easy viewing of spores the next day.

So far this year, the Plant Clinic has received one suspect downy mildew rose sample. Fortunately, the plant was not infected. Still, this was a reminder that the timing and weather are ripe for infection by downy mildew. Examine new roses carefully before purchase. Do not buy plants with these lesions. The fungus affects newest growth first and is easily spread by wind-blown spores. If established plants are infected, chemicals are available to control the fungus. Many options are listed in the *2005 Commercial Landscape and Turfgrass Pest Management Handbook*, as well as the *Home, Yard, and Garden Pest*

*Guide.* These products are listed as preventives and work best before the disease is established. Be sure to get thorough coverage of the foliage, especially the underside of leaves. Because the fungus survives on infected plant parts, remove infected tissue from the site. Place tissue directly into a plastic bag and seal it before moving through the garden. (Nancy Pataky)

### Phomopsis Blight of Juniper

As new growth on junipers appears, so will this juniper tip blight. Phomopsis blight, or juniper tip blight, infects new growth in the spring. Watch for this disease soon. Succulent new growth is the most susceptible to infection. The fungus thrives in warm weather and requires moisture or high humidity for infection. The spores are resilient though, and dry periods only temporarily slow infection. Temperatures of 68° to 75°F promote infection. Warmer temperatures of 78° to 89°F can cause severe symptoms.

This disease may also appear on arborvitae, white cedar, and baldcypress. Phomopsis blight causes the tips of new growth to turn brown and die.

The newest growth on a juniper is susceptible to infection and becomes more resistant with age, usually once needles become a normal, dark green. Following infection, shoot tips turn light green, then brown. One diagnostic clue is the presence of pinhead-sized, black fruiting bodies (pycnidia) of the fungus at the base of the dead stem tips. The pycnidia are visible with the naked eye or with the aid of a hand lens. If the suspect tissue is very dry, place it in a plastic bag with damp paper toweling overnight. The fruiting bodies will be easy to see the next day. Waiting several days yields all sorts of interesting secondary fungi but makes diagnosis more difficult.

The disease can be controlled with fungicides and resistant varieties. Management of Phomopsis blight also includes pruning and removing infected foliage when the plant is dry. It is helpful to space plants to allow good air movement around them and to provide adequate but not excessive fertilization. Prune only dry foliage to avoid spreading spores and to reduce the risk of infection by other fungi. Avoid excessive pruning or shearing in the spring or fall when infection could occur. Fungicide recommendations are provided in the *2005 Illinois Commercial Landscape and Turfgrass Pest Management Handbook*, as well as the *Home, Yard, and Garden Pest Guide*. Fungicides are applied in the spring and fall for best disease control. *Report on Plant Disease*, no. 622, "Phomopsis Twig Blight of Juniper," contains more details about Phomopsis blight. This report is available in Extension offices or on the Web at <http://www.ag.uiuc.edu/%7Evista/horticul.htm>.

Other juniper problems that can mimic Phomopsis tip blight include fertilizer burn, drought stress, root injury and Kabatina blight. Kabatina blight is caused by a secondary fungal invader on wounded plants. It usually follows winter injury and appears in early spring, before new growth has appeared. Fungicides are not useful against Kabatina blight. (Nancy Pataky)

### Leaf Tatters

I have described this problem in the past, but with our new format including pictures online, we can show what we have been seeing the last several years. Leaf tatters is the new name for what we have called oak tatters. The problem appears on oaks and hackberry, so to call it "oak tatters" is too limiting. This condition appears each spring in Illinois. Horticulture research specialist Jim Appleby reports that leaf tatters has appeared in southern Illinois already this season.

Leaves of trees with leaf tatters appear to have been eaten by something that avoided the veins. Only the veins and a bit of the blade around the veins remain intact. We have seen this problem on white oaks for at least 15 years in Illinois. It has been reported in other states as well, including Iowa, Indiana, Ohio, Michigan, Wisconsin, Minnesota, and Missouri. The problem appears on hackberry as well.

I enjoy writing about problems that are shown to be free of diseases. No disease problem has been implicated in leaf tatters. Likewise insects are not the cause of oak leaf tatters. For many years, suspect causes included environmental stress as leaves emerge, cold damage, and herbicide drift. Three researchers at the University of Illinois have studied the problem and have research that proves that drift of chloroacetamide herbicides from applications onto corn and soybean fields is a cause of the leaf tatters syndrome. The researchers are Jayesh Samtani (lead researcher), John Masiunas, and Jim Appleby. An article describing their work can be found in the *Plant Health Progress On-line Journal*, February 2005, at <http://www.plant-managementnetwork.org/sub/php/brief/2005/tatters>. The original study was in 2004. It was repeated in 2005 with the same results. Plans to repeat some of the study in 2006 are underway.

White oak is the common oak species affected. Hackberry also shows leaf tatters each spring. I spoke with Dr. Appleby. He said that the white oak group of trees is usually affected, but injury on red oaks occurs occasionally as well. Researchers have reproduced the injury on red oaks. Red oaks leaf out sooner than oaks in the white oak group. It is likely that red oaks are less susceptible because they are further along in development when chemicals are applied. Hackberries tend to keep leafing out over a long period.

Many of the trees with oak tatters are affected early in the season but produce normal leaves later in the season. This is probably due to the fact that chemical applications of these products do not occur later. There has been some concern that a tree repeatedly attacked by oak tatters might decline and even die. No evidence exists to confirm this theory, but the question merits investigation. You may help your trees by following good horticultural practices to promote tree health, especially watering in periods of drought.

If you have seen leaf tatters in your area, drop me a note at [npataky@uiuc.edu](mailto:npataky@uiuc.edu). I would like to know when tatters appeared, the county, and the host. I will pass along this information to the researchers listed above. (Nancy Pataky)

## INSECTS

### Scouting Watch

**Eastern tent caterpillars** have matured, descended from their host trees, and are migrating across the ground searching for pupation sites. The larvae will pupate in protected sites and then emerge in late May to early June as one-inch-long, dark tan moths with white bands on their wings. After mating, they lay eggs in a mass encircling pencil-sized twigs of the host plant. They do not hatch until next spring.

**Honeylocust plant bugs** and **leafhoppers** are present on honey locust throughout the state. The plant bug nymphs actively run up and down the stem when disturbed; the leafhopper nymphs sidle sideways to the other side of the leaflet or stem when disturbed. The leafhoppers cause no damage, but the plant bugs cause leaflet distortion, sometimes to the point of leaf drop. Dropped leaf areas will re-leaf from lateral buds, but distorted leaflets that do not drop stay on the tree and reduce the aesthetic quality of the leaves through the summer. Acephate (Orthene), bifenthrin (Talstar), cyfluthrin (Tempo), or summer spray oil effectively controls these nymphs before severe damage is caused.

**Pine spittlebug** has been reported in northeastern Illinois. The brown nymph grows to about ¼-inch long and covers itself with froth (spittle) that is extruded from its anal area. These ¼- to ½-inch globules of spittle are easily seen on the pine branches. If you pull the bark back where these nymphs have been feeding, you see a small, brown spot of necrosis in the wood. If there are many spittlebugs on a branch or tree, there can be enough necrosis to cause severe dieback of the tree. As long as the spittle masses are at least several inches apart on the tree, treatment is probably not needed. Very heavy infestations should be sprayed forcefully with carbaryl (Sevin) or other labeled insecticide. High-pressure spray is needed to

wash off the spittle, allowing the insecticide to contact the insect.

**Elm flea weevil** is numerous as adults eating pin-head-sized holes in leaves of Siberian elm and other European elm species in northeastern Illinois. This insect has been reported as far south as Kankakee. Control the flea weevil adults with a spray of acephate (Orthene), imidacloprid (Merit), bifenthrin (Talstar), or carbaryl (Sevin). The Orthene and Merit should also prevent larval mines from appearing later at the tips of the leaves.

**Flatheaded appletree borer** and **roundheaded appletree borer** attack young maples near the base, causing a helical tunnel under the bark that frequently kills the tree. They also attack crabapple, hawthorn, serviceberry, and related plants that are old and under stress. Imidacloprid should be applied at this time to the trunk and major branches.

**Peachtree borer** is also susceptible to control with basal bark sprays of permethrin (Astro). It commonly attacks newly planted and aged purple leaf plum, flowering cherry, and other trees in the genus *Prunus*.

**Viburnum crown borers** are also susceptible to control with permethrin (Astro) sprayed at the base of the shrub. Several species of clear-winged moth attack viburnums, with *Viburnum opulus compacta* typically being the most severely damaged. Damage is most likely to occur in young plants that have recently been planted. (Phil Nixon and The Morton Arboretum)

### Euonymus Scale

With beautybush (*Kolkwitzia amabilis*) blooming throughout portions of Illinois, it is time to be cognizant of euonymus scale (*Unaspis euonymi*) crawlers moving around on plant parts looking for a place to settle down and initiate the feeding process. The primary hosts in Illinois are evergreen euonymus (*Euonymus japonica*) and Japanese pachysandra (*Pachysandra terminalis*).

Euonymus scale crawlers resemble small yellow spots that move around on stems and leaves. Plants that are experiencing “stress” are more susceptible to attack than plants that are receiving sufficient quantities of water and fertilizer. Why is this so? The main reason is that plants can naturally defend themselves when supplied with the appropriate amount of water and nutrients.

Euonymus scale overwinters as a mated female, primarily on plant stems. Eggs develop and mature underneath the scale, and then hatch over a 2- to 3-week period. The newly hatched crawlers migrate along the stem and initiate feeding near the base of host plants. Crawlers can also infect adjacent plants by being blown around on air currents, which results in infestations often not being detected until popula-

tions are high and damage is noticeable. Leaves eventually are spotted with yellow or white areas. Plants located near structures, such as along foundations or walls, tend to be more susceptible than plants growing in open areas that receive sufficient air movement. Additionally, the variegated forms of euonymus are more susceptible than the green forms.

Heavy infestations of euonymus scale can ruin the aesthetic appearance of plants, causing complete defoliation or even plant death. Females are dark brown, flattened, and shaped similar to an oystershell. Males, however, are elongated, ridged, and white in color. Males tend to be located on leaves, whereas the females reside on stems and along leaf veins. In Illinois, there are two generations per year.

Cultural practices, such as pruning out heavily infested branches—without ruining the aesthetic quality of the plant—are an extremely effective means of quickly reducing scale populations. Be sure to discard pruned branches away from the area as soon as possible. If feasible, avoid planting *Euonymus japonica* in landscapes, as this species is highly susceptible to euonymus scale. Winged euonymus (*Euonymus alata*) is less susceptible to euonymus scale, even when adjacent plants are infested. Insecticide applications performed in late May through early June, which is when the crawlers are most active, helps minimize major problems with euonymus scale later in the season. Insecticides recommended for control of euonymus scale, primarily the crawlers, include acephate (Orthene), bifenthrin (Talstar), cyfluthrin (Tempo), insecticidal soap, and horticultural or summer oil. It is important to check plants regularly for the presence of crawlers, which will help in timing insecticide applications. Three to four applications made at 7- to

10-day intervals may be needed, depending on the infestation. Remember that euonymus scale is a hard or armored scale, so soil or drench applications of imidacloprid (Merit) are not effective.

Euonymus scale is extremely susceptible to a variety of natural enemies, including parasitoids and predators. These include braconid and ichneumonid wasps, ladybird beetles, green lacewings, and minute pirate bugs. However, in some instances, natural enemies may fail to provide enough mortality to significantly impact high populations of euonymus scale. Additionally, insecticides such as acephate (Orthene), bifenthrin (Talstar), and cyfluthrin (Tempo) are extremely harmful to natural enemies, so applications of these materials disrupt any natural control. (Raymond A. Cloyd)

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