



No. 3 • May 7, 2003

PLANT DISEASES

Fire Blight Report

A recent caller from southern Illinois reports that fire blight is again present on ornamental pears. Other susceptible hosts include apple, crabapple, edible pear, cotoneaster, hawthorn, firethorn, and mountain-ash. Resistant varieties are available; in fact, many people have purchased cultivars of Callery Pear over the past decade, believing they were getting plants resistant to fire blight. Resistance is a relative term, as was discussed in issue no. 2. Many of the Callery cultivars marketed as resistant have been showing some infection. In some cases, severe infection has occurred. Possibly the cultivars were not tested in a wide geographic area under high disease pressure; possibly the bacterium has changed. The fact is that some Callery Pears “resistant” to fire blight may become infected. Be able to distinguish this disease from frost or other environmental stress. Details are in *Report on Plant Disease*, no. 801, available in U of I Extension offices or on the Web at Extension’s VISTA site.

This disease occurs in warm, wet weather. Symptoms rapidly progress. Look for water-soaked or wilted new growth that quickly turns brown to black and remains attached to the stem. Stem tips often curl over in a characteristic “shepherd’s crook.” Dark cankers develop in the wood as the bacterium moves down the shoots or flowers.

Flowers are the primary site of infection; and warm, wet weather is required. The causal bacterium may spread by wind, water, equipment, and animals. As long as warm, wet conditions continue during bloom, the bacterium can continue to infect. It is also known to cause infection directly through wounds made during a hail storm.

If fire blight has been a problem in past years, there are some chemicals that may be used as protectants, meaning they must be applied before infection to be effective. Are chemicals useful once symptoms have appeared? If the plant is still in bloom, sprays slow further spread; if the plant is done blooming, chemicals are of little benefit. However, as the pathogen can infect hail wounds, sprays within 24 hours of a hail storm help prevent infection by the fire blight organ-

ism. Chemical options are listed in the *2003 Commercial Landscape & Turfgrass Pest Management Handbook* and the *Home, Yard, & Garden Pest Guide*.

It is important to remove infected wood to prevent spread of this bacterium. Pruning must be done in dry weather and cuts made 8 to 10 inches below the last sign of disease. Recent research reports that disinfecting tools between cuts might not be required if pruning is done in dry weather. Over-fertilization should be avoided. The most important action to help prevent fire blight is to prune trees so as to improve air movement through the tree, allowing rapid drying of tissue, making infection less likely. (*Nancy Pataky*)

Rhizosphaera Needle Cast

Over the past 20 years, this spruce needle disease has become more common in Illinois. This statement is not based on a scientific survey but on personal observation and an increase in spruce samples positive for *Rhizosphaera* at the Plant Clinic. This needle cast causes a discoloration of the second-year and older needles, often resulting in defoliation of all but the newest needles. The pattern on the tree is usually scattered hot spots, sometimes more uniform damage.

The disease is *Rhizosphaera* needle cast; and the cause is a fungus, *Rhizosphaera kalkhoffii*. Blue spruce is most often infected, while Norway spruces are resistant. Infection is favored by wet weather, but symptoms do not often show for 12 to 18 months after initial infection.

Rhizosphaera needle cast may cause severe defoliation of spruce, a species that does not re-foliate readily. A few years of infection may cause a very unsightly and weakened spruce. Fungicides are often recommended for control, but such fungicides are preventives, meaning that you apply the fungicide before new infection occurs in a given year. The usual series of events is the positive identification of *Rhizosphaera* in year 1, followed by use of a fungicide in the spring of year 2. It may be necessary to use cultural controls as well as fungicide spray for several successive springs until the disease is under control.

This article is printed now to remind people that this is the time to spray for *Rhizosphaera* control. Two sprays are recommended for control of this fungus—one when the bud cap has fallen off and another about 2 or 3 weeks later. Chemical options for commercial

growers include Camelot, Chlorostar, Daconil, Echo, Kocide, Manicure, PathGuard, Protect T/O, Spectro, Thalonil, and TwoSome. Home growers can choose from Bonide Fungonil, Dragon Daconil, and Ortho Daconil. Tables at the end of disease chapters in the pest management handbooks list the active ingredient and mobility of chemicals mentioned. Company names are also listed. Pick a product that works best for you, but read and follow label directions carefully.

There are many other noninfectious problems that can mimic this disease. A few possibilities include an imbalance in soil pH, poor fertility, fertilizer or chemical burn, root injury, root rot, drought stress, and spider mite infestations. To confirm the presence of the pathogen, look for fruiting bodies (pycnidia) on the discolored needles. It might be necessary to place some affected needles in a moisture chamber (plastic bag with moist toweling) overnight to encourage growth of fruiting bodies. Look for pinhead-sized, black structures poking out of the needle through stomates. A hand lens is usually required to observe these structures, which occur in rows. They do not easily rub off because they are embedded in the tissue. The Plant Clinic is available to help diagnose spruce problems (see issue no. 1).

Many diseases, including this one, occur more readily on plants under stress. Do not stop looking for causes of poor growth just because you find *Rhizosphaera*. It is possible that site or environmental stress is the true problem and *Rhizosphaera* has followed. Investigate soil type, drainage, injuries to the trunk, compaction possibilities, root injury, etc., so stress factors can be identified and alleviated. Remove dead wood and prune surrounding plant material to allow better air movement in the area. Water trees in periods of extended drought. (Nancy Pataky)

Sphaeropsis Cleanup

Sphaeropsis blight of pine is the disease that some may remember as Diplodia tip blight. The disease has become severe on pines in Illinois. It is the most common disease cause of tip and branch death on pines in the state. This is a disease nurserymen and gardeners alike should recognize. New needles that are emerging now are very susceptible to infection.

Sphaeropsis blight is common on Scotch, Austrian, and mugho pines in Illinois. It is rare on white pine. Infected trees may show branch tip dieback, with needles remaining attached throughout the season. Limbs of affected trees may have damaging, sap-oozing cankers. Often the branch dies beyond the canker, resulting in an unpleasant-looking tree. Severely infected trees may be confused with those killed by pine wilt.

Management of this disease is difficult. Some of the most intense infection takes place in the spring as new growth emerges (*now*). This tender growth is very susceptible to infection, especially in wet weather, until about mid-June. We know that it helps to remove dead wood and needles, to reduce the amount of the fungus in the area. This should be done when the tissue is dry so you don't increase disease spread. We also know it helps to get rid of cones. On an infected tree, the cones are usually full of fruiting bodies of the fungus. The final point of which we are certain is that drought-stressed trees are more susceptible to canker infection. Therefore, we recommend watering infected trees in extended periods of drought. Drought was common this winter in Illinois. Many areas still have not received much rainfall. Supply an inch or more water per week to pines in the drought-stressed areas. Prune out dead branch tips and cankered wood in the next dry period. Remove this material from the site.

There are chemical options available to control this disease. The recommendation is to try to use a systemic product and to apply it three times, following label directions. Usually this timing is as buds begin to expand, just before new needles emerge from the sheath, and 10 to 14 days later. Recent research on this disease has shown that even foliage with no symptoms is often already infected; that research questions the use of chemicals intended to prevent infection. It is still recommended that you follow the cultural controls discussed above. The use of chemicals may still be of benefit but should be used only in addition to cultural controls: Do not rely on chemical control alone. Choose a systemic product from those listed in the Illinois pest management handbooks and follow label directions precisely.

For details about this disease, consult *Report on Plant Disease*, no. 625, "Sphaeropsis Blight or Diplodia Tip Blight of Pines." This publication is available in Extension offices or on the U of I Extension Vista Web site. (Nancy Pataky)

Updates

Anthracnose will be visible on several tree species soon. The fungus infects as buds open and requires warm, wet conditions for infection. Succulent new plant growth is most susceptible. Older leaves and drier conditions later in the season usually retard repeating cycles of infection. Anthracnose causes water-soaked spots; young lesions from dark green to brown; and possibly some stem cankers on ash, oak, maple, and sycamore. Other trees are susceptible to varying degrees, but the trees listed are those on which we traditionally see anthracnose in Illinois.

Dogwood anthracnose is much more severe but occurs later in the season.

Rust galls of cedar-apple rust are now fully swollen and full of spores in central Illinois. Spores are most likely moving from cedars to their alternate hosts as this article goes to press. Keep this in mind if you are fighting cedar-apple, cedar-hawthorn, or cedar-quince rusts.

It is very tempting to prune out any dead wood in trees and shrubs as it appears. In most cases, I would agree with that practice as long as conditions are dry. Pruning in wet weather allows pathogens to survive and move on equipment. In addition, wetness allows the pathogen to remain alive or possibly germinate on the cut surface to which it has been inoculated. There is one other exception to the rule. In areas where **oak wilt** is present, *do not* prune oaks in the spring or early summer. Sap on fresh cuts attracts beetles that may be carrying the oak wilt fungus to your tree. Oaks should be pruned in late summer or the dormant season. (*Nancy Pataky*)

INSECTS

Oystershell Scale

Blooming of Vanhoutte spirea (*Spiraea x vanhouttei*) means that oystershell scale, *Lepidoasaphes ulmi*, eggs are hatching throughout portions of Illinois. At this stage, the young crawlers are susceptible to insecticide applications. As scales mature, they are more difficult to control because they form a protective covering. Oystershell scale has a wide host range, including ash, birch, dogwood, elm, hemlock, maple, poplar, privet, walnut, and willow. There are two races of oystershell scale, the brown and gray banded. The two races differ, based on their plant preferences.

Oystershell scale is small, about 2 to 3 millimeters long, gray or brown, and shaped like oyster shells (hence the name). The scale overwinters as eggs beneath the female covering. The eggs hatch into young, creamy white to brown crawlers that are active from May to June. The crawlers locate a place to settle and then use their piercing-sucking mouthparts to remove plant fluids, which causes leaf yellowing, plant stunting, and possibly death. Branches or twigs encrusted with oystershell scale may die. In certain cases, the scale may not kill a tree but stress it enough to increase susceptibility to wood-boring insects.

Proper implementation of cultural practices such as watering, fertilizing, and mulching reduces stress and thus allows plants to tolerate low to moderate infestations. However, when scale populations are high, then insecticides are generally required to prevent damage. Insecticides recommended for managing this scale include acephate (Orthene), carbaryl (Sevin), mala-

thion, insecticidal soap, and horticultural (summer) oil. These insecticides should be applied when the crawlers are most active. Visually inspect branches for scale crawlers or use double-sided sticky tape wrapped around selected branches or twigs infested with scales. When the crawlers emerge and move around, they get stuck on the tape. Examining it regularly helps to determine when the scales are in the stage most susceptible to spray applications. Repeat applications may be needed 10 to 12 days later.

The brown-race crawlers of oystershell scale on dogwood and lilac are generally the first to hatch from eggs and are sprayed when Vanhoutte spirea is in full to late bloom. The gray-banded-race crawlers on ash, lilac, and maple hatch from eggs later and are sprayed when Vanhoutte spirea has completed blooming.

Oystershell scale is susceptible to natural enemies such as parasitoids and predators. However, natural enemies generally appear too late to prevent injury. In addition, natural enemies are usually present only when scale populations are high. (*Raymond A. Cloyd*)

Black Cutworm

Be watchful for black cutworm activity on golf greens and other fine turf areas. Based on moth trapping by corn growers and other agriculturists, large numbers of black cutworm moths are migrating from the South into the state. Heavy numbers are being found in southern Illinois, with pockets of high numbers in central Illinois. Much lower numbers have already arrived in northern Illinois.

Black cutworm feeds heavily on bentgrass, tall fescue, and perennial ryegrass, being unable to develop well on Kentucky bluegrass. As a result of host preference and height-of-cut, black cutworms are usually not a problem in home lawns, parks, and similar turf areas. On golf greens, larvae live in the greens or crawl onto them at night, eating the grass blades off in a circular area 1-1/2 to 3 inches across. These areas look similar to ball marks and are not noticed as insect damage by golfers. Insectivorous birds such as starlings, cowbirds, and robins search out the caterpillars during the day. In pulling them from the ground, the birds tear out small divots of soil that are unsightly and cause putts to stray off target. Similar damage occurs on bentgrass fairways but is less noticeable due to the higher height-of-cut.

Watch for insectivorous birds feeding on greens and then confirm cutworm presence with a disclosing solution: a mixture of a teaspoon of 5% pyrethrum or a tablespoon of dishwashing detergent per one gallon of water. This mixture is spread evenly over a square foot of turf. Within 30 to 60 seconds, any caterpillars come out onto the turf surface. Black cutworm larvae

are heavy bodied and darkish, with indistinct stripes. Mature larvae are 2 inches long.

Various insecticides are effective controls, including bifenthrin (Talstar), carbaryl (Sevin), deltamethrin (DeltaGard), halofenozide (Mach 2), spinosad (Conserve), and trichlorfon (Dylox), as well as insecticidal nematodes. Black cutworm has multiple generations per year from this time of year into late fall, requiring frequent scouting. (*Phil Nixon*)

Corn Flea Beetle

Corn flea beetle adults are numerous this spring over the state. Although this insect is a major pest of corn, particularly transmitting diseases to sweet corn and seed corn, it also feeds on Kentucky bluegrass and can be numerous swarming onto golf course greens.

Flea beetles are black, about 1/8 inch long. They jump and fly when disturbed. Several golf courses in the state are reporting black turfgrass ataenius beetles on their greens. This beetle is black, about 1/4 inch long, and does not jump. Either beetle may appear at this time in clippings baskets of greens mowers. It's important to realize that treatment is normally not needed for corn flea beetles although they can be

treated with the insecticides listed for black cutworm if they are heavy enough to be a nuisance to golfers. Black turfgrass ataenius is treated later with an application to control the grubs. (*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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