



COOPERATIVE EXTENSION SERVICE

HOME, YARD & GARDEN PEST

College of Agricultural, Consumer and Environmental Sciences, University of Illinois at Urbana - Champaign
Illinois Natural History Survey, Champaign

NEWSLETTER

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PLANT DISEASE _____

Powdery Mildew Thrives

Walk around your garden, neighborhood, or landscape and you are likely to see powdery mildew diseases, which are caused by a fungal pathogen that thrives during conditions of warm to hot days with cool nights, and when dews form on leaves. The fungus grows superficially on the surface of the host, using special structures that penetrate into the host tissue. Most of the fungus appears on the surface as a grayish mildew.

Powdery mildew diseases affect woody and herbaceous ornamentals as well as vegetable, cereal, and fruit crops. Clinic samples with powdery mildew include rose, crabapple, lilac, dogwood, zinnia, and sycamore, but many other hosts are possible. These fungal diseases are easy to identify because of the characteristic white to light grayish powdery growth, primarily on leaves. Also look for stunting, curling of leaves, chlorosis, premature leaf drop, and deformation of flower buds. Apples and crabapples are commonly infected, but scab or some other accompanying disease often gets blamed for the stunting, chlorosis, and leaf curling. Even the easy-to-diagnose white powdery growth can be masked on plant species with heavy pubescence.

Disease will be most severe on crowded plants, in a shaded location, or where air circulation is poor. Unlike most fungal diseases, powdery mildew is not as destructive when rains are frequent. High relative humidity (but not rain) is needed for spores to germinate, and mildew develops rapidly in extended periods of warm, dry weather when morning dews are heavy. Ideal disease conditions are 90 to 99 percent relative humidity at temperatures of 66°F to 72°F.

When planning next year's garden, look in seed catalogs and garden centers for cultivars resistant to mildew. Pruning out diseased wood (especially on rose and crabapple) during the normal pruning period will greatly reduce overwintering inoculum. Try to

prune plants to allow better air circulation within the plant as well as within the planting. Never handle the infected plants when they are wet. As usual, plants should be maintained in high vigor to withstand disease attack.

Fungicides are available to control the mildews, and if sprays are begun at the first sign of mildew, control can be attained. Often, however, damage is only aesthetic and the actual vitality of the plant is not affected. If you decide to use a fungicide, use one of the products recommended under the appropriate host in the *Illinois Commercial Landscape and Turfgrass Pest Management Handbook, 1998–1999*. Further information on powdery mildews is available in *Report on Plant Diseases* Nos. 611 and 617. (Nancy Pataky)

Tuliptree Leaf Discoloration

Tuliptrees will sometimes develop a black spotting or speckling between the veins of the leaves. These spots vary from pinpoint- to pinhead-sized. The rest of the leaf tissue eventually turns yellow and then brown, with early defoliation the final stage. In cases we have seen, the spotting does not occur on all leaves, and only the spotted leaves drop from the tree. We usually receive several samples with this problem each year at the Plant Clinic.

What is the cause of this spotting? Like any curious diagnostician, I have tried the usual methods to find a pathogen. This includes incubating the tissue for fungal pathogens, observing leaf cross-sections with a compound microscope to look for bacterial exudate, and culturing spots on various laboratory media. The symptomatic tissue has never yielded a pathogen.

The book *Diseases of Trees and Shrubs* (by Sinclair, Lyon, and Johnson) briefly describes this condition and includes a photograph as well. The authors attribute the spotting to environmental stress, especially in the hot, dry weather of late summer. We agree with that diagnosis, even though we have seen it already this summer in very wet areas. Apparently the same injury can occur when roots are injured from too

much water (lack of soil oxygen). The common factor appears to be root stress. We have not seen a tree die from this condition; instead, the early leaf drop appears to serve as a type of self-pruning. (*Nancy Pataky*)

Aster Yellows

This disease can occur at any time during the growing season but stands out now, in the middle of summer. Infected plants characteristically have green flowers with leafy petals. Plants are stunted, stiff, erect, and bushy. In Illinois this disease occurs most commonly on chrysanthemum, aster, daisy, marigold, and petunia, but it can occur on many other species as well. The plants look like they have been infected by a virus; for many years that was thought to be the case.

Aster yellows is a disease caused by a phytoplasma. Phytoplasmas (formerly known as mycoplasmas) are pathogens similar to the more familiar fungi, bacteria, and viruses. This group is intermediate between a bacterium and a viral pathogen. Important facts to remember about phytoplasmas are that they are transmitted by sucking insects (in this case, leafhoppers) and they cannot be cultured in a laboratory.

Because the pathogen can be transmitted by leafhoppers, control measures include destroying all affected plants when they are first seen, eliminating broadleaf weeds, and, of course, buying symptom-free plants. Spraying regularly to keep leafhoppers from feeding may be beneficial in a commercial setting. Refer to the article on flower hoppers in issue No. 11 of this newsletter for more on control of the insect vector.

We do not see many aster yellows samples in the lab. Part of the reason is that these plants are rogued before they reach the retail outlets. Symptoms are easy to identify by comparing suspect plants to disease identification photos. The pathogen cannot be cultured in the lab, so sending a sample to the Plant Clinic is not necessary. For a detailed description of these diseases, consult *Report on Plant Diseases* No. 903, Aster Yellows. (*Nancy Pataky*)

Disease Briefs

The primary infection cycle for **crabapple scab** is the initial wave of spores that overwinter and infect new, succulent growth in the spring. This primary infection time is usually targeted for disease control with applications of commercial fungicides. This year the

continual spread of the fungus from leaf to leaf on the same tree (secondary cycle) lasted longer than usual because of cool, wet conditions. Now we are seeing extensive defoliation from scab. This is nothing new, but it certainly is a reason to replace old, susceptible varieties with newer resistant varieties. Seek out varieties with resistance to scab, rust, and mildew.

Hawthorns have been heavily infected with **cedar-quince rust**. This rust causes fruit infection, but not leaf spots, on hawthorn. Hawthorns with leaf rust are most likely infected with **cedar-hawthorn rust**.

Sycamores were hit very hard by **sycamore anthracnose** fungi this year. Although it appeared for a while that the trees would not recover, most of those with severe cases that I have been watching seem to have recovered—they have many large, healthy leaves. A few, however, still look quite thin and it appears that they will lose some branches this year.

Sphaeropsis blight of pine can be seen readily in Illinois. The extensive wet weather has created an ideal environment for the fungus. Pines that receive plenty of moisture are less likely to be infected than drought-stressed pines. Despite the more-than-adequate rains, at least in the midsection of the state, 1998 has produced a bumper crop of *Sphaeropsis* blight. (*Nancy Pataky*)

INSECTS

Asian Longhorned Beetle

Asian longhorned beetle, *Anoplophora glabripennis*, has been discovered in a small area of Chicago, in a six-square-block region in the Ravenswood area. This insect is native to China, Korea, and Japan. The latitude of its distribution in the Far East corresponds in North America as running from Cancun, Mexico, to Milwaukee, Wisconsin. The only other place it has been found on North American trees is in Amityville and Brooklyn, New York, both on Long Island, where it was found in August 1996.

Asian longhorned beetle tunnels not only into dead and dying trees but also attacks apparently healthy trees. It prefers maple, poplar, and willow but will attack horsechestnut, mulberry, plum, pear, black locust, elm, Chinaberry, citrus, birch, and rose of Sharon. Among the maples, Norway, sugar, silver, and sycamore are the most common hosts.

Adult Asian longhorned beetles are shiny black and approximately one inch long with about 40 irregular-sized and -shaped white dots on the wing covers.

They have black-and-white-banded antennae that are at least as long as the body. Adults are present from August through October in China, peaking in July. They have been reported as early as mid-May by New York residents.

Adult beetles feed on the bark of twigs and small branches after emerging. They may migrate as much as 6/10 of a mile in search of host trees. Females chew 3/8-inch diameter pits through the bark and then lay an egg in each pit. Individual adults live for several weeks, with each female laying 25 to 32 eggs.

The hatching larvae tunnel just under the bark in the cambium. Older larvae tunnel deep into the tree at an upwards angle; larval tunnels are four to six inches long. Larvae push frass consisting of wood fibers and feces out of the tunnels. The larvae spend the winter deep in the tree, tunneling and feeding again in the spring before pupating in late spring or summer in the larval tunnel. Adults emerge from the tree through 1/4- to 1/2-inch round holes. Most life cycles last one year, although some last for two years.

Damage consists mainly of weakened branches that break off during heavy winds. Attack for several years could cause the death of branches, limbs, or entire trees. Although many insect borers and the yellow-bellied sapsucker make 1/4-inch diameter holes in trees, emergence holes approaching 1/2 inch are uncommon. Cottonwood borer makes this size of hole in cottonwood and other poplars, but that pest is uncommon in Illinois. Carpenter bees make holes this big but normally attack lumber or the cut end of logs. The shallow egg-laying holes made by Asian longhorned beetle females are similar to those made by woodpeckers searching for insect larvae in or under the bark. However, these beetles make round holes that are similar in diameter, whereas woodpeckers tend to make jagged holes of various sizes.

Control is difficult due to the extended adult emergence period. Insecticide treatment would require several applications, which is not practical and may not be very effective. This beetle is eliminated by cutting down all infested trees and chipping or burning them. Areas where the beetle is found are placed under quarantine to prohibit movement of host species firewood, logs, green lumber, stumps, roots, branches, and debris of 1/2 inch or more in thickness out of the area.

Beetles or wood with suspected beetle damage should be submitted to the Plant Clinic, 1401 St. Mary's Road, Urbana, IL 61802 or to your local Extension office for forwarding to the Plant Clinic for positive identification. (*Phil Nixon*)

Scouting Report

Mimosa webworm second generation is present in central Illinois, although damage is not yet heavy. Insecticide application now should prevent heavier damage later. Treatment should be made anywhere in the state where the damage is present.

Fall webworm is present throughout the state. This is the only generation in the northern half of Illinois and the second generation in the southern half of the state. Because the larvae stay within their silk tents throughout the day and night, you can eliminate the infestation by pruning off the silk tents. If you use insecticides, direct the spray at the silk tents using high pressure to penetrate the tents and reach the caterpillars inside.

True white grubs have caused heavy damage in northeastern Illinois. Much of the damage has been caused by raccoons stripping back the sod to feed on the grubs. Raccoon, skunk, and bird damage may result from as few as three to five grubs per square foot. Ten to twelve grubs per square foot are likely to eat enough roots to cause turf damage directly. Grub treatment decisions need to be made based not only on the likelihood of root damage but also on the likelihood of mammal or bird damage. If mammal or bird damage is occurring, a short-acting insecticide such as trichlorfon (Dylox) or bendiocarb (Turcam) will provide immediate results.

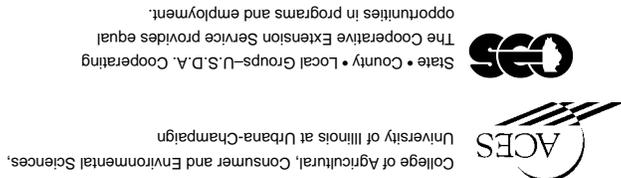
Dog-day or annual cicadas have emerged throughout Illinois. Residents in the southern half of the state still may be nervous from the periodical cicada emergence this spring. The cicadas present now are the larger, greenish ones, which are less numerous and rarely cause noticeable damage. Treatment is not normally recommended.

Katydids are also present in trees. The males of these insects are singers, with some species having a tendency to sit at the top of trees and sing from about 10 p.m. until 2 a.m. or later, which can be a real annoyance to people trying to sleep in second-floor bedrooms with the windows open. For others, like myself, the sound tends to lull them to sleep. These insects are green with long hind legs for jumping. They have long antennae and are two to three inches long as adults. One species has wide, leaflike wings, but others have long, narrow wings. These insects do not cause any important damage, although I've heard of entire trees being sprayed to kill the one katydid that was causing insomnia. (*Phil Nixon; Bruce Spangenberg, Extension Educator*)

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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